

San Pasqual Valley Groundwater Basin Sustainable Groundwater Management Act Advisory Committee Meeting

Basin Definition

Undesirable Results

Sustainable Management Criteria Primer



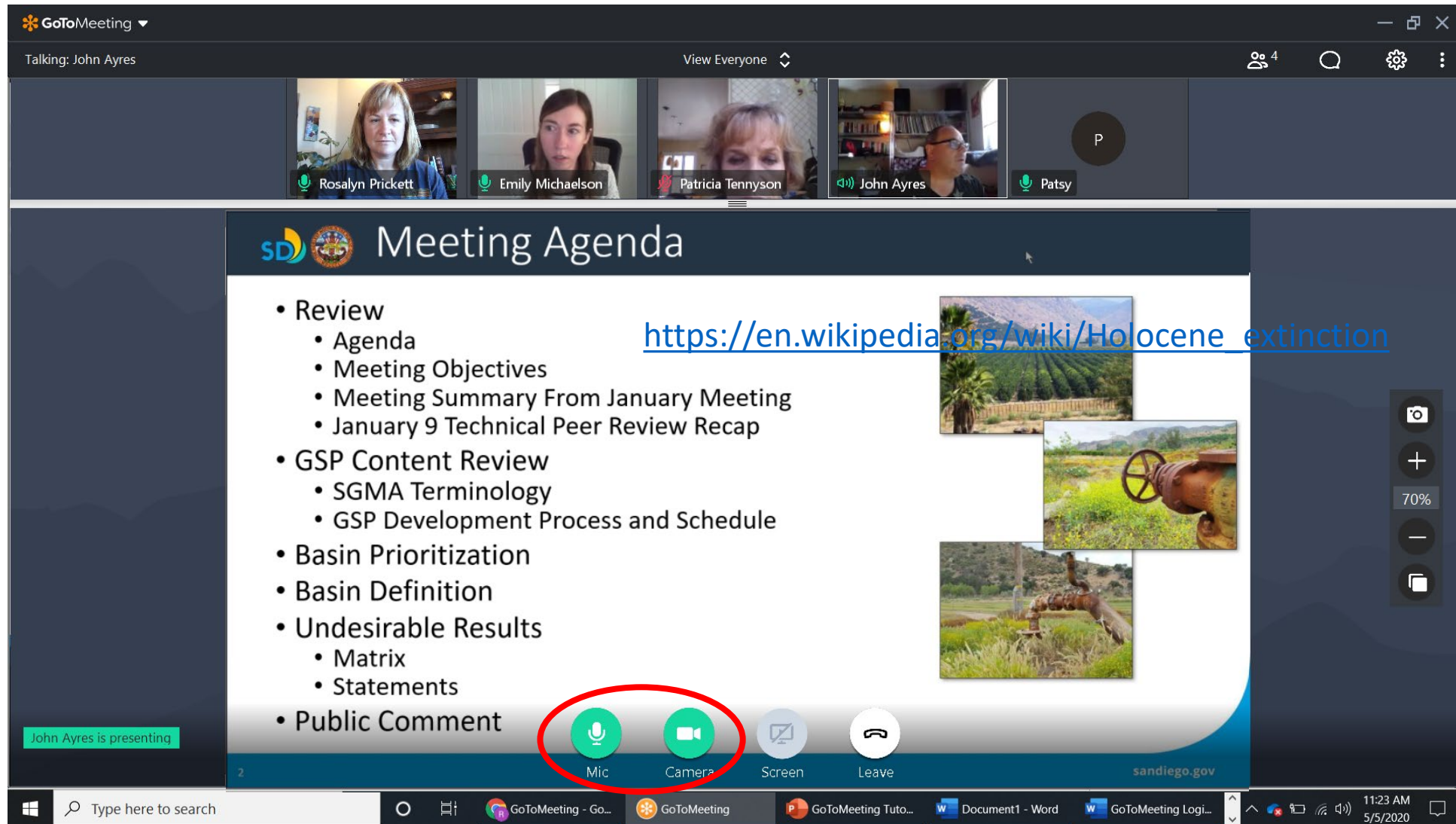
July 9, 2020

Draft Work Product



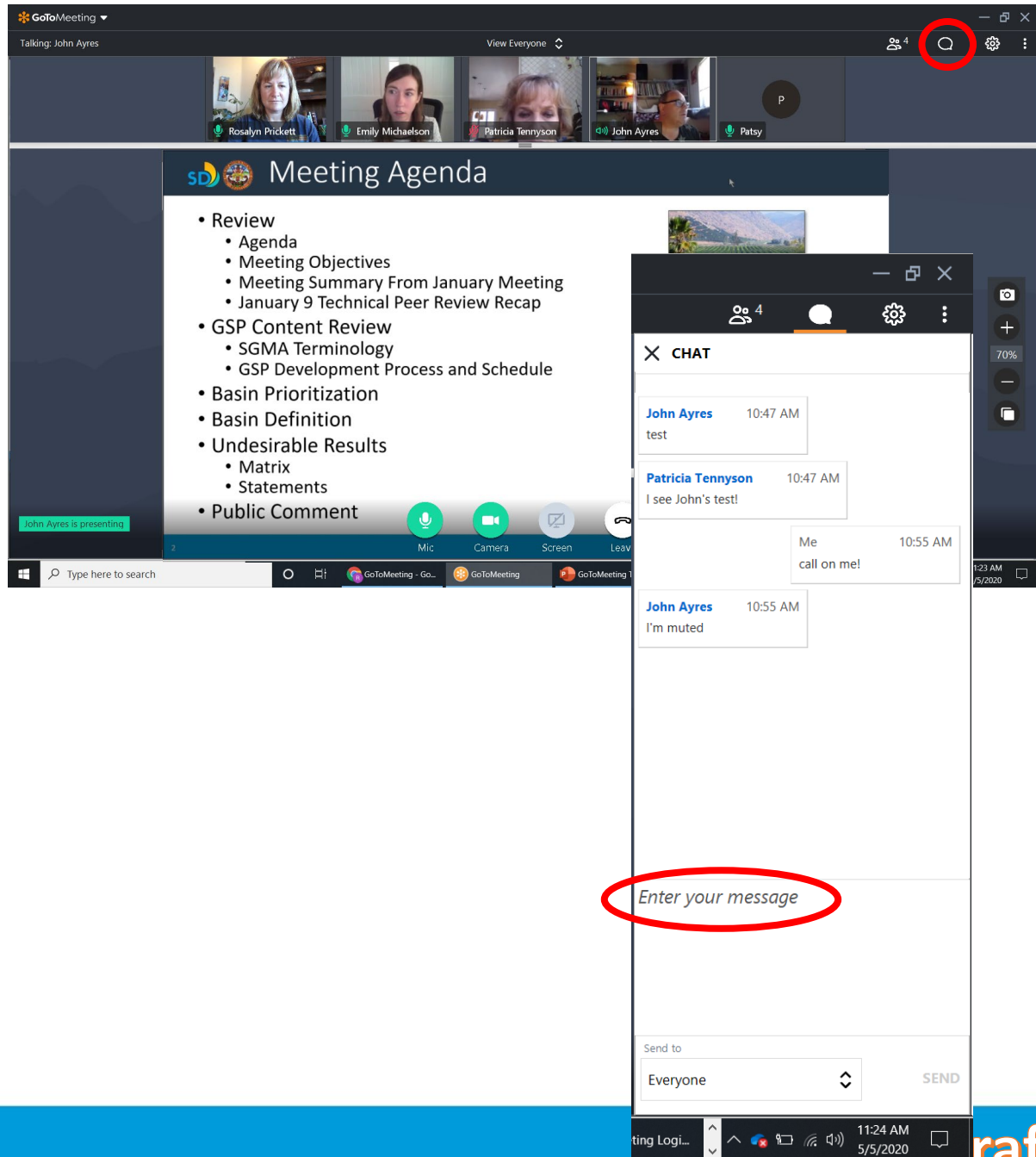
GoToMeeting – Quick How To

- Your screen should look like this:



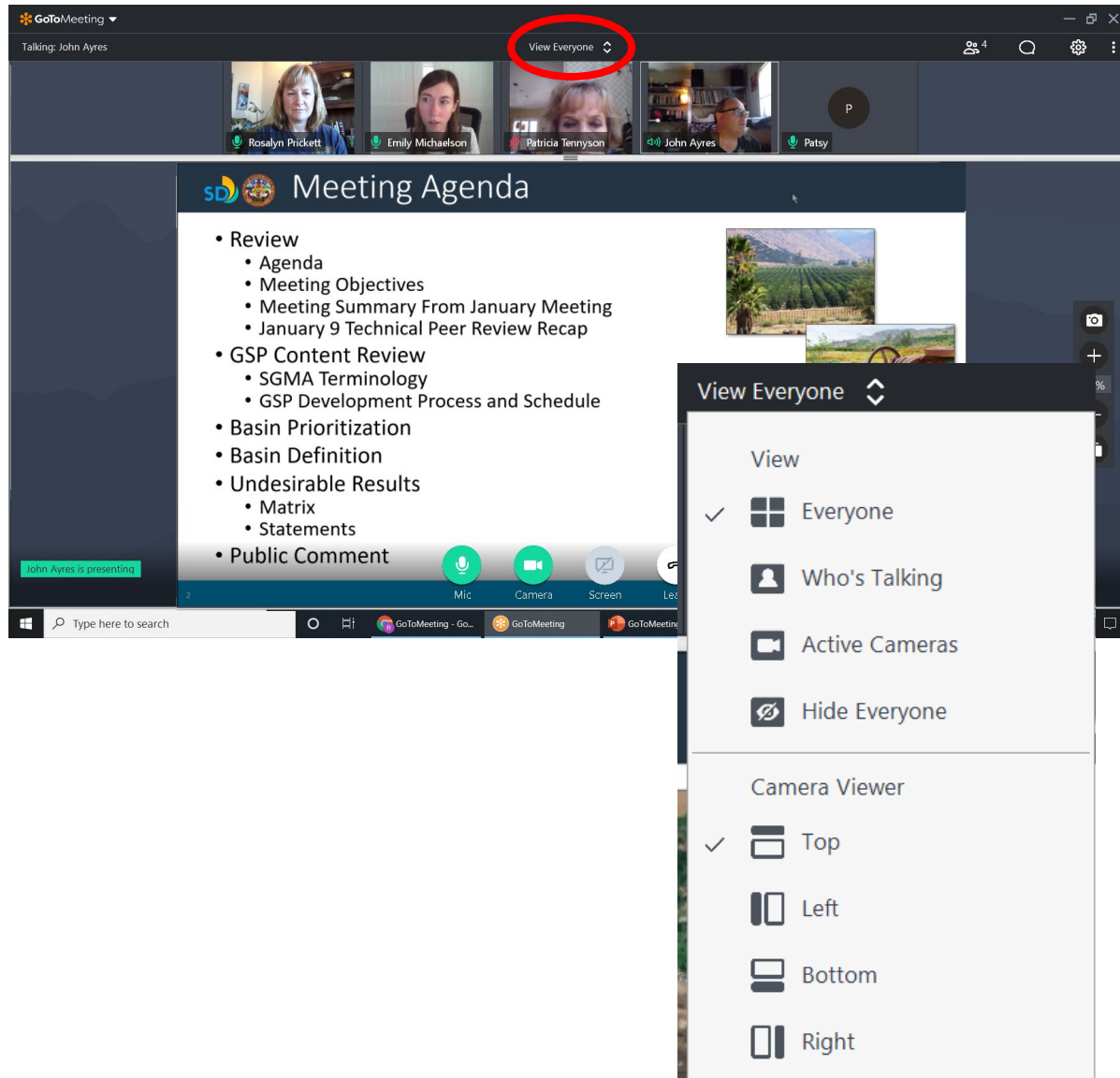
- Turn on/off your Mic (mute) and Camera (video) using the controls along the bottom
- During the meeting, you may need to wiggle your mouse to make the controls appear

GoToMeeting – How to Ask a Question



- Let us know you have a question by clicking the **Chat** icon in the top right
- Click on *Enter your message*, type your message in the Chat and hit SEND
- Once we receive your Chat and can pause to answer your question:
 - Our meeting organizer will unmute you to relay your question or comment
 - Please also check your phone/computer to make sure you're not muted there too
- For folks on the phone only, we will pause, unmute all callers, and ask for your questions or comments

GoToMeeting – How to See Everyone



- To change your display options, select the **View Everyone** icon in the top right
- Select View-Everyone to display all attendees in the meetings
- Select Camera Viewer-Top to display participant images along the top of your screen
- The grey divider can be raised or lowered, which will change the screen size

San Pasqual Valley GSP Advisory Committee Meeting

REVIEW

Draft Work Product



1. Roll Call & Introductions
2. Review
 - Agenda
 - Meeting Objectives
 - Previous Meeting Summary
 - TPR Meeting Recap
3. AC Comments
 - Overview and Responses
4. GSP Content Review
 - GSP Development Process
 - Project Schedule
5. Basin Settings Update
 - Cross Sections
 - Groundwater Dependent Ecosystems
6. Groundwater Model Update
 - Model Domain
 - Land and Water Use
 - Climate Year Analysis and Historical Simulation Period
7. Sustainability Criteria – Levels and Quality
 - Minimum Thresholds
 - Measurable Objectives
 - Stakeholder Input Matrix
 - Additional Input
8. Feld Program Update
9. Public Comments
10. Next Steps & Closing Remarks



- Meeting Objectives
 - Share technical materials
 - Provide updated Basin Settings figures
 - Review Groundwater Model approach
 - Discuss and receive input on Sustainable Management Criteria
 - Provide Field Program Update
- Previous Meeting Summary
 - See Handout 1

- **May 14 TPR Meeting:**

- Undesirable Results Approach
- Water Quality and SGMA
- Groundwater Levels
- Numerical Model Approach
- Land Subsidence
- Bottom of Basin

- **July 9 TPR Meeting:**

- Groundwater Model Update
- Monitoring Networks
- Sustainability Criteria
- Refined Cross Sections
- Field Program Update

San Pasqual Valley GSP Advisory Committee Meeting

Advisory Committee Comments



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AC COMMENT REVIEW



- Land Use, 1/9/2020: Land use map is incorrect for Rancho Guejito (RG) parcel
 - Land use is being discussed today
- Basin Definition, 1/22/2020: Concern about connectivity between bedrock and basin sediments
 - See next slide
- Basin Definition, 1/23/2020: Concern about groundwater being pumped and used outside of the basin
 - Addressed in numerical modeling effort – to be discussed further later today

- Bottom of Basin: Concern was expressed about how decision was made on the basin boundary definition
 - According to SGMA, a basin's boundaries shall be as identified in Bulletin 118. Bulletin 118 indicates that the physical bottom of a basin occurs where the porous valley deposits contact the underlying bedrock. It further states that the water bearing units of the San Pasqual Valley Groundwater Basin are alluvium and residuum. The Core Team recognizes that we do not understand the interaction of the basin with underlying granitic rock. If groundwater conditions require the implementation of management actions, additional data collection, studies, aquifer testing and/or surveying may be recommended to improve understanding of this interaction.

