



PC 9-2-15  
#1  
Charlene Tim <charlene.tim@edcgov.us>  
5 pages

## Fwd: Off road vehicle noise in EDC

Dave Pratt <dave.pratt@edcgov.us>  
To: Char Tim <charlene.tim@edcgov.us>

Tue, Sep 1, 2015 at 4:41 PM

Just in case this did not make it to the right place

Sent from my iPhone

Begin forwarded message:

**From:** <gwilson@d-web.com>  
**Date:** August 28, 2015 at 8:55:59 PM PDT  
**To:** "Jo Ann Hoffman" <jo.hoffman@hughes.net>, <david.defanti@edcgov.us>, <shawna.purvines@edcgov.us>, <dave.pratt@edcgov.us>  
**Cc:** "Rob & Glo Vernon" <robandglovermon@gmail.com>, <Vandyke.5@sbcglobal.net>, "Brenda Bailey" <brenda.bailey@edcgov.us>, <Bill.hoffman@hughes.net>  
**Subject:** Re: Off road vehicle noise in EDC

Ladies and Gentleman,

This is Geoffrey Wilson. I live at 5661 Vineyard Lane, maybe 450 yards from the "Motorcycle Park".

I went to two hearings in regards to the "Horrible" noise that David Gerard Winery produced during there wedding parties. The complainers were the WINJES.

They are OLD and couldn't hear a nuclear explosion if there was one!!! I have NEVER been disturbed by the winery noise, but am getting very tired of having to dust my home every other day!!!

Personally, I'm sick and tired of these low life people, there dust and the noise. If I want to hear engine noise, I'll go the the Fair Grounds.

I agree with everything Mrs. Hoffman and Mr. Vernon said.

**From:** Jo Ann Hoffman  
**Sent:** Friday, August 28, 2015 11:03 AM  
**To:** david.defanti@edcgov.us ; shawna.purvines@edcgov.us ; dave.pratt@edcgov.us  
**Cc:** Rob & Glo Vernon ; Vandyke.5@sbcglobal.net ; Geoff Wilson ; 'Brenda Bailey' ; Bill.hoffman@hughes.net  
**Subject:** Off road vehicle noise in EDC

Dear David Defanti, Shawna Purvines and Dave Pratt,

My name is Jo Ann Hoffman and my husband is William Hoffman. We live at 5750 Thompson Hill Road, off Cold Springs Road, and own the property next to Harvey Winje, who has the off road motorcycle track as shown in the photo below (our house is directly north, pool is visible). We have attended numerous meetings with the Planning Commission over the past months to discuss the ongoing problem with the motorcycle track and how the noise and dust is adversely affecting our life in EL Dorado County, and we have other neighbors who are concerned too. On August 15, 2015 we received the e-mail below from Ellen Van Dyke, informing us about the Planning Commission meeting yesterday (Thursday, 8/27/15) regarding Targeted General Plan Amendments and Zoning Ordinance Updates (TGPA-ZOU) and Final Environmental Report (EIR). We attended the meeting and during the 11:30 break, I was able to speak to both of you regarding questions I had and you told me the best thing to do was to send you an e-mail with my concerns. So, here are my questions:

- Is the Administrative Permit available "over the counter"? Are there any "checks" done to see if the person applying for the permit is already causing problems and concerns with his neighbors? How long is the permit good for? (1) year, (2) years? Forever?
- What are the Permit Holder's RESPONSIBILITIES? What rules do they have to abide by?
- If those responsibilities are NOT MET, what are the consequences ?
- Even if all Permit Responsibilities are met, what happens if it still annoys the surrounding neighbors with

excessive noise and dust? Can they petition to have the Permit REVOKED? What are the NEIGHBOR'S RIGHTS??

Yesterday our neighbor Rob Vernon also sent you the following questions that mirror our concerns:

Gentlemen:

I understand that part of the ZOU that is being proposed that deals with moto-cross tracks in rural residential neighborhoods states that you are considering allowing this kind of activity with an "Administrative Permit". I do not think that a moto-cross track is conducive to a peaceful rural neighborhood community. However, if such permits are eventually issued, a PERMIT implies "allowed activity, WITH RESPONSIBILITIES". SO, the proposed permit MUST come with certain responsibilities, and if those responsibilities are not met, the Permit can be REVOKED. Those Responsibilities must include, among other things:

1. NOISE LIMITS - No noise above 70db at the fence line of the Property, and all vehicles MUST have proper mufflers and spark arresters.
2. NO DUST ESCAPE - measures must be taken to eliminate airborne dust
3. Allowed participants - RESIDENTS ONLY no free-for-alls
4. Compatibility with the Community - If neighbors in the community affected by the Permittee are negatively affected by the Stated Use, they can complain to the County. If enough complaints are received, the Permit will be Revoked.
5. If the activity continues after complaints and the revoked Permit, FINES ensue. (If a Permit does not have any "teeth", then what good is it?)

There are places for off-road motorcycles to play. Rural neighborhoods are not one of them.

Thank You,  
Rob Vernon  
Thompson Hill Rd  
Dist.4

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Thank you so much for your consideration of our issues.

Jo Ann and William Hoffman

5750 Thompson Hill Road

Placerville, CA 95667

530-626-6828

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**From:** Ellen Van Dyke [mailto:vandyke.5@sbcglobal.net]  
**Sent:** Saturday, August 15, 2015 10:42 PM  
**To:** bill.hoffman@hughes.net; rgvernon@directcon.net; gwilson@d-web.com  
**Subject:** off road vehicle noise in EDC

Hi - I'm Ellen- I live in Rescue. I'm reviewing our County's Final EIR for the Zoning and General Plan update, and I came across your letters to the County regarding excessive noise from a neighboring off-road motor vehicle track. This is totally not ok, and the new ordinances are not going to help us correct it the way they are currently proposed.

Rather than reinforcing that off road bike tracks are too loud to be compatible in rural areas like ours, the new Zoning Ordinances are about to allow this kind of use with an administrative permit (basically over-the-counter). The matrix below is an excerpt from the draft ordinances, section 17.24.020 - highlights are not mine, they are from an 'errata' of items added in after Oct 2012.

I want people in rural areas like ours to be aware of the proposed changes, and hopefully attend the Planning Commission hearing **Aug 27th** to let Planning Commissioners know this is a problem. Please attend if you can! You can also send comments in via email (contact info at the bottom of this email).



Zoning Ordinance Zones, Allowed Uses, and Zoning Standards

Article 2

Rev. 03/24/14

RM: Multi-unit Residential	P	Allowed use						
R1, R20K: Single-unit Residential	PD	Planned Development Permit required (17.52.040)						
R1A: One-acre Residential	A	Administrative Permit required (17.52.010)						
R2A: Two-acre Residential	CUP	Conditional Use Permut /						
R3A: Three-acre Residential	MUP	Minor use Permit required (17.52.020)						
RE: Residential Estate	TMA	Temporary Mobile Home Permit required (17.52.050)						
NS: Neighborhood Service	TUP	Temporary use permit required (17.52.060)						
	—	Use not allowed in zone						
USE TYPE							Specific Use Regulation	
	RM	R1, R20K	R1A	R2A	R3A	RE		
Wineries	—	—	—	—	—	CUP**	17.40.400	
<b>Industrial</b>								
Mineral Exploration	A	A	A	A	A	A / CUP	Chapter 17.29	
Mining	CUP	CUP	CUP	CUP	CUP	CUP		
Storage Yard: Equipment and Material Temporary	TUP	TUP	TUP	TUP	TUP	TUP		
<b>Recreation and Open Space</b>								
Golf Course	CUP	CUP	CUP	CUP	CUP	CUP	17.40.210	
Hiking and Equestrian Trail	P	P	P	P	P	P		
Marina, Non-motorized Craft	—	—	—	—	—	CUP		
Off-highway or Off-road Vehicle Area	—	—	—	—	—	A		
Boats (B.M.)	—	—	—	—	—	—		

I'd love to know this reached you, so don't hesitate to write back. -Ellen Van Dyke

Link to County page with info: [http://www.edcgov.us/Government/LongRangePlanning/LandUse/TGPA-ZOU\\_Main.aspx](http://www.edcgov.us/Government/LongRangePlanning/LandUse/TGPA-ZOU_Main.aspx)

Planner to contact on the project: [shawna.purvines@edcgov.us](mailto:shawna.purvines@edcgov.us)

Commissioners to email:

Planning Commission contact info:  
District 1, Rich Stewart: rich.stewart@edcgov.us  
District 2, Gary Miller: gary.miller@edcgov.us  
District 3, Tom Heflin: tom.heflin@edcgov.us  
District 4, Dave Pratt: dave.pratt@edcgov.us  
District 5, Brian Shinault: brian.shinault@edcgov.us  
Clerk of the Commision: charlene.tim@edcgov.us

ps: In case you did not see the County's response to your letters in the Final EIR, they pretty much all looked like this, and are located in Ch. 9.7a:

El Dorado County Responses to Comments

**Responses to Letter I-5**

**I-5-1**

The comment relates to the commenter's concerns over their neighbor's ongoing off-road motorcycle use. It does not raise any issues related to the project assessed in the DEIR. Therefore, no response is necessary.

**Hearing notification - share it with your other rural neighbors!**



## COMMUNITY DEVELOPMENT AGENCY DEVELOPMENT SERVICES DIVISION

<http://www.edcgov.us/DevServices/>

### PLACERVILLE OFFICE:

2850 Fairlane Court, Placerville, CA 95667  
BUILDING  
(530) 621-5315 / (530) 622-1708 Fax  
[eldorad@edcgov.us](mailto:eldorad@edcgov.us)  
PLANNING  
(530) 621-5355 / (530) 642-0508 Fax  
[planning@edcgov.us](mailto:planning@edcgov.us)

### LAKE TAHOE OFFICE:

3368 Lake Tahoe Blvd., Suite 302  
South Lake Tahoe, CA 96150  
(530) 573-3330  
(530) 542-9082 Fax  
[tahoebuild@edcgov.us](mailto:tahoebuild@edcgov.us)

### NOTICE OF PUBLIC HEARING

The County of El Dorado Planning Commission will hold a public hearing in the Board of Supervisors Chambers, 330 Fair Lane, Building A, Placerville, CA 95667 on August 27, 2015, at 8:30 a.m., on the Targeted General Plan Amendment-Zoning Ordinance Update (TGPA-ZOU) to receive public comment and prepare recommendations to the Board of Supervisors. The County is proposing targeted amendments to certain General Plan policies (TGPA) and a comprehensive reorganization and update to the Zoning Ordinance (ZOU) to bring it into conformance with the General Plan as required by Government Code 65860. The purpose of the proposed TGPA-ZOU is to reduce constraints to the development of moderately-priced housing, support jobs creation, capture more sales tax revenues, and protect and promote agriculture and natural resources. The project does not include any site-specific development proposals. This project is limited to the unincorporated portions of the county. The project would take effect county-wide in those areas that are under County jurisdiction including county lands outside the cities of Placerville and South Lake Tahoe that are not under the jurisdiction of federal or state agencies or tribal lands. Communities that would be affected include: Cameron Park, Camino, Diamond Springs, El Dorado, El Dorado Hills, greater Placerville, Pollock Pines, Shingle Springs, and north and south county rural communities. (Environmental Impact Report prepared)

The text of the proposed updated General Plan policies and updated Zoning Code, along with the Environmental Impact Report, are available for viewing at the Community Development Agency, Planning Services counter, at 2850 Fairlane Court, Placerville, California. The public counter is open Monday, Tuesday, Thursday and Friday from 8:00 a.m. to 4:00 p.m. and on Wednesday from 9:00 a.m. to 4:00 p.m. It is also available on the County website on the project webpage:

[http://www.edcgov.us/Government/LongRangePlanning/LandUse/TGPA-ZOU\\_Main.aspx](http://www.edcgov.us/Government/LongRangePlanning/LandUse/TGPA-ZOU_Main.aspx)

All of the meetings will be video-recorded and live web streamed on the County's website (see Agenda Calendar): <https://eldorado.legistar.com/Calendar.aspx>.

Planning Commission agendas can be viewed at <https://eldorado.legistar.com/Calendar.aspx>

All persons interested are invited to attend and be heard or to write their comments to the Planning Commission. If you challenge the application in court, you may be limited to raising only those items you or someone else raised at the public hearing described in this notice, or in written correspondence delivered to the Commission at, or prior to, the public hearing. Any written correspondence should be directed to the County of El Dorado Community Development Agency, Development Services Division-Planning Services, 2850 Fairlane Court, Placerville, CA 95667 or via e-mail: [planning@edcgov.us](mailto:planning@edcgov.us).

To ensure delivery to the Commission prior to the hearing, written information from the public is encouraged to be submitted by Thursday the week prior to the meeting. Planning Services cannot guarantee that any FAX or mail received the day of the Commission meeting will be delivered to the Commission prior to any action.

COUNTY OF EL DORADO PLANNING COMMISSION  
ROGER TROUT, Executive Secretary  
July 29, 2015

PC 9/2/15  
#1  
3 pages



Charlene Tim <charlene.tim@edcgov.us>

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## Fwd: Comments on TGPA-ZOU FEIR

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**Shawna Purvines** <shawna.purvines@edcgov.us>  
To: Charlene Tim <charlene.tim@edcgov.us>

Tue, Sep 1, 2015 at 9:53 PM

----- Forwarded message -----

From: **Jill Larner** <jalarn@comcast.net>

Date: Tue, Sep 1, 2015 at 9:08 PM

Subject: Comments on TGPA-ZOU FEIR

To: shawna.purvines@edcgov.us

Cc: bosone@edcgov.us, bostwo@edcgov.us, bosthree@edcgov.us, bosfour@edcgov.us, bosfive@edcgov.us, edc.cob@edcgov.us

Dear Shawna,

Please see the attached file for my comments for the Planning Commission meeting tomorrow.

Thank you,

Jill Larner

Jalarn@comcast.net

(916) 215-5336



This email has been checked for viruses by Avast antivirus software.  
[www.avast.com](http://www.avast.com)

**Shawna L. Purvines**  
Principal Planner

**County of El Dorado**  
Community Development Agency  
Long Range Planning  
2850 Fairlane Court  
Placerville, CA 95667  
Phone: (530) 621-5362/Fax: (530) 642-0508  
shawna.purvines@edcgov.us  
[www.edcgov.us](http://www.edcgov.us)

9/3/2015

Edcgov.us Mail - Fwd: Comments on TGPA-ZOU FEIR

 **FEIR TGPA-ZOU Comments to Planning Commission Larner 9 1 15.pdf**  
198K

September 1, 2015

County of El Dorado Planning Commission  
2850 Fairlane Court  
Placerville, CA 95667

Subject: Comments on TGPA-ZOU and Final EIR for September 2, 2015 Planning Commission Meeting

Dear Planning Commission Members:

My comments on the DEIR submitted on 7/21/14 regarding the TGPA/ZOU were not adequately addressed by the County in the FEIR. Not only did I have to seek out the County's response to my comments, the response submitted as the "Master Comments" were entirely unhelpful in regards to my concerns surrounding a specific 62 acre parcel adjacent to our residential neighborhood slated to be rezoned to R&D (Please see my comments dated 7/21/14 to DEIR). I understand this process is a programmatic EIR, but the fact remains that this "program" is making significant and concerning zoning changes to 62 acres next to my neighborhood and the affect of those changes have not been properly analyzed.

There are very specific General Plan Policies in place that state that parcels should not be rezoned without proper analysis of 19 specific criteria (Policy 2.2.5.3), and when the General Plan has created inconsistencies with existing zoning, *lower intensity zoning*, may remain in effect (Policy 2.2.5.6). Both of these existing General Plan Policies are being violated with the rezoning of this particular parcel during the "programmatic EIR" process without adequate analysis.

Two of my neighbors also submitted comments on the same concern of the rezoning of the 62 acre parcel adjacent to our neighborhood. Diane Lehr's comment (I-15-1) was provided the response that, "The County will consider the request to change the land use rather than the zoning." Can you please tell me when this consideration will take place?

I respectfully request that the Planning Commission reject the FEIR because it does not adequately analyze the impacts of implementing the Zoning Ordinance Update (e.g., rezoning this particular parcel and probably many others), nor does it clearly convey those impacts and analysis to the public.