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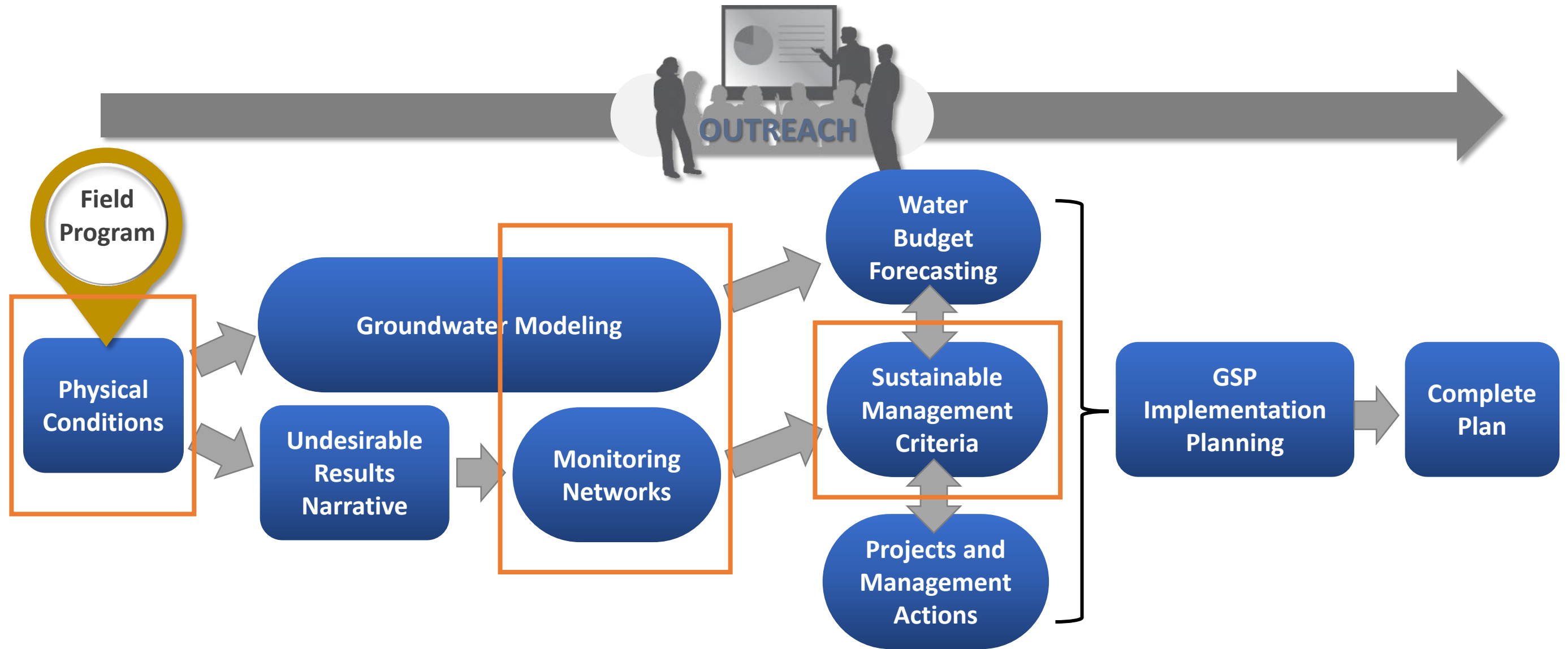
Advisory Committee Comments



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GSP CONTENT REVIEW





Year	Quarter	Advisory Committee Topics	Technical Peer Review Topics	Outreach	Plan Area, HCM, GW Conditions	Model Development and Water Budgets	Monitoring and DMS	Undesirable Results and Sustainable Management Criteria	Projects and Management Actions and Implementation	Field Program
2019	Q4	Introduce the consulting team Initiate data collection efforts Review GSP development process Review communications plan	TPR schedule Data Collection Section 2: Plan Area Section 3: Hydrogeologic Conceptual Model Section 4: Groundwater Conditions							
2020	Q1	Hydrogeologic Conceptual Model Groundwater Conditions Undesirable Results Introduction	Section 2: Plan Area Section 3: Hydrogeologic Conceptual Model Section 4: Groundwater Conditions Section 6: Undesirable results, Groundwater model approach - Model code - Model data							
2020	Q2	Undesirable Results Groundwater Model Overview Sustainable Management Criteria Review Field Program Update	Section 6: Undesirable results, Groundwater model approach - Model code - Model data Groundwater model check in - calibration - Fate and transport Section 7: Monitoring Networks Section 8: Sustainable Management Criteria							
2020	Q3	Groundwater Model Update Sustainable Management Criteria Projects and Management Actions	Groundwater model check in - calibration - Fate and transport Section 5: Water Budgets Section 6: Undesirable results Section 7: Monitoring Networks Section 8: Sustainable Management Criteria Groundwater model check in Section 8: Sustainable							
2020	Q4	Water Budgets Sustainable Management Criteria Projects and Management Actions	Groundwater model check in Section 5: Water Budget - Baselines - Forecasts Section 8: Sustainable Management Criteria Section 9: Projects and Management Actions							

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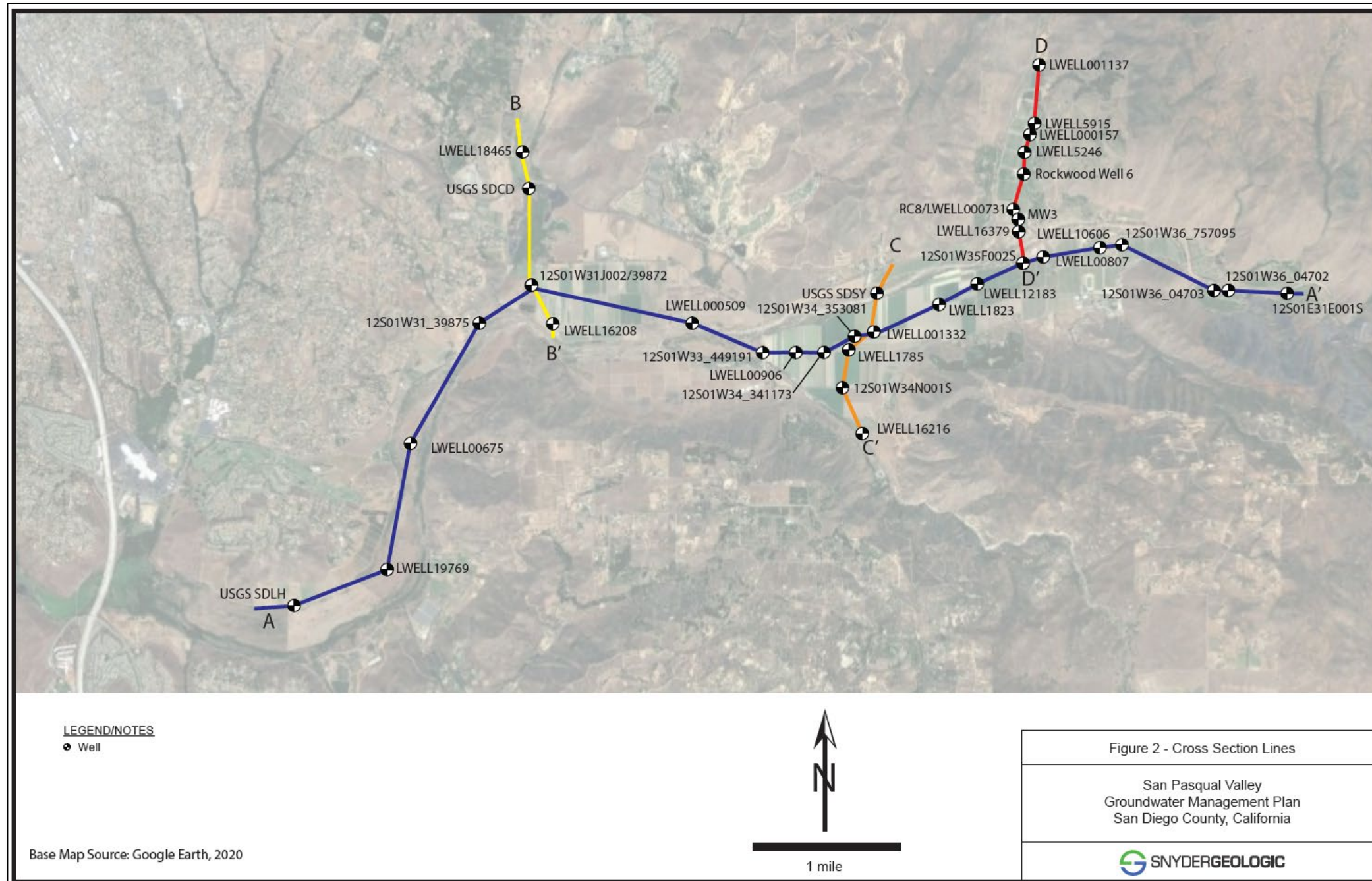
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BASIN SETTINGS UPDATE



- Interprets and estimates subsurface material based on groundwater well records
- Useful for supporting the numerical model
- Reviewed by Technical Peer Review
 - Currently being refined by Consultant Team

- Geologic Cross Sections
- Cross Section Lines
- With Well Completion Reports



Cross Sections

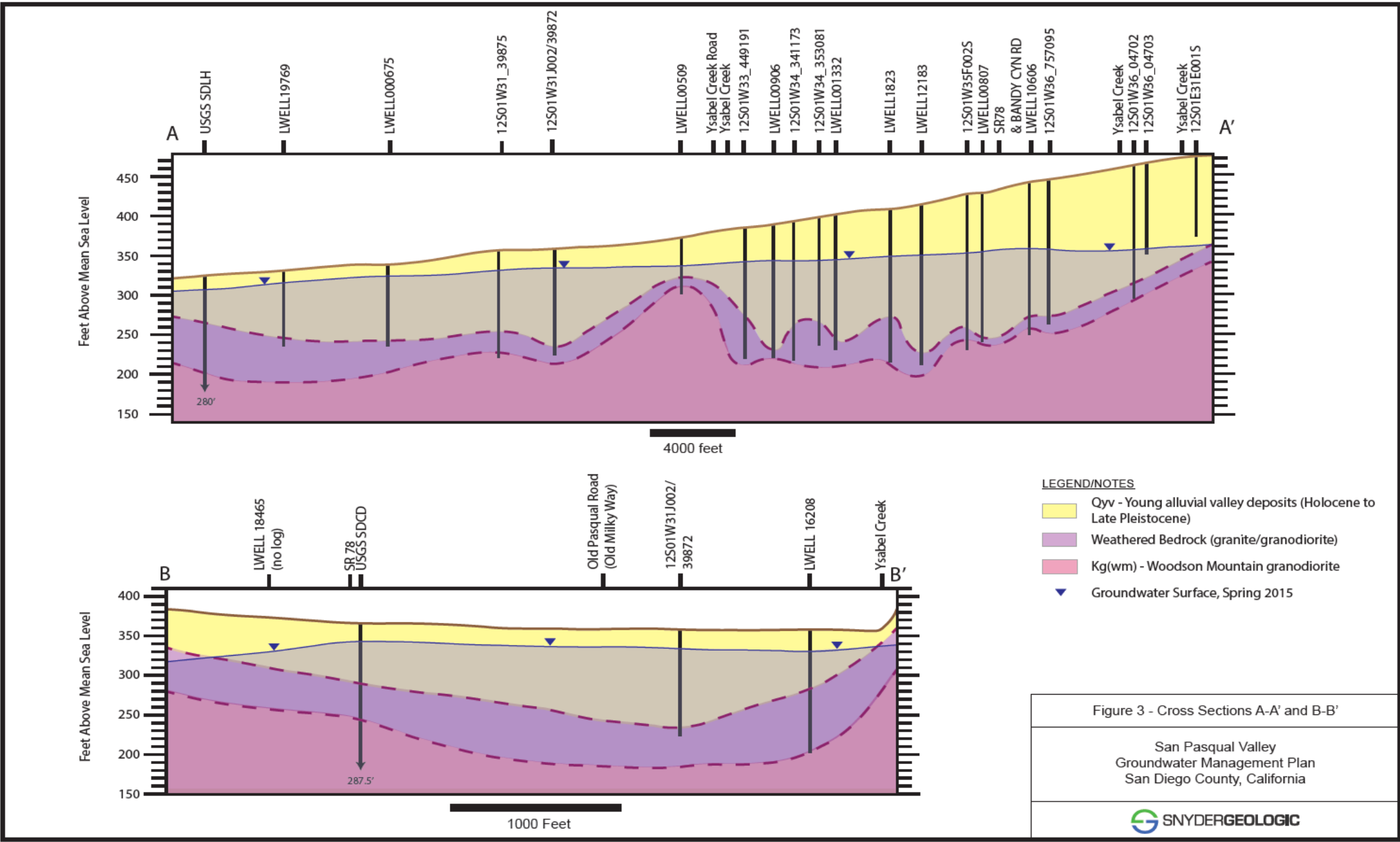
- Cross Sections
- A-A'
- B-B'

Alluvium


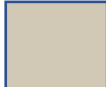


Alluvium (wet)