Sincerely,



Jill Larner  
4590 Fawn Street  
Shingle Springs, CA 95682



9/3/2015

Edcgov.us Mail - Planning Commission Hearing -- September 2, 2015

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#1



Charlene Tim <charlene.tim@edcgov.us>

4 pages

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## Planning Commission Hearing -- September 2, 2015

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Site Admin <alliance4responsibleplanning@gmail.com>

Tue, Sep 1, 2015 at 10:43 PM

To: "charlene.tim@edcgov.us" <charlene.tim@edcgov.us>, rich.stewart@edcgov.us, gary.miller@edcgov.us, tom.heflin@edcgov.us, dave.pratt@edcgov.us, brian.shinault@edcgov.us

Attached is a letter from Alliance for Responsible Planning concerning the continued hearing item from August 27, 2015. We apologize for the delay, but appreciate the opportunity to provide comments.

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 ARP Letter to Planning Comm 09 02 2015 FINAL.pdf  
442K

# Alliance for Responsible Planning

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September 1, 2015

El Dorado County Planning Commission  
2850 Fair Lane Court, Building "C"  
Placerville, California 95667

Re: September 2, 2015 – Agenda Item #11-0356 – Version 17  
Targeted General Plan Amendment and Zoning Ordinance Update (TGPA/ZOU);  
Final Environmental Impact Report (FEIR)

Honorable Planning Commissioners,

We have appreciated the opportunity to provide comments to the Planning Commission on the TGPA/ZOU at various times over the past several years. We believe the public has had ample opportunity to comment on various aspects of the proposal since 2011, including the merits of the proposed changes, and the environmental effects through the CEQA review.

Several themes emerge from the public testimony at the August 27, 2015 Planning Commission hearing.

**1. Many of the issues and objections raised are not directed at the TGPA/ZOU, they target policies of the adopted 2004 General Plan.** Although more than 10 years have passed, there are some who opposed adoption of the General Plan in 2004, and continue to oppose its implementation today. A number of issues were decided by the General Plan, such as the objective to expand agricultural support services and uses in rural areas, or the need to bring zoning into consistency with the plan. Yet, in the context of the TGPA/ZOU discussion, we continue to be peppered by questions such as “Why bring zoning consistent with the General Plan” or “Why not zone LDR (planned for 5 to 10 acre parcels) to require 20 acre parcels (an alternative rejected with adoption of the 2004 General Plan)?” Such questions are not within the scope of TGPA/ZOU.

**2. Many of the recent late comment letters are orchestrated to enhance the outcome of the litigation that will almost certainly follow final action on TGPA/ZOU.** CEQA

P.O. Box 83, Camino, CA 95709 • [www.edcarp.org](http://www.edcarp.org) • [alliance4responsibleplanning@gmail.com](mailto:alliance4responsibleplanning@gmail.com)  
Alliance for Responsible Planning is a California nonprofit public benefit corporation

11-0356 Public Comment  
PC Rcvd 09-01-15 to 09-02-15

defines a process allowing public input to encourage discussion of potential environmental impacts, and the County has made a good faith effort to respond to the comments raised. But, despite its worthy goals, the CEQA process is sometimes misused and abused. At the 11<sup>th</sup> hour, in response to the RDEIR, a few individuals submitted nearly 5,000 pages of comments and supporting documents, then requested that the County not authorize a contract extension to pay the consultant to prepare the required response. After that effort failed, and the County issued a comprehensive response, several new recycled comment letters were submitted prior to this hearing, raising what are presented as new issues and offering new alternative mitigation measures. These appear calculated to further delay the process and create an endless loop of comment-response-comment-response that never leads to a decision.

**3. Many of the comments misunderstand or mischaracterize the TGPA/ZOU proposals and their goals and objectives.** For example, one late comment letter recommended a series of new alternative mitigation measures, including a more stringent policy that goes well beyond the adopted General Plan by prohibiting disturbance on 30% slopes in Rural Centers and Rural Regions unless necessary for access. If that alternative mitigation measure would minimize certain environmental effects, it would do so only because it would strip landowners in steep slope areas of the right to reasonable use of their property by prohibiting disturbance other than for access. In essence, it would allow such a landowner to build a driveway but not a building site on the property. The ZOU policy as proposed implements the General Plan exemptions for **“reasonable use” of existing parcels**, but the new “alternative mitigation measure” defeats this objective.

Another new alternative mitigation measure would expand permitting requirements for Ranch Marketing by requiring any marketing, promotional or special event to obtain a discretionary permit, including Conditional Use Permits or Temporary Use Permits. One of the primary goals of the TGPA/ZOU is to protect and enhance agricultural operations as an economic sector in El Dorado County. Our agricultural businesses often depend on the ability to market their product directly to consumers, including residents and visitors through various events, such as wine dinners and craft or music festivals.

The proposed Ranch Marketing provisions of the ZOU would allow certain marketing and special events meeting specific criteria “by right”, and require discretionary permits where the number, size or scope of events exceeded the criteria. The alternative mitigation measure would require discretionary permits for all such events and apparently disallow any events that do not conform to the criteria. The discretionary permit process is time-consuming, complex and expensive, and the alternative mitigation measure not only defeats the goals of the General

El Dorado County Planning Commission

September 1, 2015

Page 3

Plan and TGPA/ZOU to expand agricultural-related uses allowed on agricultural lands, but would likely also have a chilling effect on the future of agricultural business in El Dorado County.

We urge the Planning Commission to carefully consider the advice of your professional staff and counsel, and to take the necessary action to move the TGPA/ZOU forward to the Board of Supervisors for decision.

Thank you for considering our input on these important issues.

Very truly yours;

ALLIANCE FOR RESPONSIBLE PLANNING

(Sent via email; original to follow)

ARP/rlk

PC 9/2/15  
#1  
2 pages



Charlene Tim <charlene.tim@edcgov.us>

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## Fwd: Rezoning agenda

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**Shawna Purvines** <shawna.purvines@edcgov.us>

Wed, Sep 2, 2015 at 7:16 PM

To: Charlene Tim <charlene.tim@edcgov.us>, Jim Mitrisin <jim.mitrisin@edcgov.us>

Cc: David Defanti <david.defanti@edcgov.us>

----- Forwarded message -----

From: **luckysgirl2040** <luckysgirl2040@gmail.com>

Date: Wed, Sep 2, 2015 at 5:28 PM

Subject: Rezoning agenda

To: "shawna.purvines@edcgov.us" <shawna.purvines@edcgov.us>

Hello Shawna,

Please forward to the appropriate decision makers.

I absolutely oppose any rezoning decisions be made without public input. Especially the impacted neighborhood.

Public input is absolutely necessary. Especially when it comes to zoning decisions being made by the self appointed and or hirelings in our county whom have conflicting interests.

We the people of this county are no longer politely asking, we demand you listen and act on behalf of the will of the people you all serve.

By what authority does anyone of you have in making life changing zoning decisions without public input?!

It is very important for you all to remember WHO PAYS YOUR SALARY. Also remember who can have you FIRED should you continue to go on like this.

The people of this county, state and our country for that matter have had it with selfserving immoral dishonest scamming liars at the helm. Your behavior has been and will be duly noted.

Pay attention to the needs of those you SERVE. (The people of el dorado county, not the state or sacramento) If you cannot SERVE your own people find a new job. If you do not reside here, you really have zero rights to make decisions you do not even have to live with.

Sincerely

Roxanne Allgeier

--

**Shawna L. Purvines**  
Principal Planner

**County of El Dorado**  
Community Development Agency  
Long Range Planning  
2850 Fairlane Court

9/3/2015

Edcgov.us Mail - Fwd: Rezoning agenda

Placerville, CA 95667  
Phone: (530) 621-5362/Fax: (530) 642-0508  
shawna.purvines@edcgov.us  
www.edcgov.us

9-2-15 TGPA/ZOU Comment by Sue Taylor

(Distributed at  
hearing by  
Sue Taylor)

PC 9/2/15  
#1  
2 pages

Regarding the FEIR, Final Environmental Impact Report, the responses to my comments I-Recirc-23-1 to I-Recirc-23-10 were repetitive and non-responsive to my requests for specific mitigation due to impacts of the TGPA/ZOU project. The County made assumptions on many comments that there was no need to respond because there was no environmental point. By making that assumption, the County has not provided an analysis to show that they are NOT impacting the General Plan.

An example of repetitive is that the phrase "The comment is not on a significant environmental point, and therefore no response is necessary" was used in 7 out of 10 comments. Additionally, 4 of the 10 responses referred to Master Response 8, and 1 referred to Master Response 7.

An example of a non-response is in Response I-Recirc-23-7. In order to mitigate the impact to aesthetics, the 2004 General Plan required the County to identify scenic and historic roads, corridors and vista points. Because the County has yet to implement the policy for implementation, a significant scenic resource #1B vista point on the County's resource list was violated in a way that may never be restored. The response to my comment minimized the true impact to this locally significant resource, which concluded with a nonresponsive statement.

## **Regarding Master Response 7: General Plan and Zoning Ordinance Consistency Requirements**

Staff states throughout the FEIR that zoning consistency is required by State law, and that the County is meeting that requirement in the ZOU. However, staff is ignoring the fact that the courts defer to counties to interpret their own general plan policies for consistency, as long as the interpretation is not arbitrary and capricious. Policies 2.2.5.2 and 2.2.5.6 can be interpreted as a means for consistency between the General Plan and the Zoning Ordinance.

The County could apply 2.2.5.2, which allows the County to modify the land use map, or the County could apply 2.2.5.6, which allows the zoning to be inconsistent with the land use until the infrastructure is in place to accommodate a higher-density zone district. Aside from these 2 policies that maintains a valid General Plan, Policy 2.2.5.3 lists the criteria to consider for rezoning parcels and must be adhered to for environmental review. By allowing County Staff to determine how to change each property owners zoning district, reviewing criteria for consistency is being side-stepped and thus violating the required environmental review.

Master Response 7 is contradictory to court interpretation and therefore cannot be used as a valid response to comments in the FEIR. Therefore, a response is necessary to comment I-Recirc-23-10.

Page 1 of 2

## **Regarding Master Response 8: General Plan Policies and Mitigation**

El Dorado County has a poor history of implementing and following through with mitigation measures on projects and the 2004 General Plan. By not implementing past mitigation measures in regards to our historic, cultural, agricultural, and natural resources, the County is continuing to impact those resources, which is a significant environmental point. The TGPA/ZOU will further exacerbate the environmental impact to these resources. Master Response 8 is inadequate in addressing those impacts.

Also, the one-page proposed CEQA Mitigation Monitoring Plan does nothing to ensure that the County will, in fact, fully fund and fully staff a mitigation monitoring plan. Therefore, a response to these comments IS necessary.



9-2-15 Comment on responses in FEIR by Sue Taylor

Distributed at hearing  
by Sue Taylor

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O-1-146

In implementing the TGPA/ZOU, it has been documented that there is going to be a significant and unavoidable loss of agricultural land. "Convert Important Farmland, Gazing [Grazing] Land, land currently in agricultural production, or cause land use conflict that results in cancellation of a Williamson Act contract." According to Policy 8.1.3.4, this policy required the opportunity for the Agricultural Commission and the Planning Commission to weigh in to each conversion of agricultural use to another use. If it was found that there was a significant impact, the policy requires that there is to be a 1:1 replacement for the loss of agricultural land. Simply stating that Policy 8.1.3.4 is not being revised under the proposed project does not respond to the impact of maintaining the 1:1 agricultural land replacement, which is mitigation for the 2004 General Plan. Therefore, a response IS necessary.

O-1-147

By not acknowledging any impact, the County is avoiding its responsibility to mitigate these impacts. Changing the definition of "Compatible uses" for timber properties and also changing the zoning of Timber Preserve Zones to other uses will impact timber production in El Dorado County. This impact has still not been addressed.

The ZOU is allowing changes without oversight of the Ag and Planning Commission. Compatible uses have been changed to include more residential and resort opportunities, which will greatly impact existing and surrounding timber preserve properties.

O-1-148

By not acknowledging any impact, the County is avoiding its responsibility to mitigate the impacts of the TGPA/ZOU. By allowing TPZ to be converted to other uses, and being that the General Plan states the economic importance of the timber industry, you can say that there will be foreseeable environmental impacts that will be created indirectly by the economic changes due to this project's implementation.

Many of the changes being made in the TGPA/ZOU are not necessary for consistency with the existing General Plan.

O-1-149

The responder asserts the land suitable for agricultural use that was placed in Ag Districts was determined by the Ag Commissioner based on a set of criteria. In reality, the County sent out a mass mailer asking agricultural property owners surrounding the

9-2-15 Comment on responses in FEIR by Sue Taylor

proposed Ag Districts whether they wanted to opt-in or opt-out. The impact of the loss of agriculture zoned parcels has not been addressed.

*"Looking at Figure 3.2-1, the El Dorado county Important Farmland of 2010, from the Farmland Mapping & Monitoring Program, it shows Prime Farmland (661 acres), Farmland of Statewide Importance (827 acres), Unique Farmland (3,206 acres), Farmland of Local Importance (59,565 acres), and Grazing Land (193,883 acres) distributed throughout the entire mass of El Dorado County.*

*The 2004 General Plan EIR concluded that the adoption of that plan created the potential for 63,307 acres of these particular acres listed to be converted to other uses. The discussion in the TGPA/ZOU EIR explains the amount of acreage being added into Agricultural Districts, but does not explain what the overall affect will be to Agricultural Zoned Lands throughout the County."*

The effect on the loss of these important farmlands have not been addressed.

The Final EIR determined:

3.2 Agricultural and Forestry Resources			
AG-1: Convert Important Farmland, Grazing Land, land currently in agricultural production, or cause land use conflict that results in cancellation of a Williamson Act contract	S	AG-1a: Amend the ZOU to limit the size of proposed Health Resort and Retreat Centers AG-1b: Amend the ZOU to limit Public Utility Service Facilities to minor facilities in the PA, AG, and RL zones	SU

To allow this project to be approved, the BOS will have to find Overriding Considerations that justify this significant and unavoidable impact to agriculture. One of the Overriding Considerations written by staff states that the loss of this resource is overwritten by the economic benefit to agriculture. How can there be an economic benefit to agriculture when the FEIR determined that there will be a significant loss to agriculture? This project should be abandoned because there is an internal conflict with the conclusion.

I-60-1

This comment addressed the basis or purpose for the TGPA/ZOU project and the adequacy of the project description in the DEIR. The comment also addresses the illegal or legal process of this project. A response from the lead agency IS required.

Regarding Master Response #3, the County is picking and choosing policies of the General Plan that justifies their purpose for rewriting the Zoning Ordinance. The County

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has left out General Plan policies that allow for historic zones to remain due to lack of consistency or lack of compliance to other General Plan elements and policies.

I-60-2

This comment addressed the basis or purpose for the TGPA/ZOU project and the adequacy of the project description in the FEIR. Knowing that this project will have a huge environmental impact, the FEIR does not clearly state what the benefit will be to the citizens of El Dorado County. There is no analysis in the FEIR to show that this project will perform as expected to achieve the goals in the Resolutions of Intention. The purpose for the project is part of CEQA, therefore a response from lead agency IS required.

I-60-3

This comment addressed that the County is NOT implementing the existing 2004 voter approved General Plan, but instead are amending the plan and writing a new Zoning Ordinance. This is in conflict with the General Plan's purpose and objectives, therefore creating an internal conflict between the existing plan the new plan. Therefore a response from lead agency IS required.

(Distributed at hearing by Ellen Van Dyke)

PC 9/2/15  
#1  
8 pages

**Public Comment - Planning Commission hearing for the TGPA/ZOU - 9/2/15 -Ellen Van Dyke**

Last meeting, some Commissioners said approving the EIR would only 'give the County options'. But certifying a flawed EIR has consequences that both Staff and County Counsel should be telling you about:

- **unanticipated impacts may exceed the County's resources, and**
- **legal ramifications could tie the project up in the courts**

Inconsistencies in the policies, analysis, and responses are flaws in the EIR, and continuing to correct them one item at a time will not address the underlying problem.

Specific Examples of errors:

1. The FEIR does not acknowledge up-zoning as having any impact.
  - a) Per CEQA, it *should* have provided a forecast of possible subdivisions due to up-zoning, and included those impacts as a foreseeable consequence of the project, and
  - b) the number of parcels potentially created should have been evaluated for impact (sample APN's below)
2. The Board-directed criteria for 'consistency' rezoning was to retain equivalent intensities, per Staff in presentation to the Commissioners Aug 13, 2014 (timestamp 2:43:33: "if they currently had a zone of RA40 we would do it to RL40"..."we didn't want to burden anybody and we didn't want to benefit anybody").