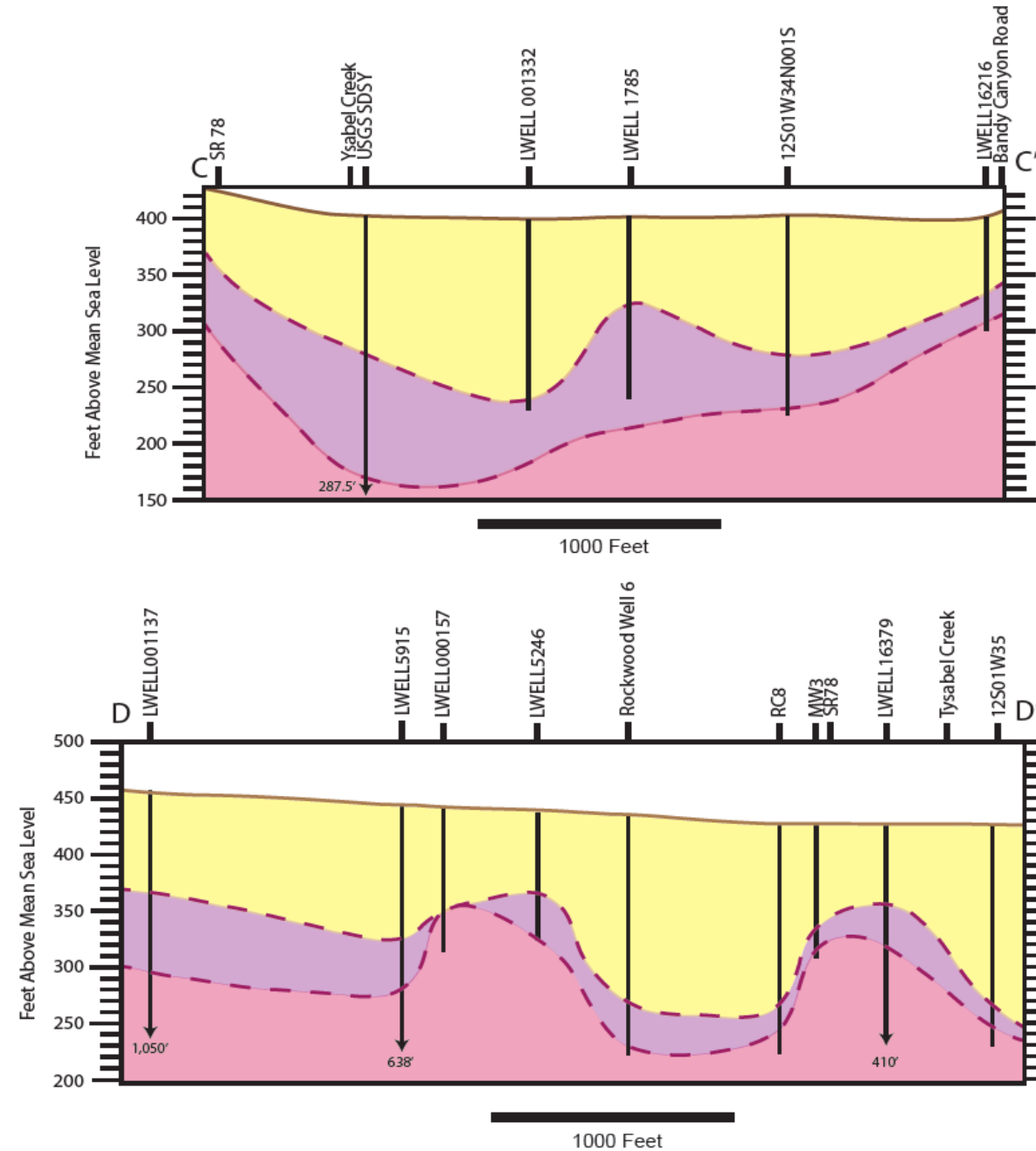
Residuum

Bedrock



- Cross Sections
- C-C'
- D-D'

-  Alluvium
-  Alluvium (wet)
-  Residuum
-  Bedrock



LEGEND/NOTES




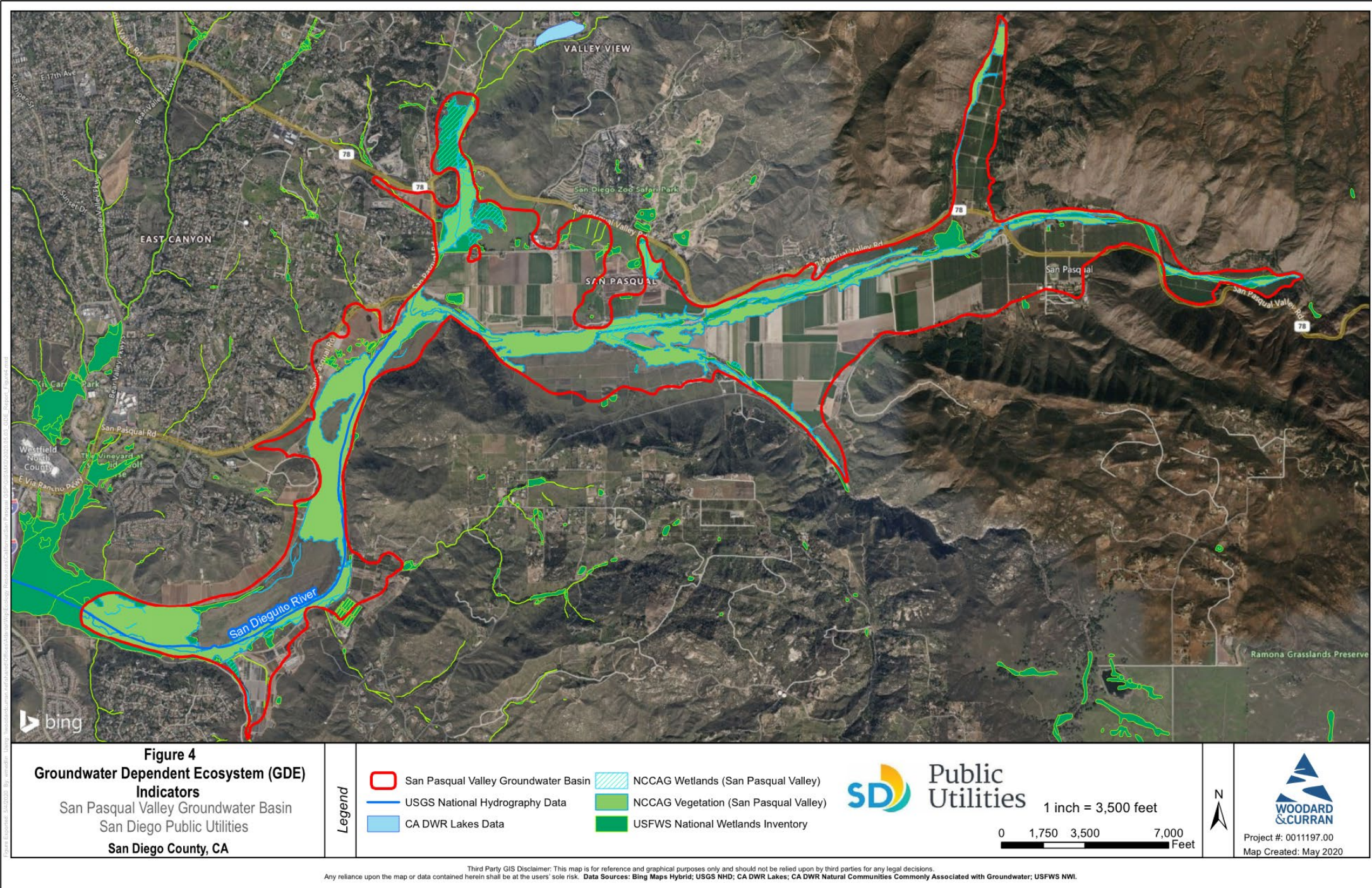
-  Qyv - Young alluvial valley deposits (Holocene to Late Pleistocene)
-  Weathered Bedrock (granite/granodiorite)
-  Kg(wm) - Woodson Mountain granodiorite

Figure 4 - Cross Sections C-C' and D-D'

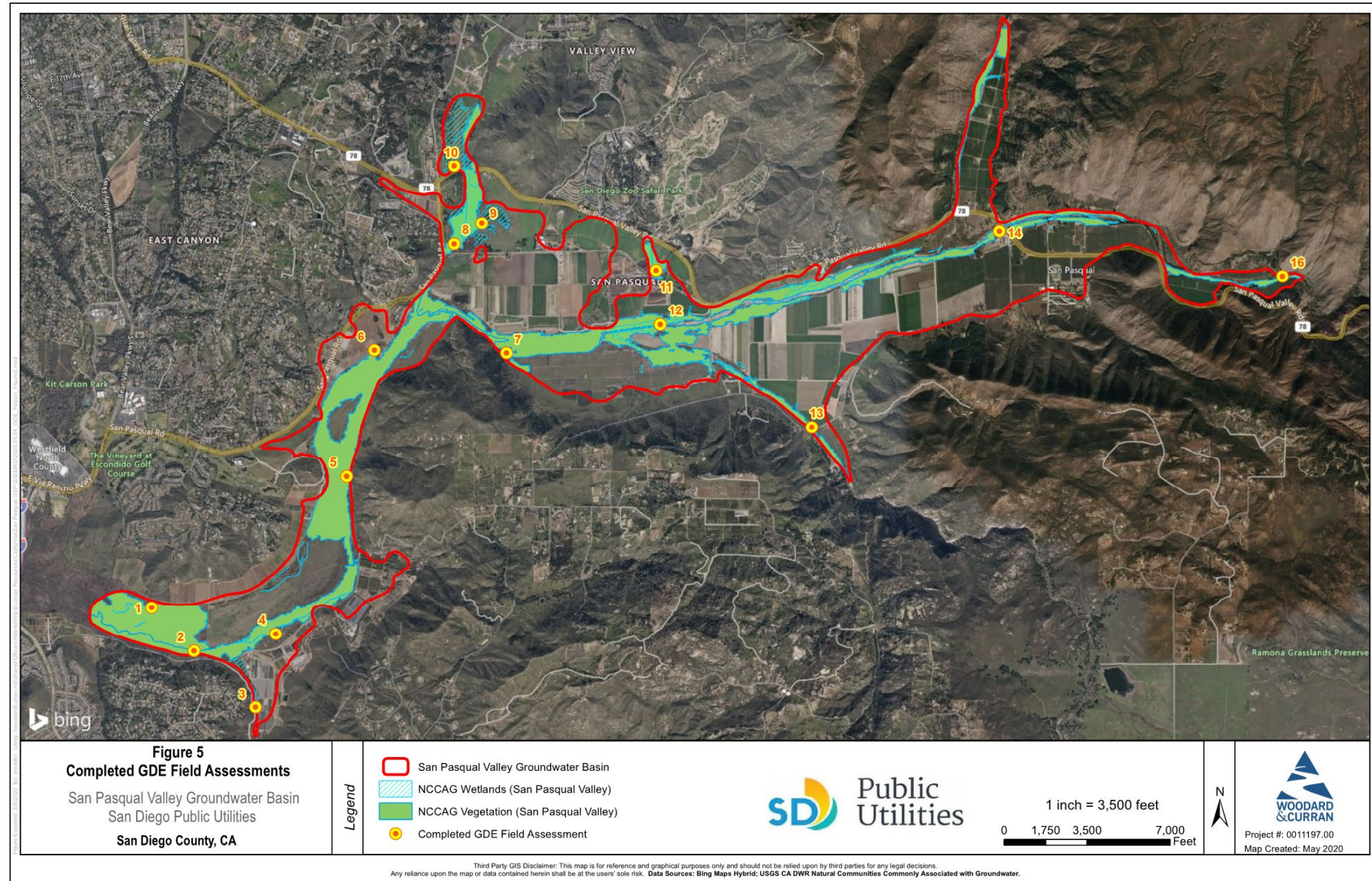
San Pasqual Valley
Groundwater Management Plan
San Diego County, California

- GDEs are ecosystems that receive the majority of their water supply from groundwater
- For SGMA analysis, we reviewed the “Natural Communities Commonly Associated with Groundwater (NCCAG)” dataset
- Wetlands biologist reviews the dataset and compares it with other datasets, aerial imagery, and USGS mapping
- Wetlands biologist visited SPV to perform site visits to verify remote sensing analysis
- Wetlands biologist identifies areas as ‘potential GDEs’ or ‘potential non-GDEs’ after analysis