A few examples of the numerous parcels that did NOT follow this criteria:

- APN **074-050-10**, 640-acres, from AE to RL10 (potential subdivision to 64 parcels)
- APN **046-830-03**, 179-acres, from AE to RL10 (potential subdivision to 18 parcels)
- APN **060-031-55**, 175-acres, from AE to RL10 (potential subdivision to 17 parcels)

- a) 1:1 mitigation is required for conversion of Agriculture land, per General Plan policy 8.1.3.4
  - b) If the minimum intensity zone were applied as stated, these would all be RA/PA/LA20+
  - c) AE is being eliminated unnecessarily, as ordinance 17.36.100 allows for 'rolled out' parcels in AE.
3. The FEIR erroneously claims limited zone changes are being made to the least restrictive zone, and for consistency purposes only (pgES-5, pdf p26/516). Examples where this is not the case:

- APN **329-171-74**, rezoned from RE10 to R1A, Land Use: MDR, (consistent per table 2-4; change unnecessary)
- APN **329-171-15**, rezoned from RE10 to RE5, Land Use: MDR (consistent per table 2-4; change unnecessary)

Revised Table 2-4  
General Plan Land Use Designation and Zoning

Zones	Land Use Designation						
	MFR	HDR	MDR	LDR	RR	AL	...
RM	•						
R1		•	Δ				
R20K		•					
R1A		•	•				
R2A			•				
R3A			•				
RE (5-10)			•	•	• <sup>2</sup>		
CPO							

- Changes have not been consistently made to the least intensive zoning.
- Discretionary review is circumvented (*parcel maps have Zoning Administrator approval per ZOU 17.60.030*)
- Foreseeable subdivisions were not analyzed in the FEIR as required by CEQA
- Incompatible uses & inconsistencies are being *created*. More examples:

APN 319-260-01, from RE5 to R&D, with residential on three sides (creating incompatible use)

APN 329-310-12, RE10 to R1 in HDR (should be R1A for least intensive zone)

APN 331-440-01, RA20 to R1A in HDR (40-acres, foreseeable subdivision analysis required under CEQA)

APN 126-180-35, R1A to R1 in MDR, (not a necessary change)

APN 069-150-14, RE10 to RE5 in MDR (not a necessary change)

APN 087-200-74, Open Space to MV-TM (no changes to Specific Plans per the FEIR)

APN 119-020-56, Open Space to MV-TM (no changes to Specific Plans per the FEIR)

APN 070-011-48, RE10 to R1A, 126-acres (foreseeable subdivisions analysis required under CEQA)

APN 115-400-12, RF 'natural open space' to RF-H (*Bass Lake parcel*); *NOT* an "isolated case" (*FEIR, pdf 692/1387*)

APN 329-310-10, multiple zones on one parcel, including 10-acres of RF to RM (unnecessary change)

APN 070-250-05, R1A to CR in residential area (incompatible use should have been reviewed for map change)

APN 331-221-30, R2 to RM (many uses now by right that *used* to require an SUP)

APN 083-350-55, from RE10, Planned Development, to four separate zones on a single parcel: RM, CC, RM, & R1

4. The FEIR does not take into account any changes made via site specific requests since they supposedly don't happen (examples below):

<p><b>Executive Golf Course:</b>      <i>121-160-83</i></p> <p>1. The Land Use map designates the site largely as Open Space and a very small piece at the northern tip as Commercial. The draft zoning map designates it entirely Recreational Facility-High (see Table 17.25.020 for Matrix of Permitted Uses), which seems to be consistent with the current zone district of Recreational Facilities (Chapter 17.48). Are there any concerns about losing the small Commercial piece?</p>
<p><b>Marble Valley:</b></p> <p>1. The proposed zoning map designates the MVLLC portion as Marble Valley Tentative Map (true) and the Arts Center as Recreational Facility-High, which seems appropriate. The glossary (pg 7) defines concert halls and the like as Indoor Entertainment under the Commercial Recreation use type, which is a permitted use under the RFH zone.      <i>087-200-74, 119-020-56+57</i>  <i>119-020-13 thru 19</i></p> <p><i>Serrano:</i></p> <p>1. The D2 park is proposed for OS zoning; should be R1. = <i>121-120-20</i></p>

Shawna Purvines  
El Dorado County Development Services  
2850 Fairlane Ct., Building C  
Placerville, CA 95667

July 6, 2012

Subject: Targeted General Plan Amendment and Zoning Ordinance Update

Dear Shawna,

The purpose of this letter is to request an alternative zoning designation for our parcel (APN 329-171-74) at 4260 Boyd Lane, Placerville as part of your consideration of the Zoning Ordinance Update. The proposed designation is R3A and we are requesting R1A for the following reasons.


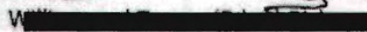
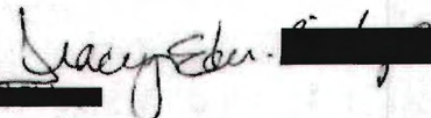
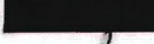
My wife and I purchased the parcel with my wife's parents, Reg and Dianne Eden, in the early 1990s with the intention of subdividing the 3.4 acres into three 1+ acre parcels for retirement income. Before we bought the property we talked to a planner in your department to find out what the general plan designation and zoning was. We were told the general plan designation was high density residential and the zoning was RE10. We were also told that the RE10 was a holding zone until a specific project (a rezoning or parcel map) was proposed and that because there were 1 acre parcels along our parcel map road and around our parcel, there was a strong likelihood that the parcel could be rezoned to R1A. There was also a proposed 1 acre subdivision to the west of and adjacent to our parcel on APN 329-171-15 and a high density tentative subdivision map on the Hagen Ranch properties which adjoin our parcel to the southwest. We also determined that El Dorado Irrigation District (EID) service would be available for a 3-way parcel split (see attached EID Facility Improvement Letter) and that adequate fire flow and hydrants were on site for 3 parcels (see attached Diamond Springs/El Dorado Fire Department letter).

We understand that there are no guarantees when it comes to subdividing, but felt we did our due diligence in determining the feasibility of subdividing and actually paid a premium for that potential in the cost of the parcel.

In reviewing the zoning maps proposed as part of the Zoning Ordinance Update, the proposed zoning for our parcel is RA3 instead of the R1A designation we expected. As a result, we would like to request that you reconsider the zoning for our parcel and designate it as R1A consistent with the surrounding parcels along our access road and the adjoining Hagen Ranch property.

Thank you for your consideration.

Sincerely,

5. The FEIR says existing Policy 5.3.1.7 limits increased development in areas without public sewer, and that it will not be changed in the TGPA. However, that's in conflict with amended Policy 5.3.1.1, which relaxes this requirement:

from FEIR page 9-147:

General Plan Policy 5.3.1.7, which is not proposed for amendment, limits new development in areas without public sewers:

In Community Regions, all new development shall connect to public wastewater treatment facilities. In Community Regions where public wastewater collection facilities do not exist project applicants must demonstrate that the proposed wastewater disposal system can accommodate the highest possible demand of the project.

from the TGPA:

**Policy 5.3.1.1** High-density and multifamily residential, commercial, and industrial projects ~~shall~~ may be required to connect to public wastewater collection facilities if reasonably available as a condition of approval. ~~except in Rural Centers and areas designated as Platted Lands ( PL). In the Community Region of Camino/Pollock Pines, the long term development of public sewer service shall be encouraged; however, development projects will not be required to connect to wastewater collection facilities where such connection is infeasible, based on the scale of the project.~~ (Res. No. 298-98; 12/8/98)

6. The project description has *not* been accurate or stable throughout the project, as required by CEQA. Examples:
- a) The DEIR comments included multiple requests for clarifications that are left unanswered
    - i. Question O-1-27 (pdf p339/1387) re: precedence of Ag vs. habitat in Open Space preservation
    - ii. Question O-1-36 (pdf 342/1387) re: no bio under 2.8, but riparian changes included
  - b) Extensive LDM standards were added with the recirculation, not part of the DEIR.
  - c) new open space policy 2.2.5.23 and ZOU 17.30.080 was added to PC flagged items, but not the errata
  - d) newly adopted Sign Ordinances were added in with FEIR errata but not included with cumulative impacts.
  - e) the importance of Open Space per Objective 7.6.1 was to be added to Policy 2.2.1.2 per ROI 182-2011, but has now been deleted from the FEIR Project Description.
  - f) Policy 10.2.1.5 alters the Public Facilities Financing Plan. There is no hint of this in the Project Description or errata.
7. Cumulative impacts were inconsistently applied throughout the FEIR. Examples:
- a) traffic did not include the major proposed developments as required, whereas the water analysis did
  - b) the concurrently proceeding Sign Ord. was omitted, then later added to the FEIR errata without any analysis
  - c) the FEIR assumes Option A tree retention requirement to be in place throughout its analysis, but it is clearly being eliminated through a separate project on a parallel path (Biological Resources Policy update).
8. The FEIR incorrectly assumed noise standards would continue to apply to daytime construction noise (FEIR pg 3.7-5).