Natural Communities Commonly Associated with Groundwater (NCCAG) Dataset



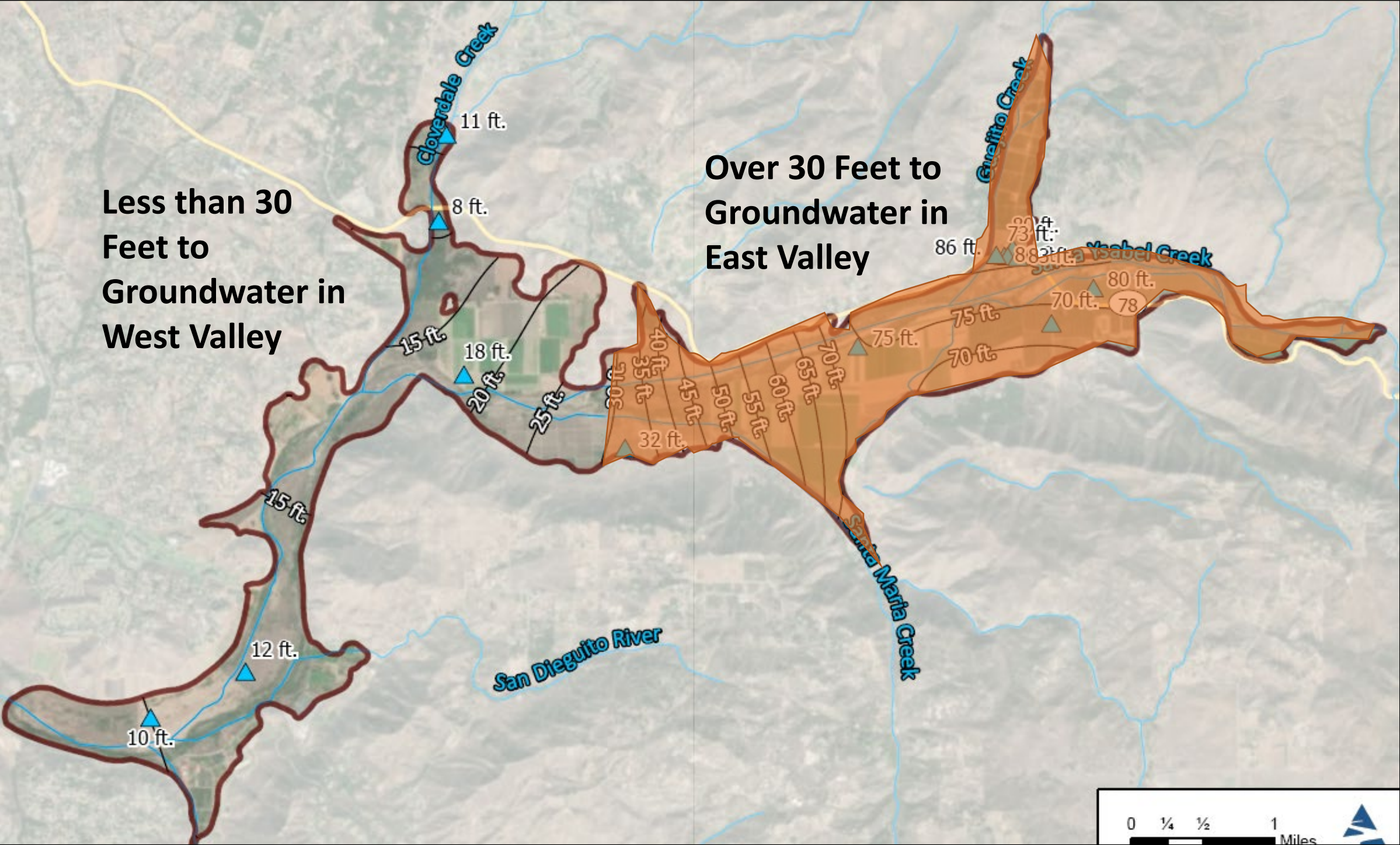
Locations of Site Visits



Photos of potential GDEs from site visits

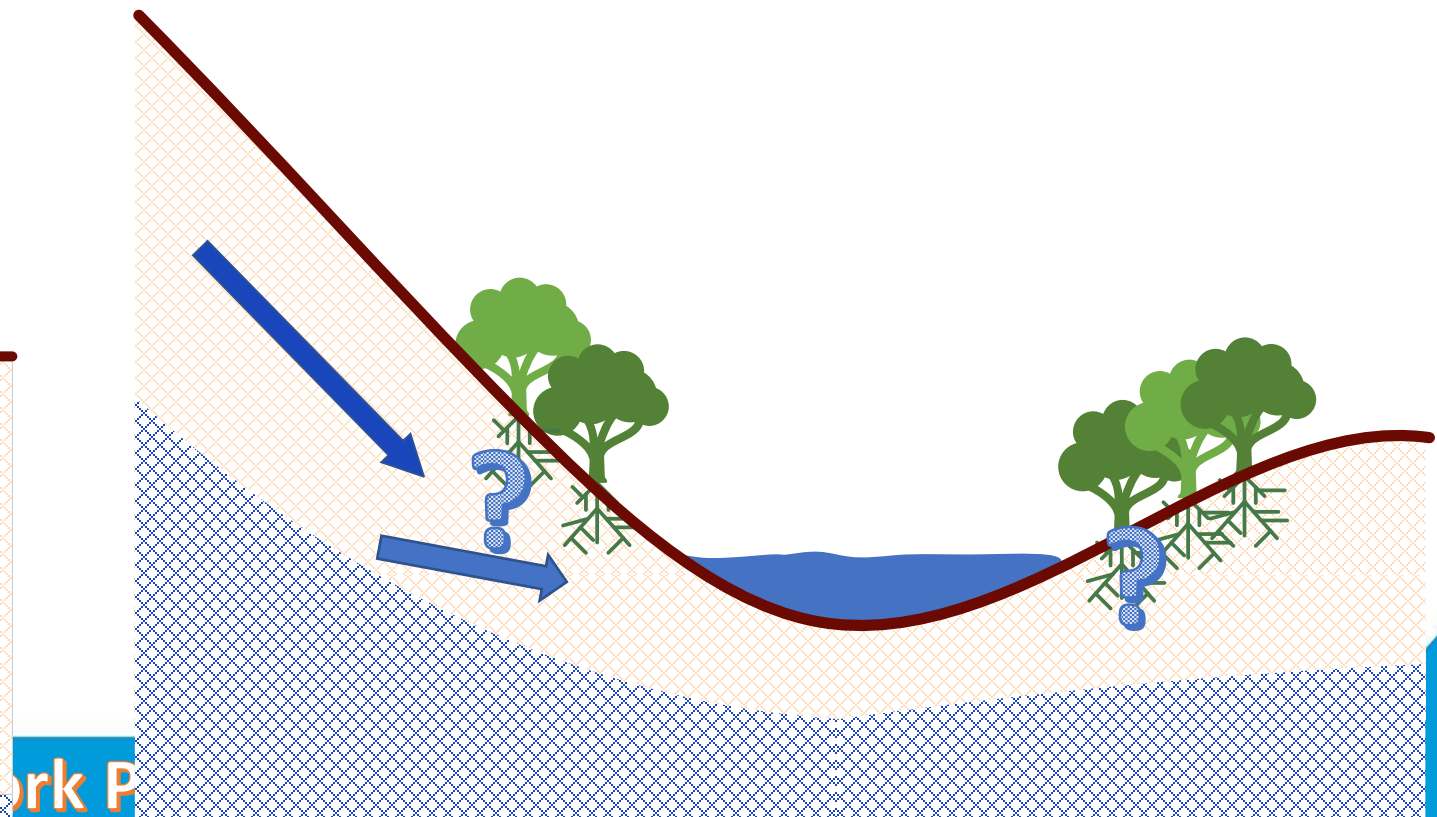
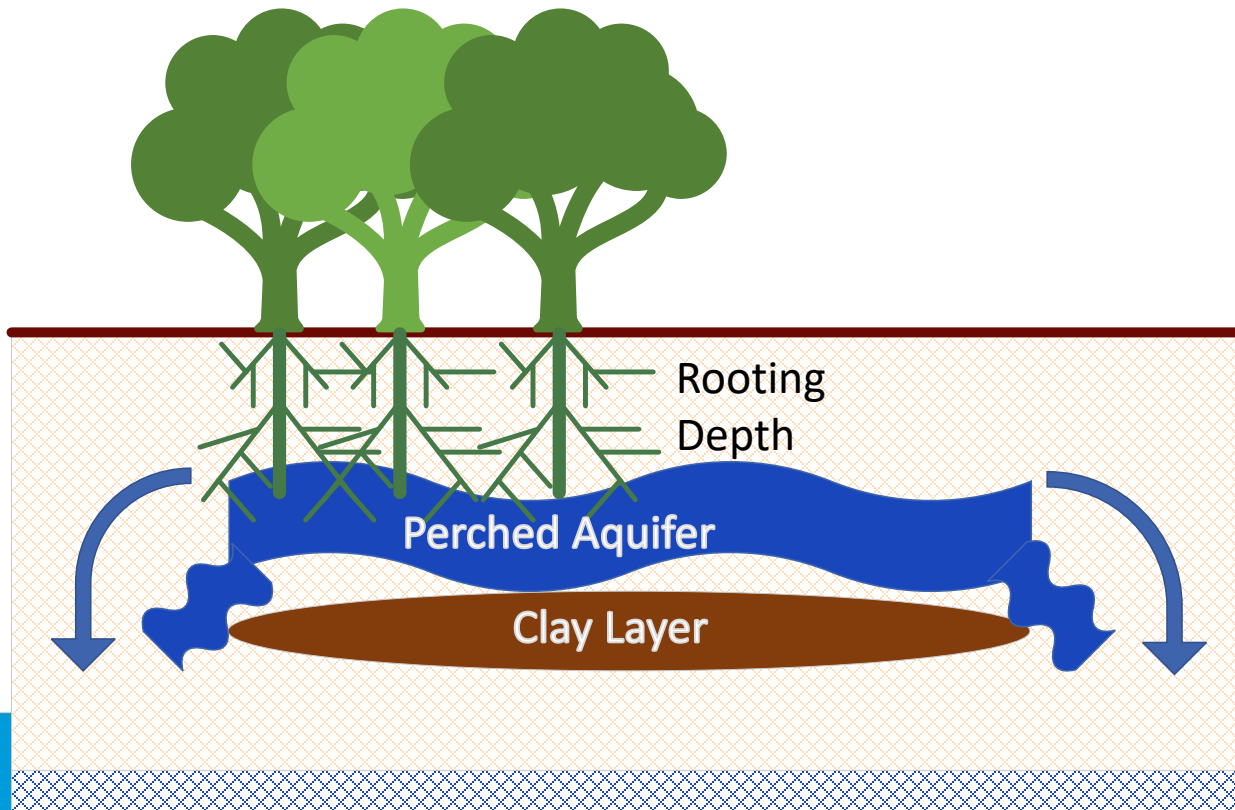


Depth to Water Contour Map



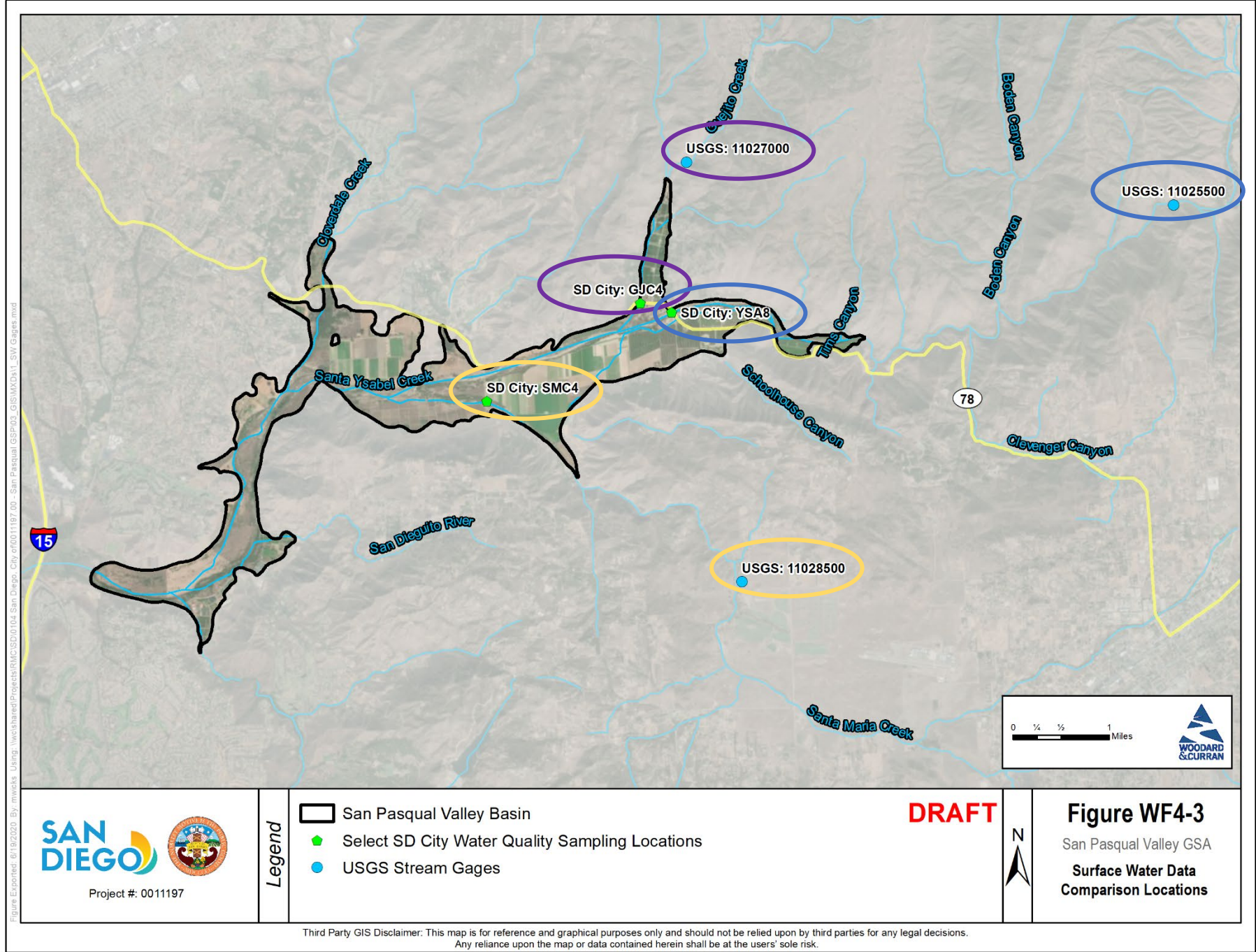
Groundwater Dependent Ecosystems (GDEs)

- Potential GDEs identified in a large area where depth to the aquifer is greater than 30 feet, which is the depth the Nature Conservancy uses for GDE roots
- If potential GDEs are present, and not reaching the aquifer – how are they getting water?
 - Potentially surface water
 - Potentially shallow perched water
 - Potentially mountain-front recharge

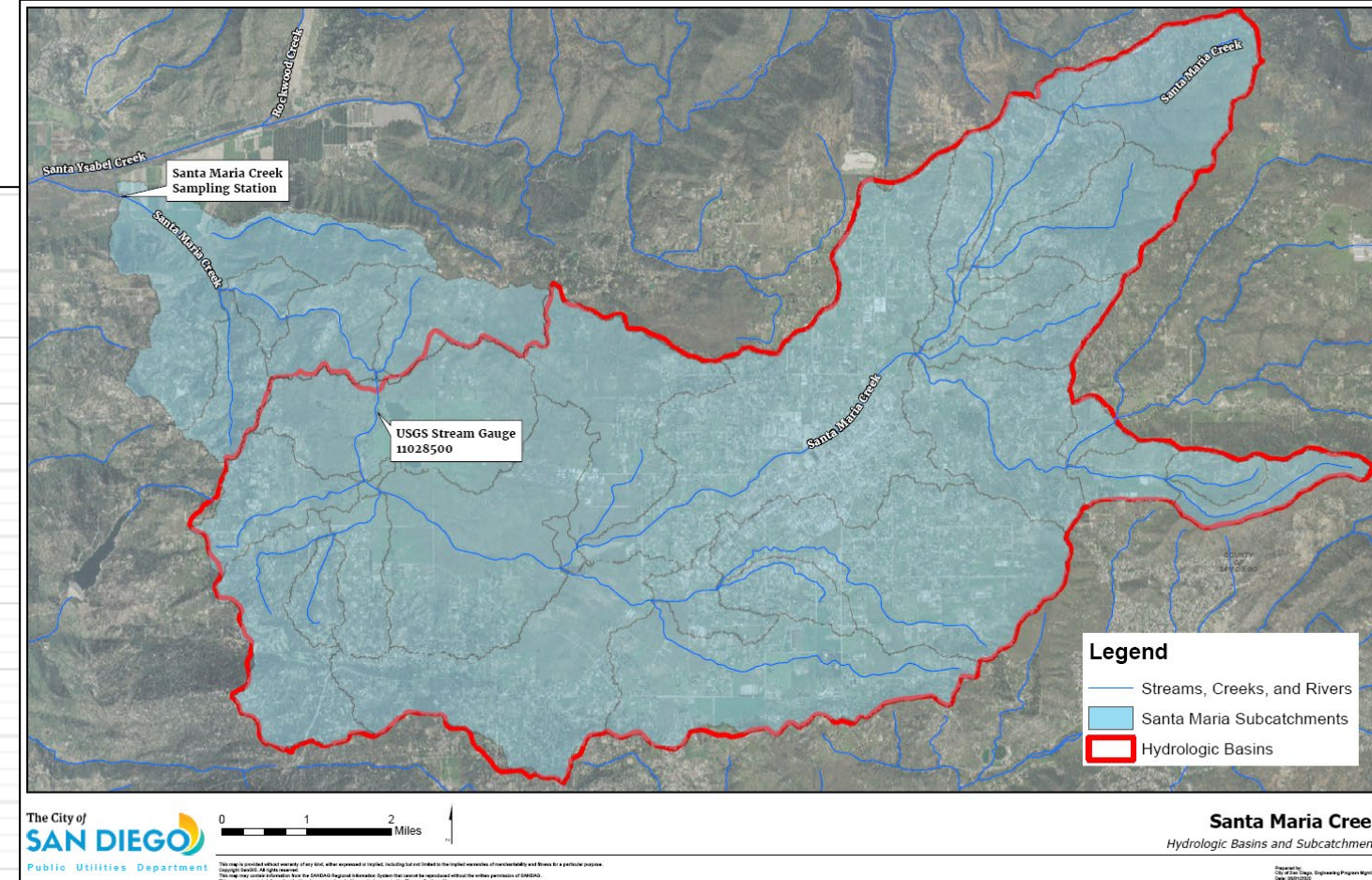
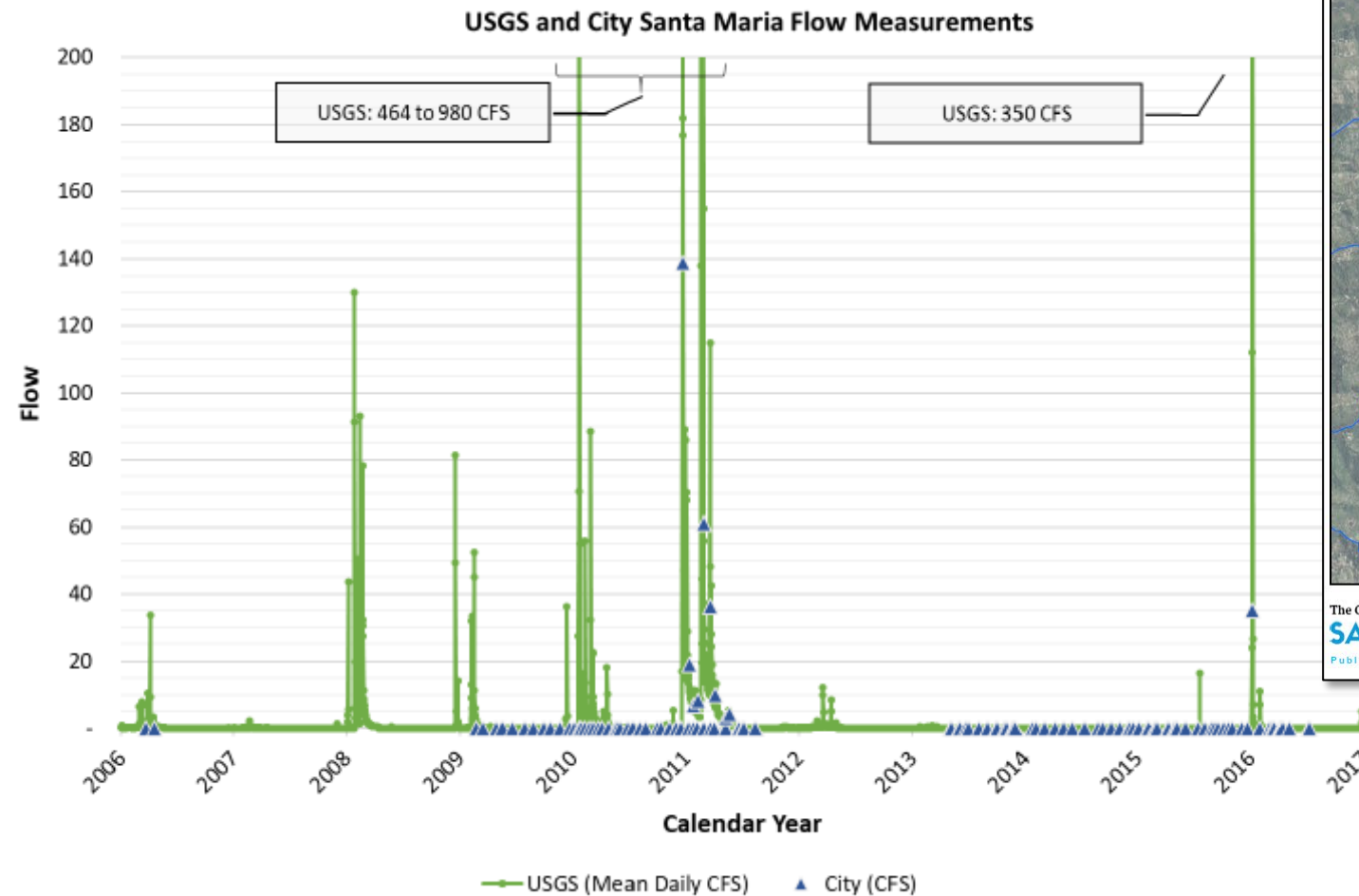


1. Reviewed USGS stream gage information
 - Reported as daily average flow in cubic feet per second (CFS)
2. Reviewed City stream sampling point measurement information
 - Reported as an instantaneous measurement
3. Reviewed Watersheds contributing to each measurement point

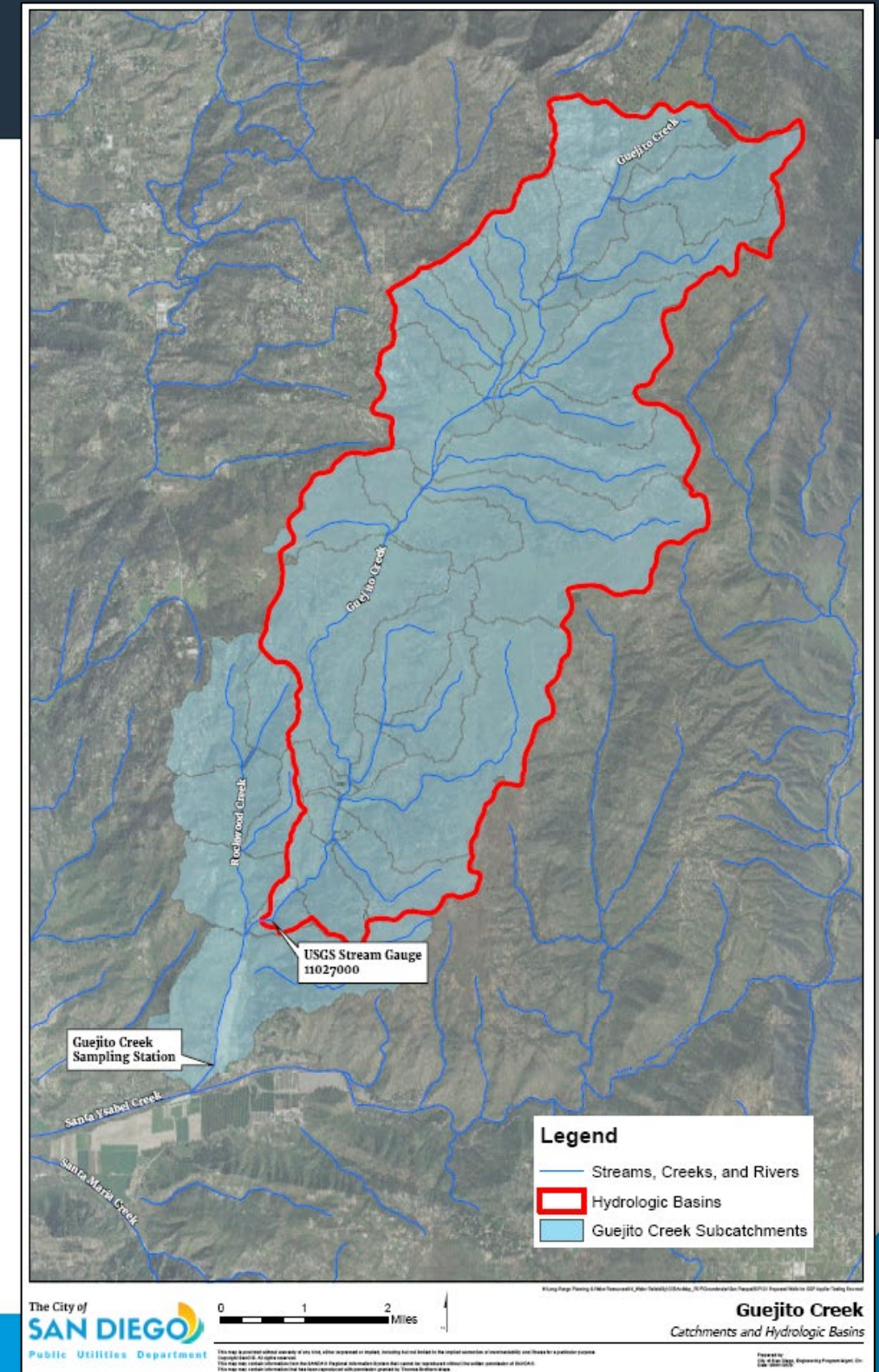
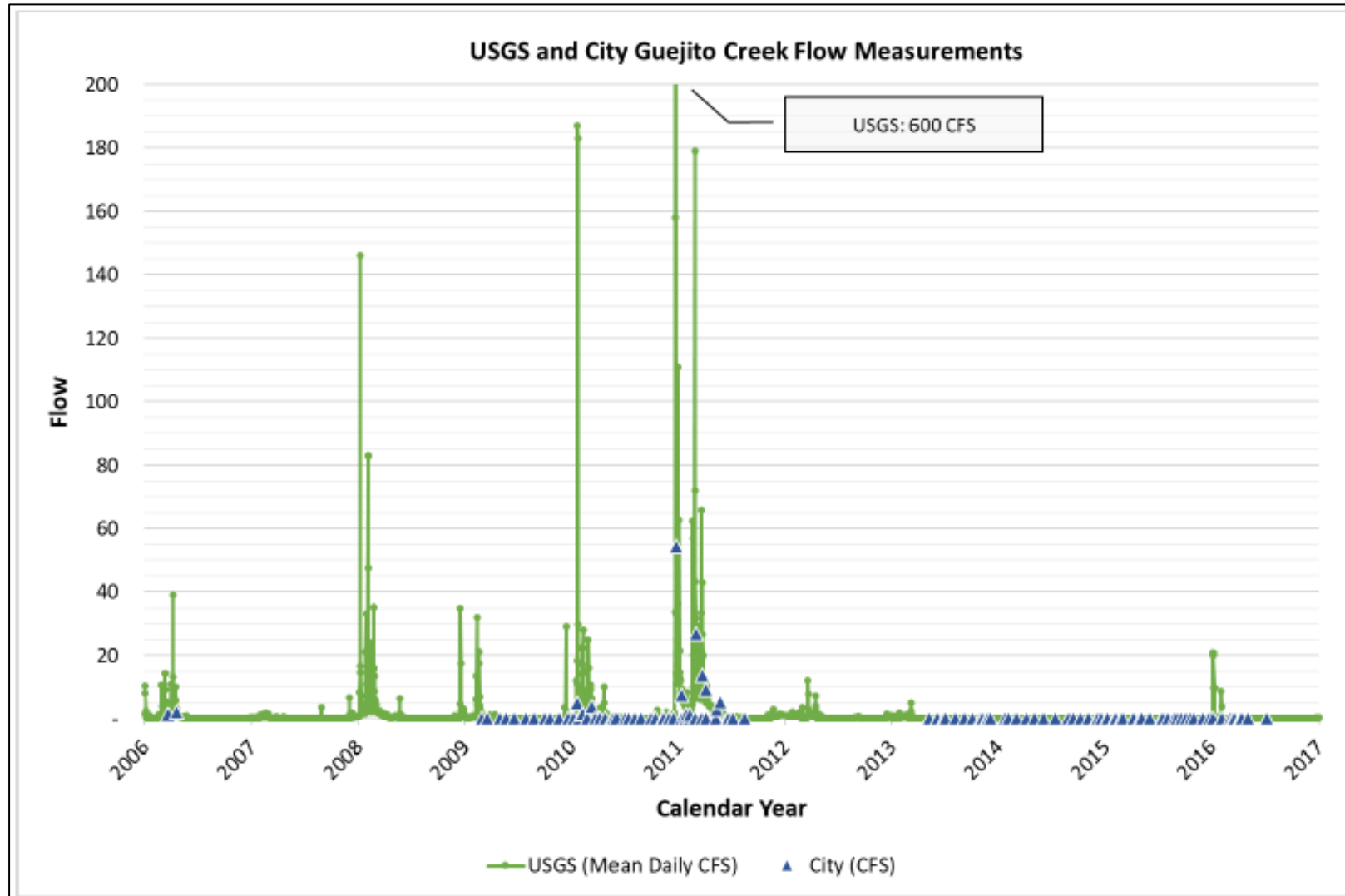
Stream Gage Comparisons