From the FEIR, page 3.7-5:

El Dorado County

Impact Analysis  
Noise

The standards outlined in Tables 3.7-5, 3.7-6, and 3.7-7 apply to those activities associated with actual construction of a project as long as such construction occurs between the hours of 7 a.m. and 7 p.m., Monday through Friday, and 8 a.m. and 5 p.m. on weekends, and on federally recognized holidays. Exceptions are allowed if it can be shown that construction beyond these times is necessary to alleviate traffic congestion and safety hazards.

From the TGPA (highlights not added):

**Policy 6.5.1.11**

The standards outlined in Tables 6-3, 6-4, and 6-5 shall not apply to those activities associated with actual construction of a project as long as such construction occurs between the hours of 7 a.m. and 7 p.m., Monday through Friday, and 8 a.m. and 5 p.m. on weekends, and on federally-recognized holidays. Further, the standards outlined in Tables 6-3, 6-4, and 6-5 shall not apply to public projects to ~~Exceptions are allowed if it can be shown that construction beyond these times is necessary to alleviate traffic congestion and safety hazards.~~

Additionally, the Statement of Overriding Considerations says "**the ZOU includes a new noise ordinance...**" while Technical Memo 2 contradicts that, saying there are **no revisions to noise standards**.

9. The FEIR findings are inconsistent regarding Ag setbacks and parcel size (*attachment 16D, pdf page 10/15*)
  - a. the Findings specify 10-ac min. parcel size, consistent w/ existing policy 8.1.3.1. However, Policy 2.2.2.2 allows exceptions for 5 ac minimum parcels adjacent to Ag.
  - b. Findings specify 200' setbacks, as does the 2005 Decision lifting the writ; but TGPA policy 8.1.3.2 includes exceptions that allow 50' setbacks
  - c. policy 8.1.3.1 revises the requirement for parcel proportions, reducing buffering to "when feasible"
  - d. changes a-c above are *inconsistent* with ordinance 17.14.120C3, which does not allow exceptions to Ag buffer provisions: (... I cannot tell if this ordinance is deleted or retained in the ZOU.)

3. No parcel size exception shall be granted where the exception would conflict with General Plan policies or Zoning Ordinance provisions that require buffers to adjacent parcels.

10. The FEIR Project Overview (*page 2-1*) says "the current Gen Plan would remain unchanged". But the ZOU is the mechanism largely making the changes- for example, General Plan policy says the Riparian setbacks will be 50'/100', but the ZOU revises that to 25'/50' without revising the General Plan policy. The Project Description does not indicate the change, and the statement that the General Plan is "unchanged" is misleading at best.

A sampling of mitigations from the 2004 General Plan that are being altered -

- a. Agricultural protections are reduced. This update grants exceptions for reduced setbacks and parcel sizes that are inconsistent with the FEIR findings, because the findings assume that these 2004 mitigations are in place:



### **MEASURE AF-A**

Review the Zoning Ordinance (Title 17 of the El Dorado County Code) to identify revisions that accomplish the following:

- A. Provisions that establish minimum densities of and setbacks on lands adjacent to agriculturally-zoned lands and timberlands to protect current and future agricultural and timber production on those lands as set forth below:
1. 10-acre minimum parcel sizes adjacent to agriculturally-zoned lands [Policy 8.1.3.1];
  2. 200 foot setback adjacent to agriculturally zoned lands [Policies 8.1.1.5 and 8.1.3.2];

and

### **MEASURE AF-F**

Establish a threshold of significance for the loss of agricultural land, a procedure for evaluating a project's contribution to the loss, and means to mitigate losses so that the established threshold is not exceeded. The public shall be provided opportunity to comment on the program(s) before adoption. [Policy 8.1.3.4]

- b. Open space requirements are reduced through the elimination of Policy 2.2.5.4, with further reductions granted through Policy 2.2.3.1 and ZOU exemptions. 2.2.1.2 was to have the importance of open space added into the Open Space description, but this was removed from the FEIR Project Description.

- *Policy 2.2.3.1* amends the open space requirements in Planned Development (-PD) combining zones. It would newly exempt the following types of development from the current requirement that 30% of a site be retained in open space for recreation, buffer, or habitat uses.
  - Condominium conversions.
  - Residential Planned Developments consisting of five or fewer lots or dwelling units.
  - Infill projects within Community Regions and Rural Centers on existing sites 3 acres or less.
  - Multi-Family Residential developments.
  - Commercial/Mixed Use Developments.

The amendment would revise the 30% open space requirement in High Density Residential (HDR) -PDs to a discretionary 15 and 15 set aside: 15% to be provided in a recreational or landscaped buffer/greenbelt and 15% to be provided in private yards. It would eliminate the provision that open space may be kept as wildlife habitat, instead providing that that it may be retained in a natural condition.

- c. hillside development restrictions are being relaxed, including standards for septic on slopes exceed State law limitations. From the FEIR page ES-22:

#### **Loss of the county's rural character as a result of higher-density residential development in Community Regions and Rural Centers, and more intensive uses in rural areas.**

Approval of the TGPA would allow increased residential density in areas designated for mixed-use in comparison to the existing General Plan. In addition, proposed changes in slope restrictions under the TGPA and ZOU would enable certain development to occur on slopes that cannot be used under the existing General Plan and Zoning Ordinance provisions. The ZOU would allow a variety of agricultural marketing and other nonagricultural uses in rural areas upon approval of conditional use permits. It would also expand the range of uses allowed by right as home occupations. All of these proposed changes have the potential to alter the county's rural character where such development would take place.

11. The Project's Findings incorrectly say an SUP is required for Ag housing or Ag support uses. Amended policy 8.2.4.2 says otherwise, as does ZOU 17.24.020.

*Changes to 8.2.4.2 from the TGPA strikeout version:*

**Policy 8.2.4.2**

~~A special use permit shall be required for v~~ Visitor serving uses and facilities ~~providing they are~~ shall be allowed in the Zoning Ordinance when compatible with agricultural production of the land, are supportive to the agricultural industry, and are in full compliance with the provisions of the El Dorado County Code and compatibility requirements for contracted lands under the Williamson Act.

Additionally, the FEIR Responses incorrectly tell commenters (i.e. letter O-1-28) that *there is no amendment proposed for Policy 8.2.4.2.*

The FEIR is riddled with errors and conflicts.

37,000 parcels are receiving new zone designations whether they need them or not.

There are 38 significant impacts that cannot be mitigated.

Do **NOT** recommend adoption of this flawed EIR, or approval of its associated Findings of Fact and Overriding Considerations. Plenty of resources have been expended, but do NOT throw good money after bad.

Just say NO.

Ellen Van Dyke

Email Sent to Commissioners Aug 13, 2014, after the TGPA/ZOU hearing that day:

**From:** Ellen Van Dyke  
**Sent:** Wednesday, August 13, 2014 7:02 PM  
**To:** Brian Shinault ; Dave Pratt ; Tom Heflin ; Walter Mathews ; Rich Stewart  
**Subject:** Zoning\_AE

Commissioners:

I understood from the presentation today that the AE zone was being replaced because when Williamson Act rollouts occurred, the property owner was required to do a rezone.

Not true. From the [current] Zoning Ordinance:

**II. EXCLUSIVE AGRICULTURAL (AE) DISTRICTS**

**17.36.060** Applicability. The regulations set forth in Sections 17.36.070 through 17.36.100 shall apply only to those lands subject to the Land Conservation Act of 1965.