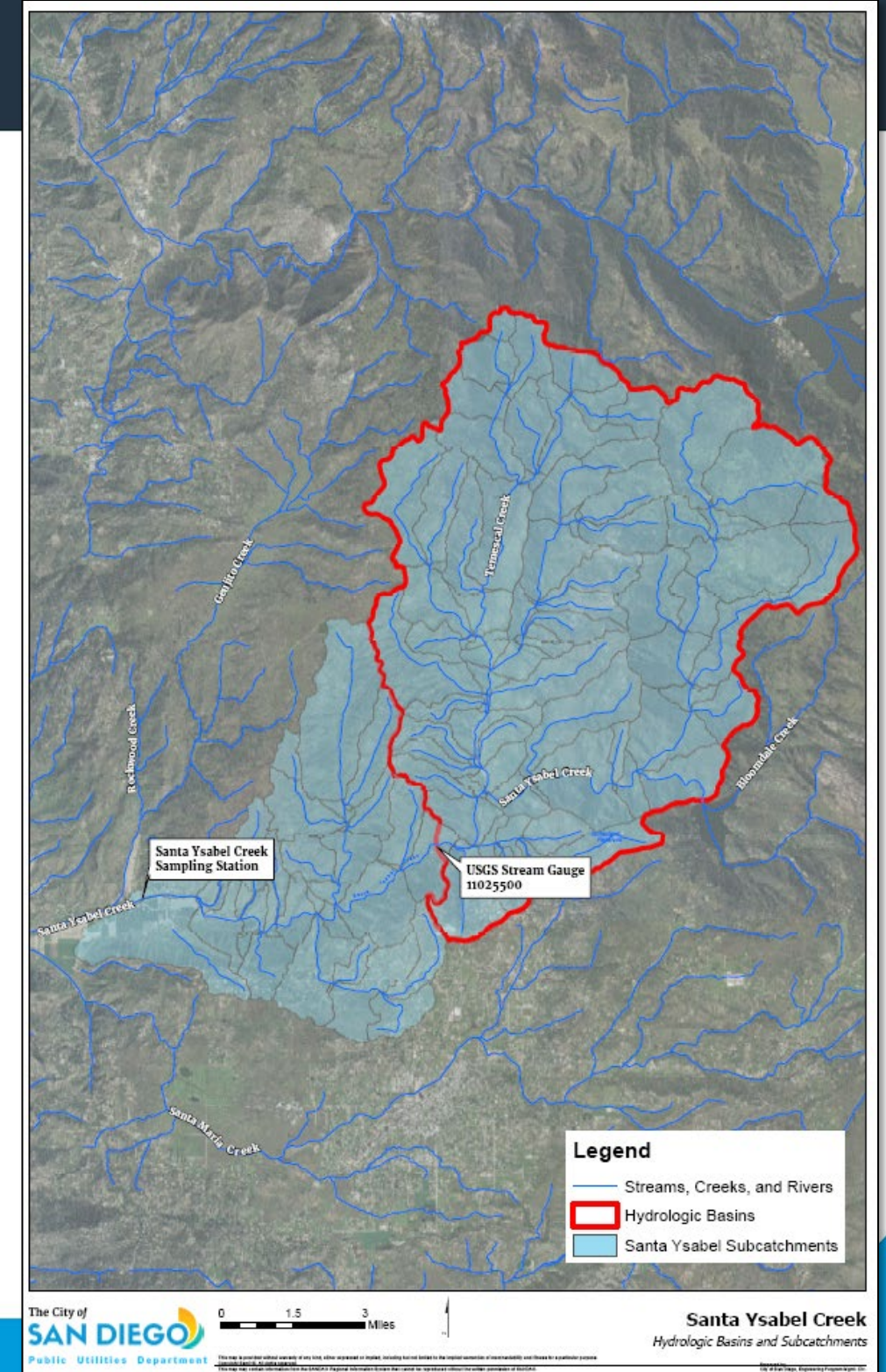
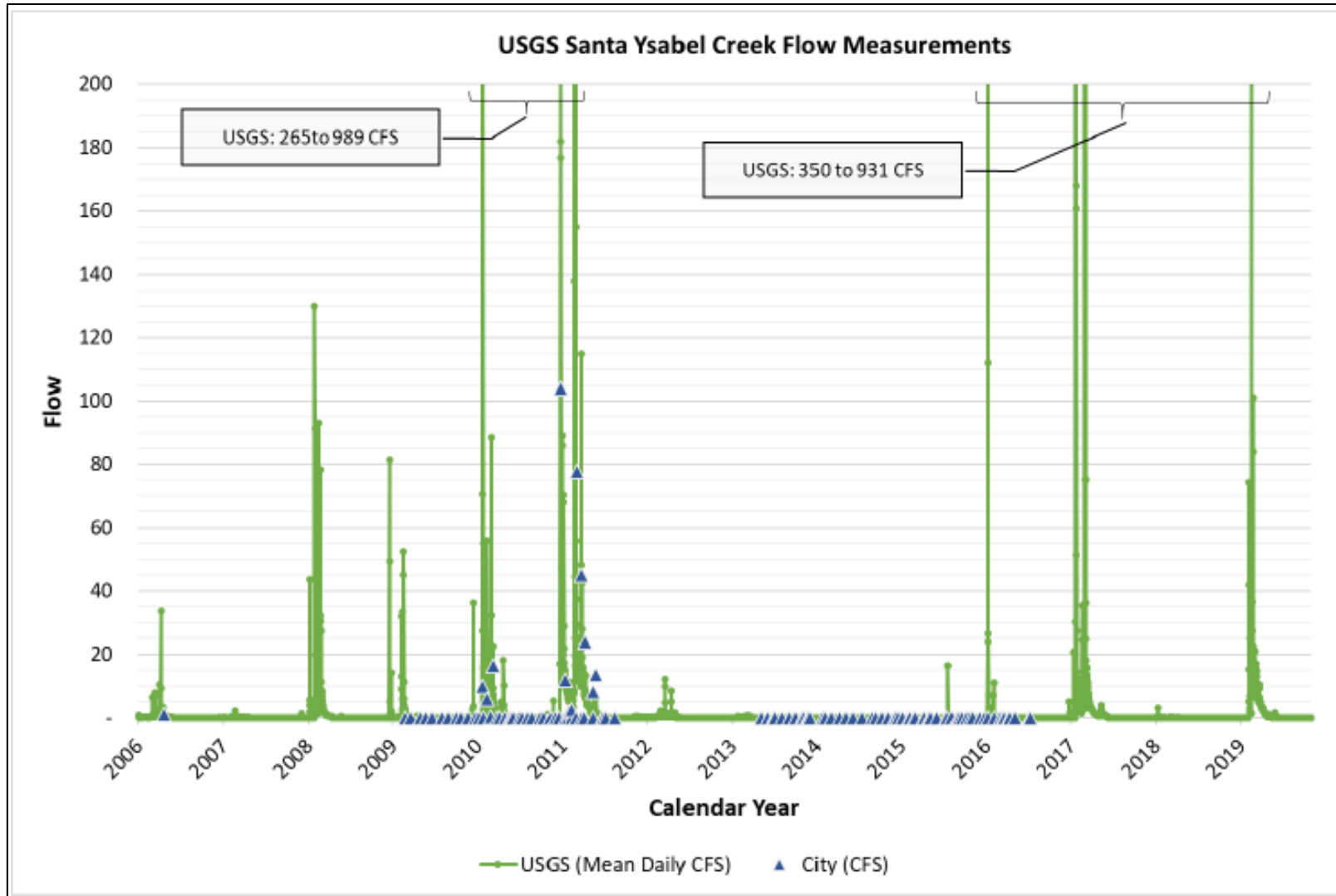
- Santa Maria Creek



- Guejito Creek



- Santa Ysabel Creek



- **Conclusions:**
 - Each stream's watershed is different in size
 - Streams are 'flashy' meaning they flow in large amounts during rain events, but have little or no flows in between rain events
 - USGS Gage data (CFS daily average) is not directly comparable to the City's instantaneous data
- City is upgrading its stations to continuously report in average flow in cubic feet per second (CFS)

San Pasqual Valley GSP Advisory Committee Meeting

Advisory Committee Comments



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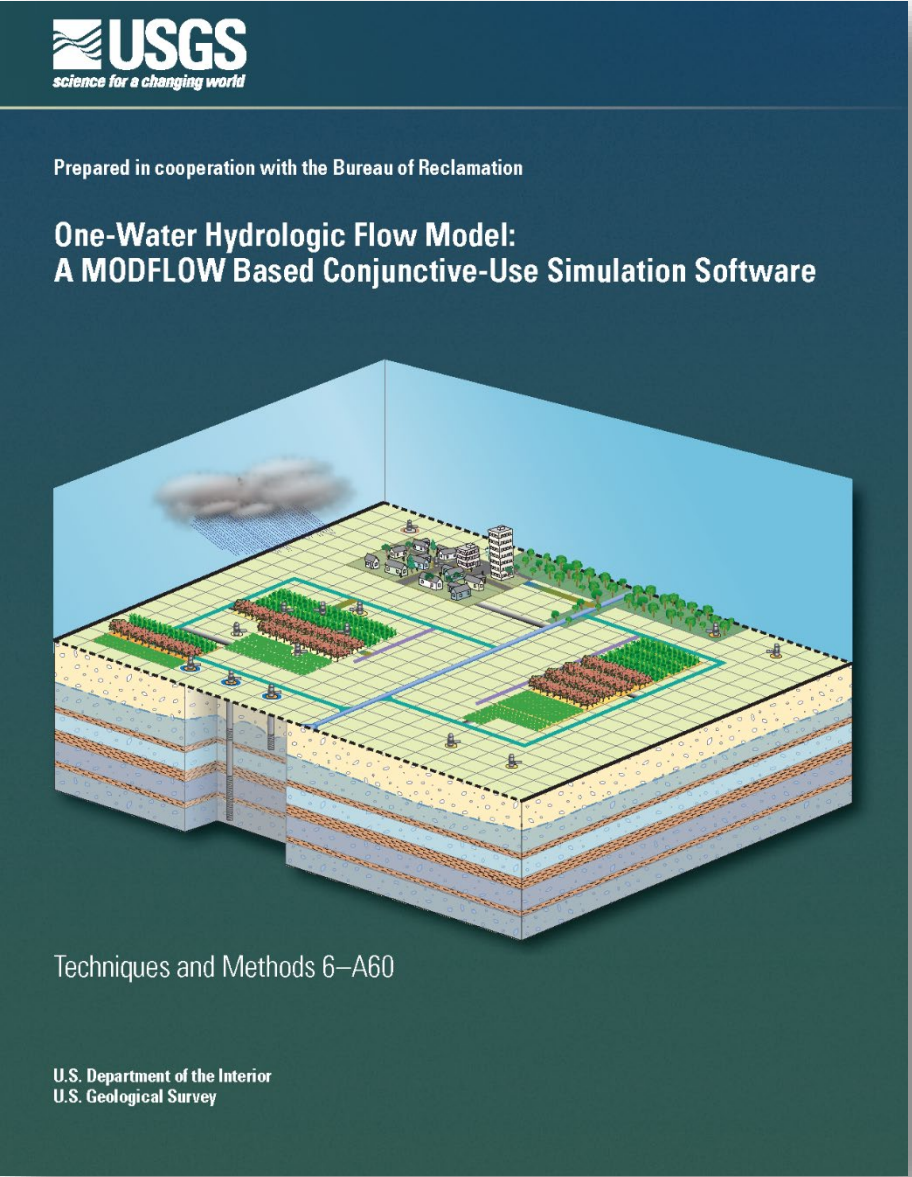
GROUNDWATER MODEL UPDATE



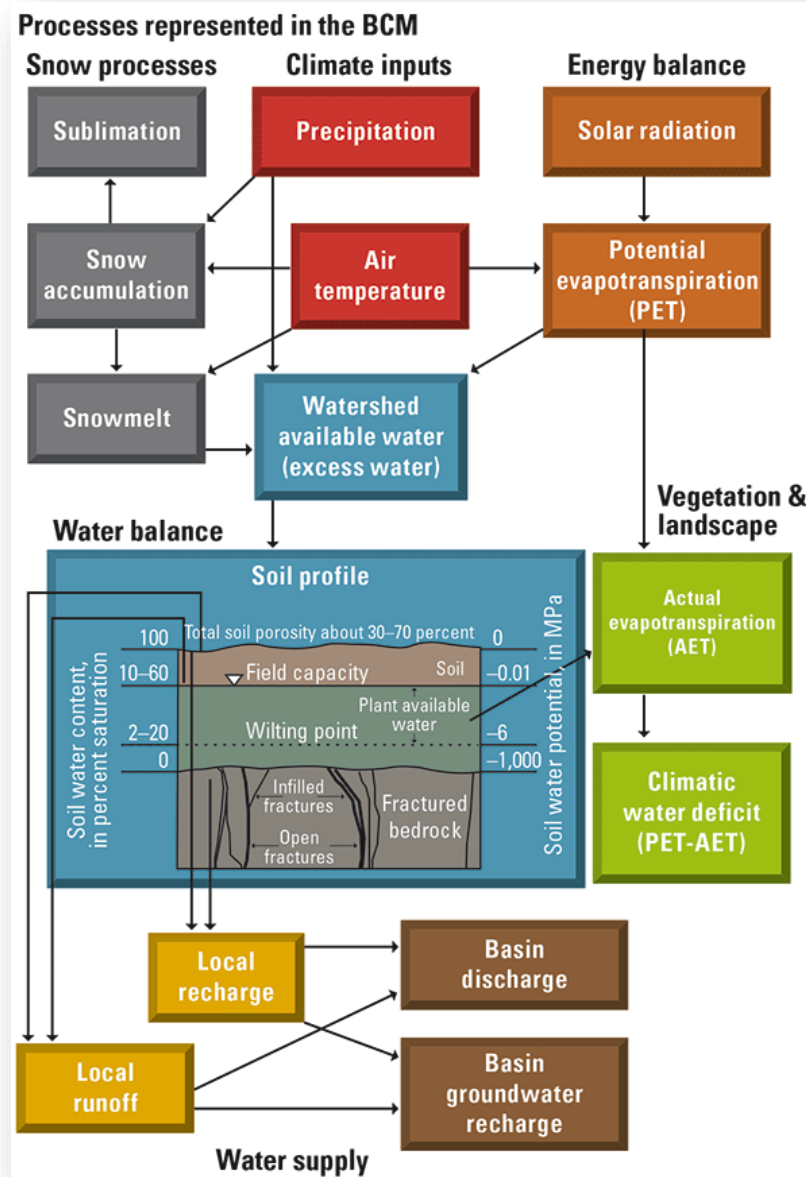
Groundwater Model Update

Planned Flow Modeling Codes

USGS One-Water Hydrologic Flow Model



USGS Basin Characterization Model (BCM)



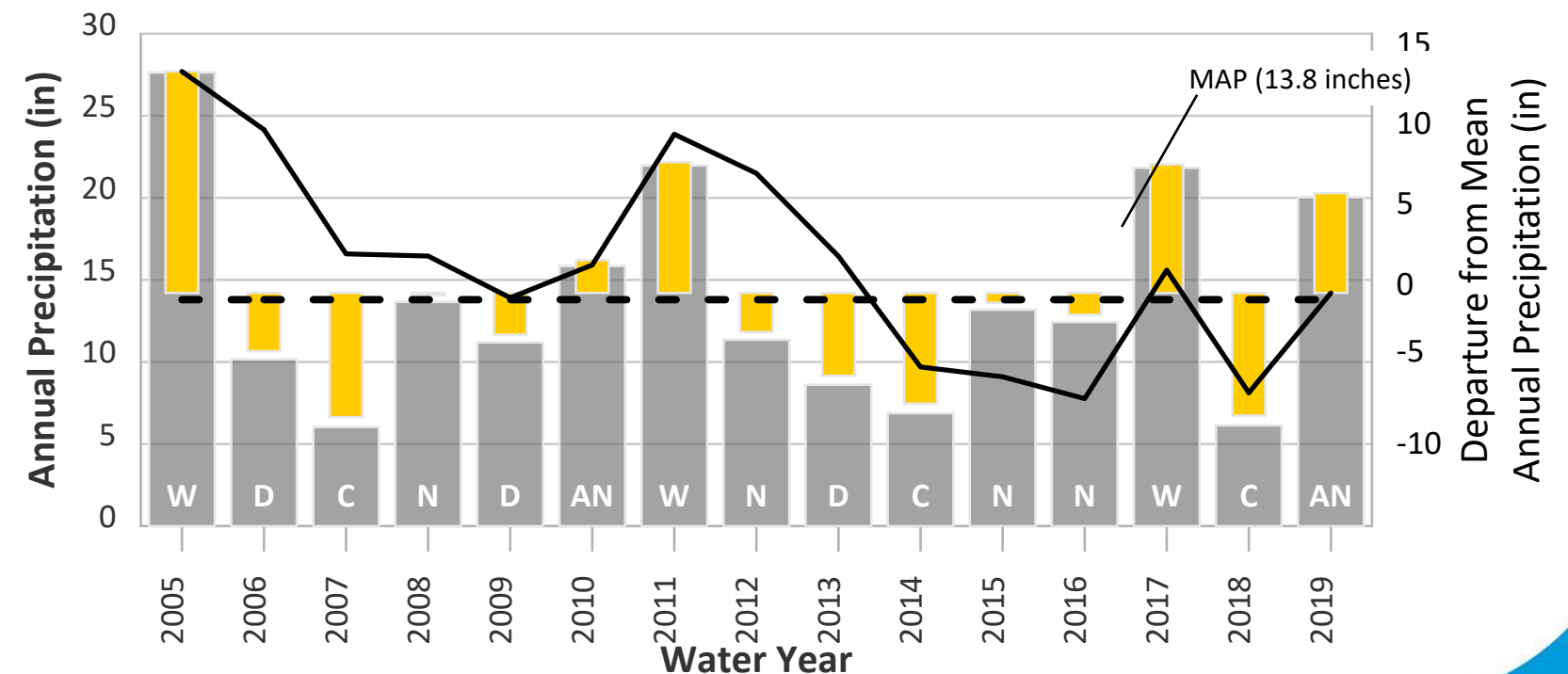
Groundwater Model Update

Climate Year Analysis and the Historical Simulation Period

- We plan to use a 15-year historical simulation period from 2005–2020 for model calibration
 - Good representation of the five climate year indices
 - 2005–2020 mean annual precipitation (MAP) is similar to long-term (1980–2020) MAP
 - Rainfall analysis indicates 2005–2020 period has reasonable balance of wet, normal, and dry conditions for calibration
 - Land & water use and other model input data are less reliable prior to 2005