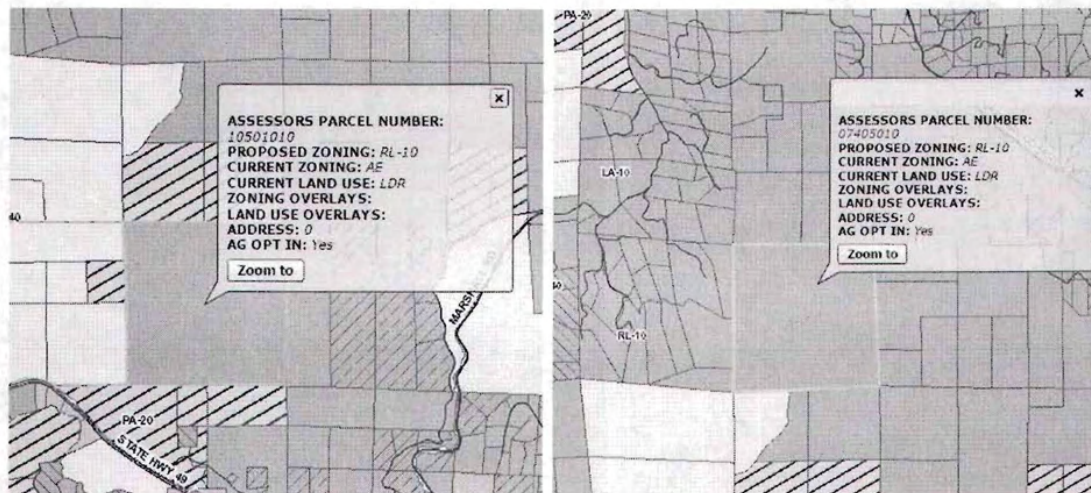
**17.36.100** Applicability. The regulations contained in Sections 17.36.060 through 17.36.090 shall also apply to lands zoned AE but which are not encumbered by Agricultural Preserve Contracts. This section is not a change of but is declaratory of existing law. (Ord. 3827 (part), 1988: prior code §9415.6)

I also understood that properties subject to a rezone under LUPPU were being changed to a comparable zone. That is, RE10 would change to RL10 or RA10, or whatever zone had the same minimum parcel size.

Also not true. From the AE development standards:

**17.36.090 C.** Minimum parcel area, twenty acres

Parcels 10501010 and 07405010 are both currently zoned AE and are proposed for rezoning to RL10.



These are two random parcels I picked because they were large; 640 acres. Under LUPPU they will now be entitled to double the number of parcels with a simple tentative map.

This is a LOT more than basic consistency changes. At the very least, these should go to RL20. How many more of these are there?

It does not actually look as though there is any reason to 'do away with' the AE zone, at least not for the explanation given today.

Ellen Van Dyke

(Distributed at hearing  
by Cheryl Langley)

PC 9/2/15  
#1  
87 pages

Cheryl Langley  
5010 Mother Lode Drive  
Shingle Springs, CA 95682

**Planning Commission**

Date: September 2, 2015

Rich Stewart, Chair, District 1  
Dave Pratt, First Vice-Chair, District 4  
Brian Shinault, Second Vice-Chair, District 5  
Gary Miller, District 2  
Tom Heflin, District 3

**Subject: TGPA/ZOU; Agenda Item # 1; File # 11-0356; PC Meeting September 2, 2015**

Planning Commission Members:

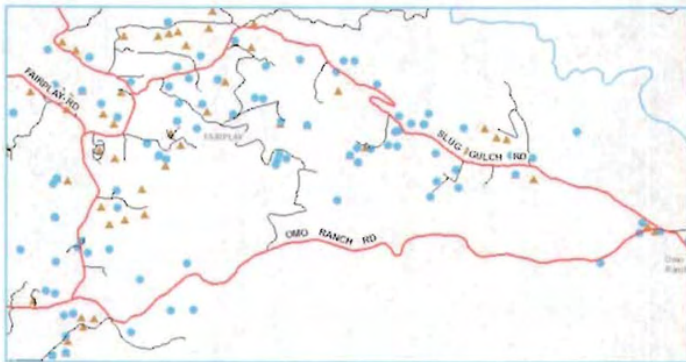
It is essential that the County develop a Groundwater Management Plan (GWMP). Without a GWMP as a basis for land use planning, residents' investments are jeopardized. Proper land use planning can protect County residents from investing in areas where well failure is more prevalent, and where contamination of wells from septic tanks is probable; and it can protect the investments of existing landowners as well.

**GWMP Development is Authorized**

Existing law authorizes local agencies to adopt and implement a GWMP; nothing precludes a county **without defined groundwater basins** from developing GWMPs. Bulletin 118, a publication of DWR, stresses the importance of establishing GWMPs in counties without defined basins, and provides a model ordinance for non-basin areas. The goal of the ordinance is to assure a "long-term, sustainable, reliable, good quality groundwater supply." Isn't this what County planners want for County residents?

**County Wells**

While it is understood that wells and well production can vary widely within a given area based on the nature of fractured rock aquifers, important planning information can be gained from an evaluation of existing data. For instance, a cursory look at the Fairplay area reveals the following:



**Map Source:** El Dorado County Surveyor's Office; GOTNET. (Blue dots = groundwater wells.)

For the approximate 40+ wells evaluated in this area, the average/median depth was 443/440 feet, respectively with an average/median gallon per minute (gpm) production rate of 15/8. Approximately 16 percent of the wells had well deepening permits.

The cost of a well? Tanko Well Drilling charges \$70 per foot to drill and estimates an additional \$6,000 for permits, tank, and pump.<sup>1</sup> Thus, a 200 foot well would cost about \$20,000.

Doing the math, if the wells described in Fairplay were drilled today, the “average” well would cost over \$37,000—with no gpm guarantee.

**Latrobe Area Wells**

Latrobe area wells can also be problematic. For example, data for four wells on Coulter Lane, show an average/median depth of 610/650, and an average/median production rate of four gpm (for both the average and median). Using the available cost figure, this means if these wells were drilled today they would cost between \$48,700 to 51,500 for a four gpm yield.

Coulter Lane			
Parcel No.	Depth	GPM	Location
08703036	600	1.5	Coulter Lane
08703052	700	4	
08703051	440	6	
08703049	700	4	
Average	610	4	
Median	650	4	

**Planning Can Save Residents from Risky Investment**

If recreational facilities/commercial/industrial development were to occur in areas of groundwater reliance, development will likely have a serious impact on adjacent wells.

**Case in point:** if you are a vineyard owner in this area, how likely are you to welcome another vineyard in close proximity? What about a golf course or industrial development next door? Or if you’re a farmer, do you want your neighbor—or neighbors—blaming you for their wells going dry? (See **Attachment 1:** NPR article.) Because there are little or no funds set aside to assist domestic well owners, if a well fails the owner must pay to either deepen an existing well or drill a new well—and hope for the best. The NPR article on dry wells concludes: *“If they can’t afford to drill new wells, they may be faced with trying to sell homes that have no water.”*

A second article (**Attachment 2:** Sacramento Bee) describes the groundwater situation statewide, but specifically discusses the well-deepening issues as it pertains to El Dorado County. A supervising engineering geologist at the Department of Water Resources (DWR) who

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<sup>1</sup> Personal communication with Tanko Well Drilling, September 1, 2015.

helped produce the report said she "...hopes the report will encourage the public and water agencies to plan their groundwater use."

### **Contamination Problems**

Because development in rural areas will rely on septic/waste pond systems, it is also likely contamination of groundwater supplies will be a serious problem. The fractured rock aquifers of El Dorado County provide an easy conduit for septic to flow into groundwater. The attached *Water in the West* report (**Attachment 3**) states, "...the quality of groundwater is an important issue that is inseparable from groundwater quantity and is directly affected by land use planning."

### **Water in the West**

Water in the West's report, "*Before the well runs dry: Improving the Linkage Between Groundwater and Land Use Planning*" (**Attachment 3**) was prepared by the Stanford Woods Institute for the Environment and the Bill Lane Center for the American West. Water in the West convened groundwater managers, land use planners, water lawyers, consultants and academics at Stanford University in the fall of 2013 for an "Uncommon Dialogue." The aim of this dialogue was to develop a path to a more effective integration of land use planning and groundwater management.

Why is this dialogue necessary now? Many communities are facing groundwater shortages due to land use changes. In San Luis Obispo declining groundwater levels—largely driven by an increase in vineyards and residential housing—have caused some residential and agricultural wells to go dry. The report concludes, "*The community is now facing a water crisis driven by land use changes.*"

The report emphasizes:

*While many examples of successful local groundwater management exist, on whole, land use decisions are still largely made without considering water demands, and groundwater decisions are made without considering land use. As groundwater depletion continues, there is growing consensus that effective integration of land use planning and groundwater management is essential.*

One of the report recommendations was to "...strengthen the linkage between land use and water by explicitly connecting general plans with groundwater management plans..."