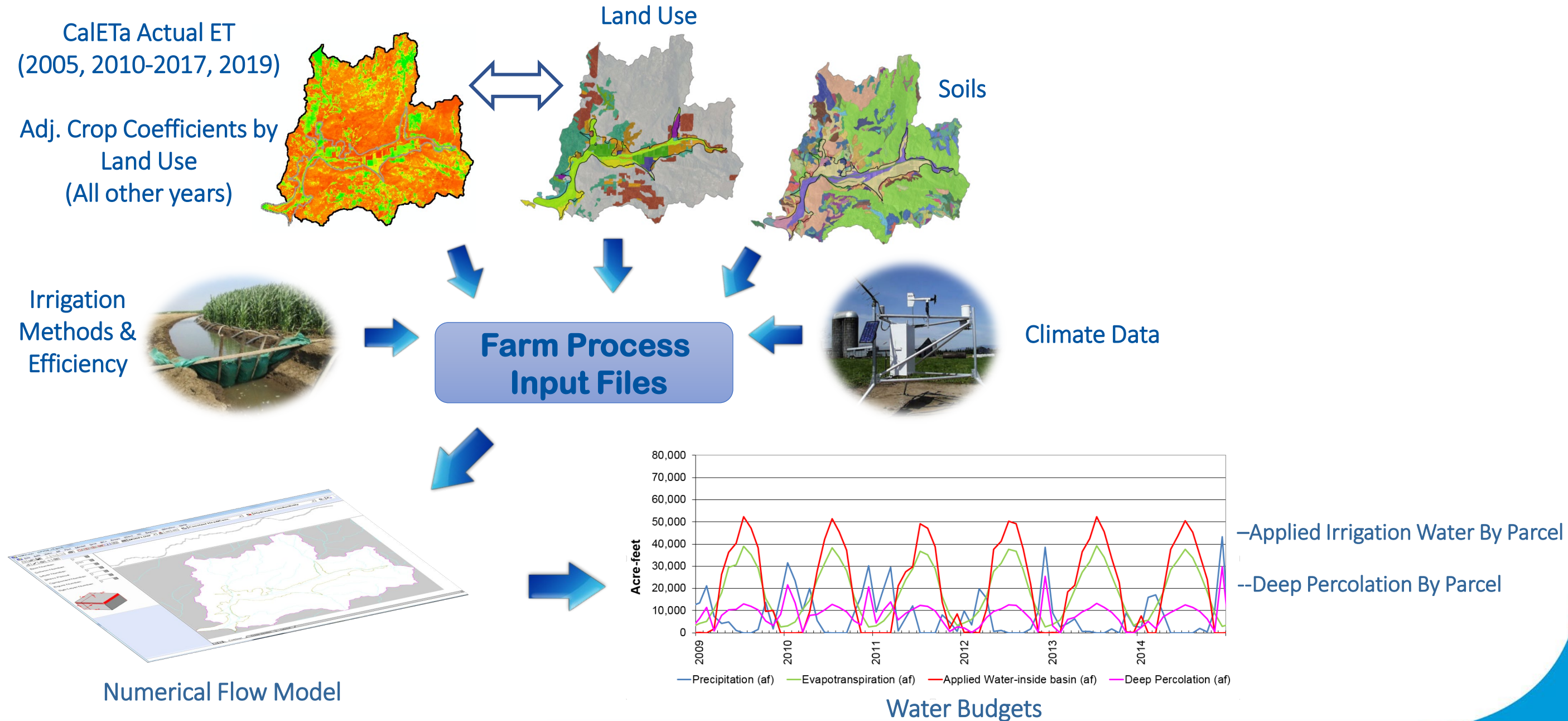
Period	C	D	N	AN	W
2010–2020	2	1	3	2	2
2005–2020	3	3	4	2	3
1980–2020	8	8	8	8	8

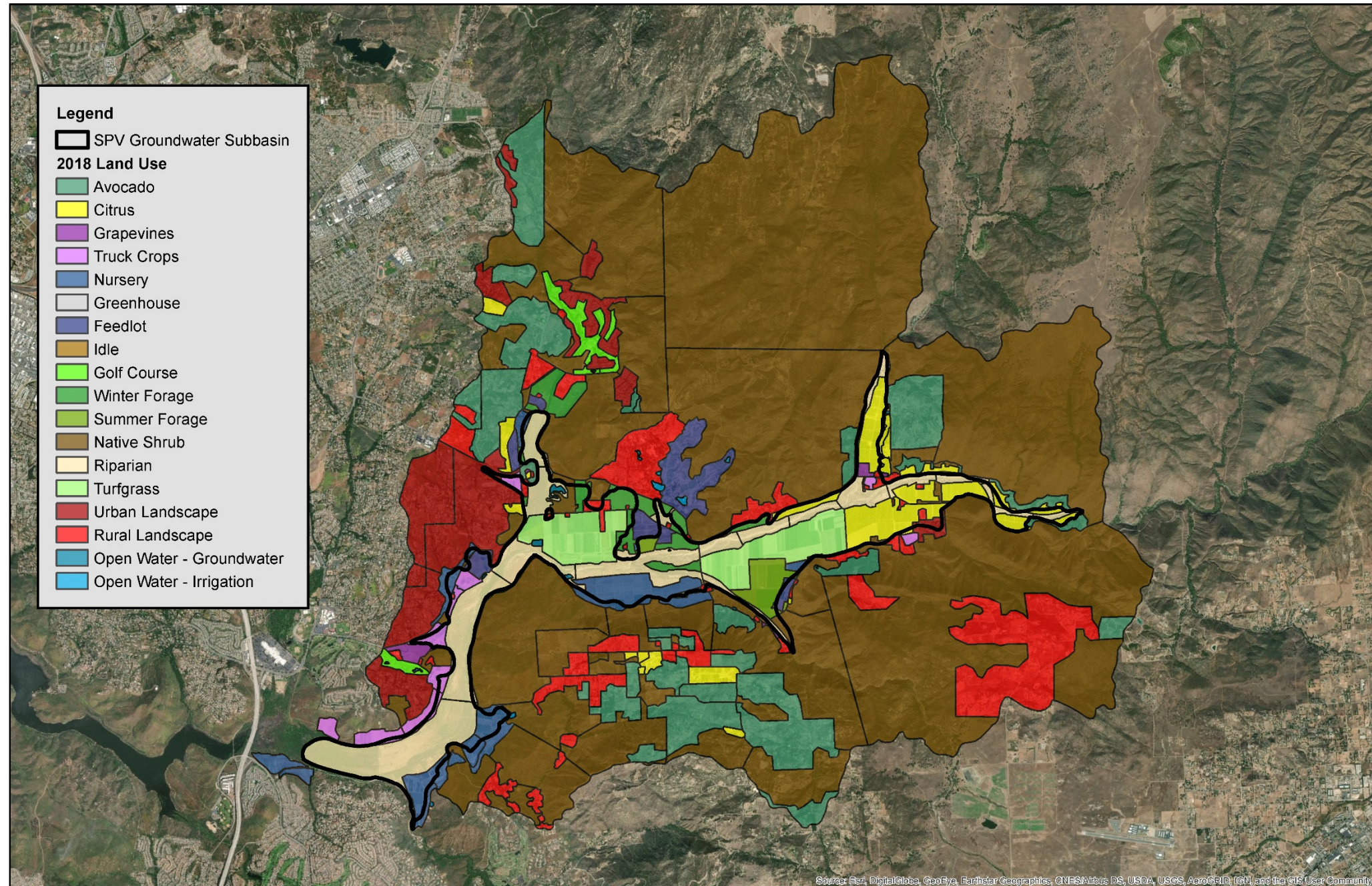
C=Critical, D=Dry, N=Normal, AN=Above Normal, and W=Wet



Groundwater Model Update

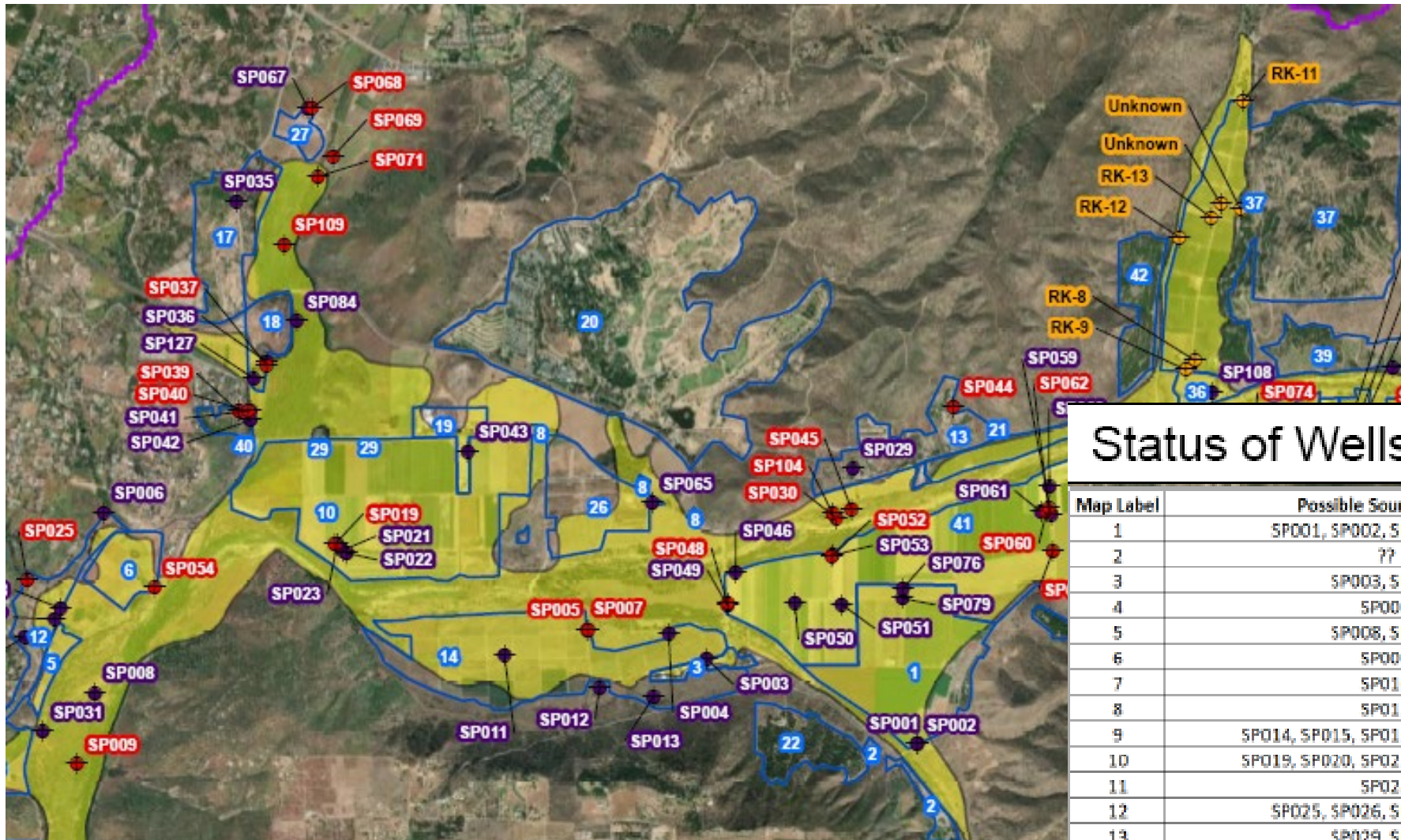
How Land and Water Use Fits Into the Modeling Process





Groundwater Model Update

Example Assignments of Wells to Parcels



- Legend**
- Pumping Wells**
- ◆ City of San Diego - Inactive
 - ◆ City of San Diego - Active
 - ◆ Rancho Guejito
 - ◆ San Pasqual Academy
 - Parcel with Well Designation
 - SPV Groundwater Subbasin

Blue highlighted numbers represent the 'Map Label' presented in the table at the bottom right.

Status of Wells Represents Current Conditions (2020)

Map Label	Possible Source Wells	Map Label	Possible Source Wells
1	SP001, SP002, SP076, SP079	22	SP053
2	??	23	SP055, SP056, SP066, SP089, SP090
3	SP003, SP004	24	SP055, SP057, SP074, SP075, SP083, SP085, SP088
4	SP008	25	SP059, SP061, SP063
5	SP008, SP031	26	SP065
6	SP009	27	SP067
7	SP010	28	SP072
8	SP011	29	SP084
9	SP014, SP015, SP016, SP017, SP018	30	SP087
10	SP019, SP020, SP021, SP022, SP023	31	SP089, SP090
11	SP024	32	SP092
12	SP025, SP026, SP027, SP028	33	SP093, SP094, SP095, SP096, SP126
13	SP029, SP044	34	SP098
14	SP003, SP004, SP005, SP007, SP012, SP013	35	SP101
15	SP032	36	SP108
16	SP032, SP033, SP034	37	??
17	SP035	38	SP119
18	SP036, SP037	39	SP121
19	SP043	40	SP039, SP040, SP041, SP042
20	SP046 & Escondido Recycled Water	41	SP048, SP049, SP050, SP051, SP053, SP059, SP061, SP062, SP063
21	SP048, SP049, SP050, SP051, SP053	42	??

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SUSTAINABLE MANAGEMENT CRITERIA



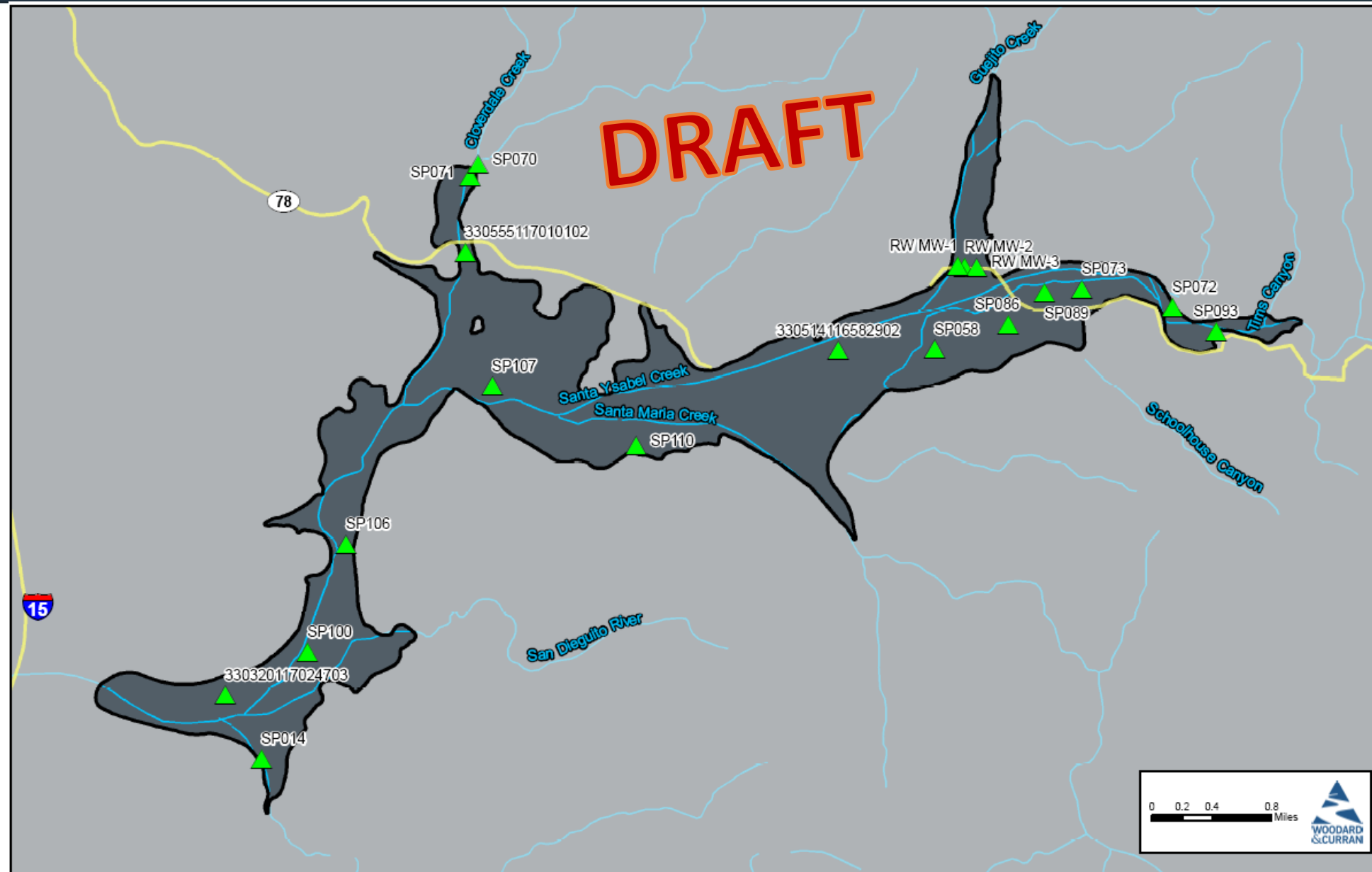
- SMC are made up of these components:
 - **Undesirable Results** - Help us understand what bad looks like
 - **Monitoring Networks** – how we will monitor things to see if they are bad
 - **Minimum Threshold** – Below this, something bad is possibly happening
 - **Margin of Operational Flexibility (MoOF)** – The buffer needed if there is a drought
 - **Measurable Objective** – This is the target to have a buffer for drought above the minimum threshold

Sustainability Indicator	Measurement Process
Groundwater Levels	Groundwater elevations
Groundwater Storage	Groundwater elevations
Seawater Intrusion	Location of isocontour
Degraded Groundwater Quality	Water quality monitoring results
Land Subsidence	Groundwater Elevations
Depletion of Interconnected Surface Waters	Groundwater Elevations

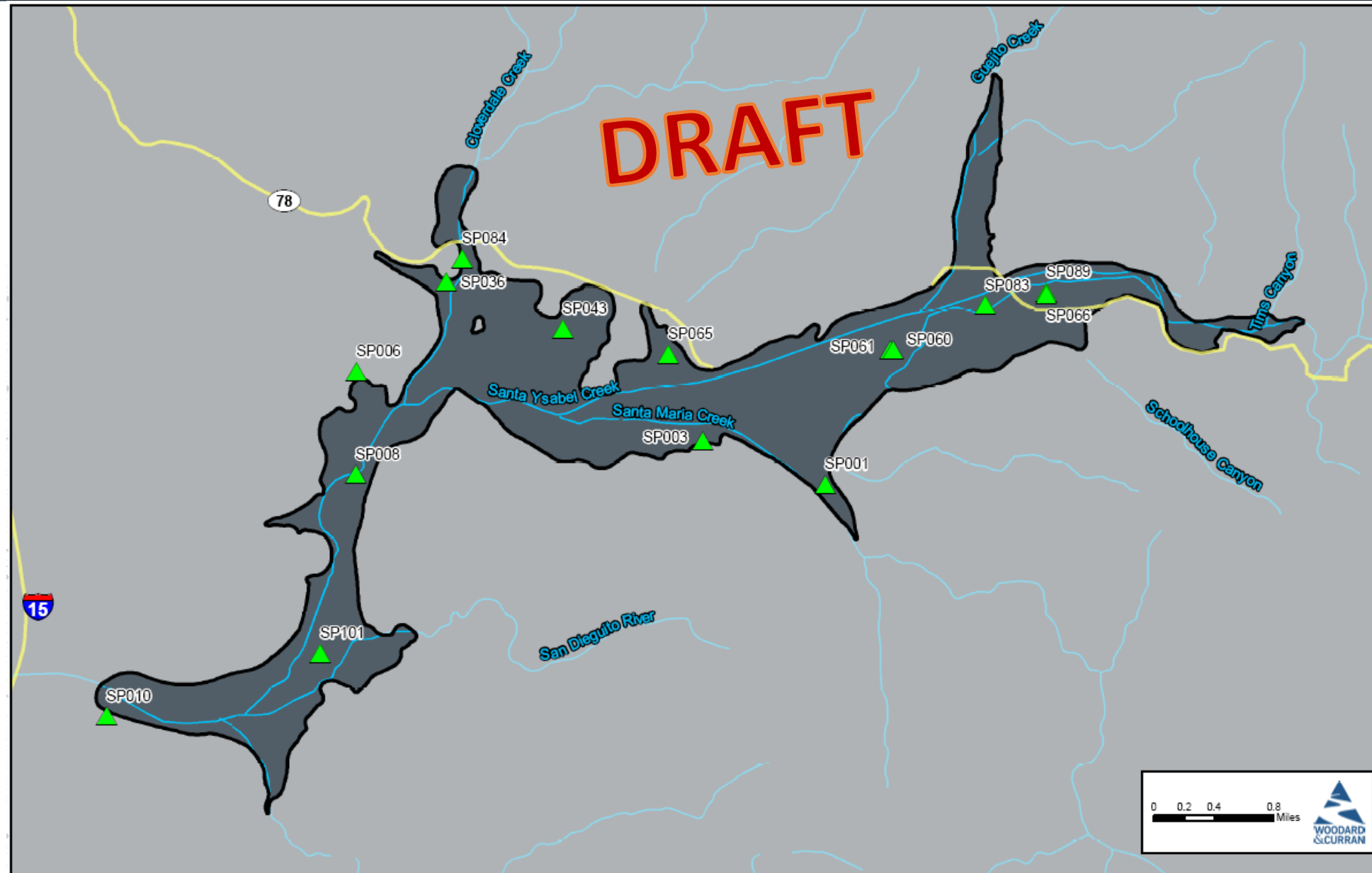
- Monitors wells that have been specifically designated for monitoring
- Does not include all wells in the basin (uses a small percentage of wells)
- Need to be monitored for levels or quality consistently
- Monitored by City, DWR, USGS, or in-basin stakeholders after agreement with the GSAs
- Only monitors production wells (e.g., irrigation, domestic) for levels or quality if an agreement is present between well owner and GSAs
- Well production volumes and how to measure or estimate pumping are addressed in the Projects and Management Actions portion of the GSP

• Representative Groundwater Level Network

- Wells with existing monitoring data
- Wells that will be monitored in the future
- Note: Newly constructed wells are not included due to not having measurements

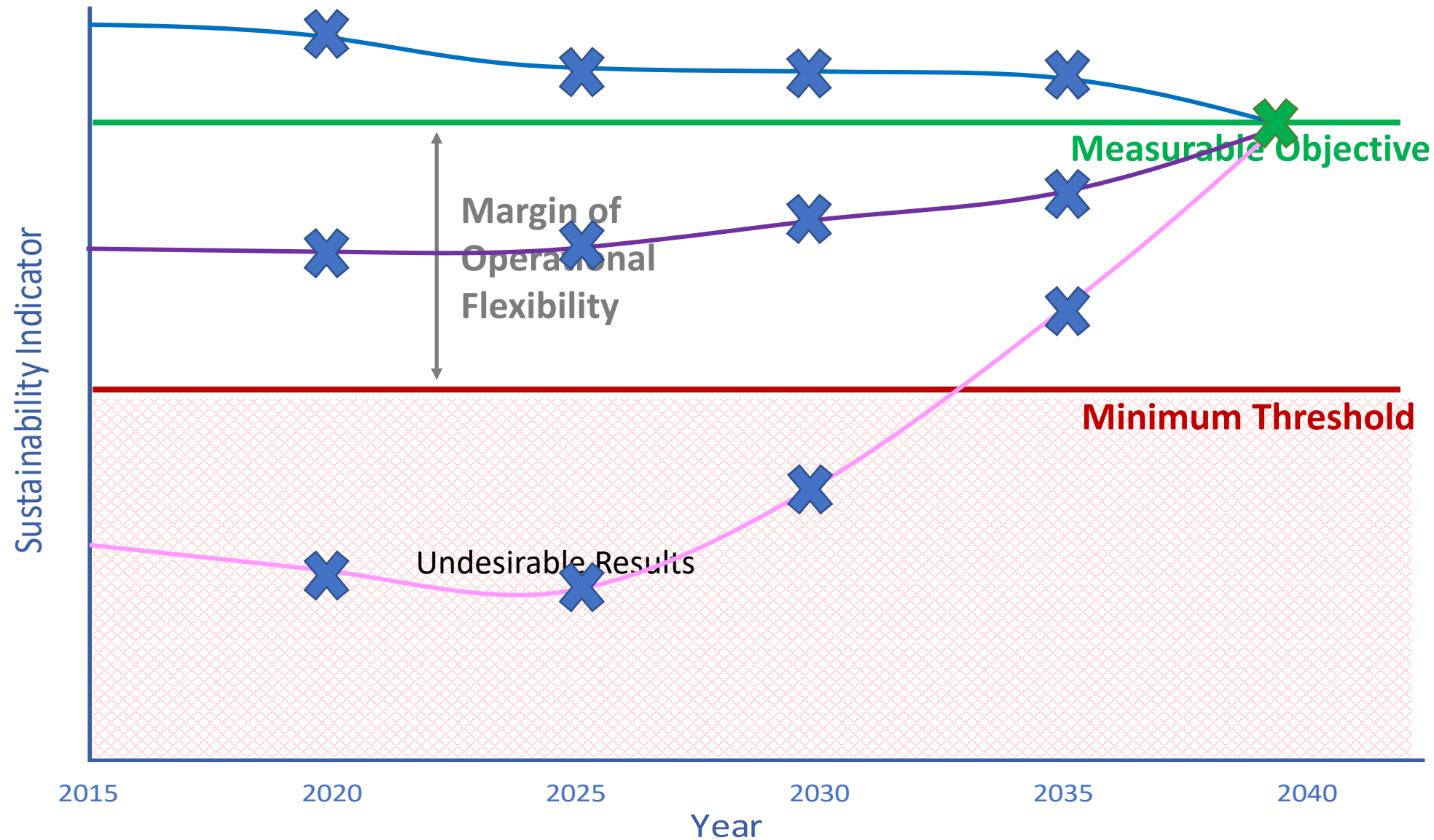


- Representative Groundwater Quality Network



- Minimum Thresholds are key to identifying when the Basin is in an undesirable condition:
 - When over XX% of representative monitoring wells (X of 19) levels fall below their minimum groundwater elevation thresholds for 2 consecutive years during the defined monitoring period.
- Measurable Objectives are designed to be targets for good times, when there is no drought. When levels are at the Measurable Objective, there is a drought buffer for the basin to help avoid reaching Minimum Thresholds

Minimum Thresholds & Measurable Objectives



- Considerations for the Minimum Thresholds
 - Stakeholder Driven
 - Groundwater Wells
 - Groundwater Dependent Ecosystems

Sustainability Indicator ¹	II. GROUNDWATER ELEVATION
Undesirable Results Consideration ²	<p>Chronic lowering of groundwater levels indicating unreasonable depletion of supply, which results in:</p> <ul style="list-style-type: none"> a. Adverse impacts to the viability of agriculture, and the agricultural economy. b. Unusable and stranded groundwater extraction infrastructure. c. Need to deepen or construct new wells. d. Adverse impacts to domestic wells users. e. Adverse impacts on connected ecosystems.
Minimum Threshold Consideration ³	<ul style="list-style-type: none"> • Local well infrastructure depths • Groundwater dependent ecosystems

San Pasqual Valley GSP Advisory Committee Meeting

Advisory Committee Comments



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FIELD PROGRAM UPDATE



- The City is working with Kleinfelder to investigate construction of Well 129
- Aquifer testing is still on hold
- Isotope testing has been completed and is being finalized
- Aquifer Recharge Assessment report is being reviewed by the City



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PUBLIC COMMENT



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NEXT STEPS & CLOSING REMARKS



- Next AC Meeting:
 - Thursday October 8, 2020, 2-4pm
- Public Notices are at:
 - Online:
<https://www.sandiegocounty.gov/content/sdc/pds/SGMA/san-pasqual-valley.html>
 - Posted at:
 - San Diego County Farm Bureau, and
 - Escondido Public Library

- For additional information, please contact:
Sandra Carlson at (619) 533-4235
carlsons@saniego.gov

Thank You!