### **Uncommon Innovation**

A second report, (**Attachment 4**) "*Uncommon Innovation: Developments in Groundwater Management Planning in California*" provides information on methods for local agencies to manage groundwater in California. The report is based on an analysis of 52 GWMPs (randomly selected out of 130 total) and "*uncovers...innovative strategies for groundwater management in California.*" It is likely this resource can provide valuable information to County Planners developing GWMPs.

**Land Use Planning Can Make a Difference**

Implementing development policies that authorize development in areas of inadequate/unreliable groundwater supply leads to the building of homes and businesses in unsuitable areas; it thrusts investment losses squarely onto the shoulders of residents. (Drilling wells that never come to fruition is a cost borne by the landowner alone, as is the misfortune of well failure after a residence or business has been established.)

El Dorado County has the opportunity to avoid overuse of scarce groundwater resources now by integrating land use planning and groundwater management. Let's not make residents suffer the consequences of improper land use planning. The project being presented for your consideration today does not address these important issues.

**Commissioners—Please deny this project.**

# As Their Wells Run Dry, California Residents Blame Thirsty Farms

OCTOBER 19, 2014 11:42 AM ET

from **KQED**

Sasha Khokha

[In Tulare County, Wells Run Dry as Farmers Dig Deep](#) | [KQED News](#) from [KQED News](#) on [Vimeo](#).

Imagine flushing the toilet and watching sand come up. That's what happened to Pam Vieira, who lives south of Modesto, Calif. Her water well has slowed to a trickle, and you can see the sand in the tank of her toilet.

"Sometimes we have brown water," Vieira says. "Sometimes we have no water."

Vieira is one of as many as 2 million rural California residents who rely on private domestic wells for drinking water.

Some of those people are among the hardest hit by the state's severe drought, as wells across the state's Central Valley farm belt start to go dry.



Pam and Lawrence Vieira have lived in their ranch house for nearly 40 years. During the drought, water from their well has slowed to a trickle. **Sasha Khokha**



Vieira and her husband have lived in this tan ranch house surrounded by almond and sweet potato farms for about 40 years. Like many in this community, they're too far from town to hook into a municipal water system. Their household well has always worked fine.

But now, Vieira has to wait for the well to pull enough water to take a bath. She recycles whatever water she can to try and save her 100-year-old hydrangea.

"This is my grandmother's, and it's just burned and dying," she says. "But I think it'll make it through. What I'm concerned about is, are we going to make it through?"

The Vieiras ran an auto repair shop for many years. Now they're retired, and have nowhere near the \$20,000 it would take to drill a new well.

"My husband's 75 and I'm 70," she says. "We live on a fixed income. We're not asking for a handout. We just need help."

State and federal grants are available to help small towns that rely on wells to drill new ones, but almost no public funds are set aside for private property owners with failing water wells.

"No one has thought about domestic well owners, which is a real shame because there's thousands of us," Vieira says.

Some of them are middle-class well owners like the Vieiras, but others are farmworker families.

Gladys Colunga's well went completely dry this summer. She has six children and lots of laundry to wash and teeth to brush — but no water.



The Colunga family has been carrying water in barrels from neighbors and relatives to use for washing since their well went dry. **Annabelle Beecher**

The family is making do with bottled drinking water. Meanwhile, Colunga's husband's field hours have been cut because of the drought, so they're making less money.

They have to haul water from neighbors and friends in barrels in the back of their pickup, then scoop it into buckets to wash dishes. They're trying to save enough for their swamp cooler, so they can cool down the house in the lingering heat.

"That's upsetting, because just here down the road there's orchards behind us," Colunga says of the neighboring almond farmers. "The orchards are drowning in water. I understand that they need to get their crops as well, but then we're a family, we have children and we need that water. ... We have the right to have that basic thing. It's water."

Gov. Jerry Brown recently allocated state emergency funds to provide temporary drinking water to residents whose wells have gone dry. He also directed local officials to try and find solutions, like hooking into nearby towns' water systems.

But groundwater levels are dropping fast.

"We can't really use public funds to help a private well owner," says Tulare County Supervisor Steve Worthly. "I really don't see a place for the government to come in and provide the funds for everybody's well ... There's going to be thousands and thousands of wells that are going to go out."

Farm counties have issued a record number of permits to growers who want to drill wells to keep their crops watered. Worthley says farmers have that property right.

"We're not in a position to tell farmers, 'No, you can't have a permit to drill a well so you can keep your crop alive,' even though we know it has a collateral impact," he says.

California legislators recently passed rules that could eventually limit groundwater pumping, but those plans give local agencies until at least the year 2040 to meet goals for groundwater sustainability.

Meanwhile, most people with wells going dry right now are stuck. If they can't afford to drill new wells, they may be faced with trying to sell a homes that have no water.

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# Report: Well water under strain across California

A new state report shows groundwater levels are at historic lows all across California, another sign of drought strain. It also found that more wells are being deepened in El Dorado, Placer and Nevada counties than in any other region.

By Matt Weiser - [mweiser@sacbee.com](mailto:mweiser@sacbee.com)

A new analysis of groundwater levels across California has found historically low water levels in thousands of wells in all areas of the state, another telltale of the drought's intensity.

The report by the California Department of Water Resources, released Wednesday, was ordered by Gov. Jerry Brown as part of his January emergency drought proclamation. It analyzes thousands of wells across the state, based on available data submitted by well drillers and owners.

In examining about 5,400 wells that represent a subset of the total, about half have shrunk since 2008 to water levels lower than any seen over the preceding century.

The San Joaquin Valley is particularly hard hit, where wells are commonly used to irrigate large farms when water diverted from rivers becomes unavailable. Many of those wells have groundwater levels as much as 100 feet lower than historical norms, according to the report. Many wells in the Sacramento Valley, the Sonoma Valley and the Los Angeles basin have shrunk as much as 50 feet.

"There are an awful lot of areas that have gone drier," said Mary Scruggs, a supervising engineering geologist at DWR who helped produce the report.

In droughts, property owners typically rely more heavily on wells because surface water from rivers and streams becomes scarce or more expensive. Yet the results are particularly alarming because they are based on springtime well measurements, when groundwater levels typically peak. As summer arrives in this third drought year, demand on wells is expected to increase.

The report also looks at how often existing wells have been deepened so that pumps can reach a shrunken aquifer. This is often a sign of drought stress. DWR found that, since 2010, three Sierra Nevada foothill counties in the Sacramento region – Placer, El Dorado and Nevada – lead the state in well deepening by a large margin.

Greg Peters, owner of Peters' Drilling and Pump Service in Auburn, said he has definitely seen an increase in business lately, apparently in response to the drought, but not a "huge influx."

A number of customers who own large landscaped properties are having wells drilled or deepened to prepare for the dry summer. In case their regular water provider reduces their supply of irrigation water, he said, they want to have another water source to keep lawns and gardens flourishing.

"People are saying, well, in case this happens, I want to be ahead of the game," Peters said. "We are seeing increases in deepening of wells. But mostly it's wells that were marginal wells to begin with."

California is one of the few states that does not regulate how much water well owners can pump. The state also does not require well owners to report how much they pump. Most of the information in the report comes from a database of well-water elevation that relies on volunteer reports and wells monitored by DWR or another public agency. It also relies on reports that must be filed by well-drilling companies, although these reports are held confidential by DWR under provisions of the state Water Code.

In 2009, new state legislation required well owners to regularly report ground water elevation (but not pumping rates) or risk losing eligibility for state water grants. Compliance has been spotty: According to the report, about one-third of the state's high- and medium-priority groundwater basins are still not reporting water elevations, although most are working to join the program.

Scruggs said she hopes the report will encourage the public and water agencies to plan their groundwater use more carefully. In average years, groundwater serves 30 percent to 40 percent of California's water needs. In drought years, this often increases to 60 percent.

"I think people aren't always aware of the status of groundwater and how important it is," Scruggs said. "Groundwater is a critical resource. I think we should be protecting and managing our groundwater."

Read more here: <http://www.sacbee.com/news/local/article2597698.html#storylink=cpy>

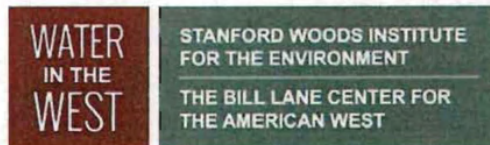


**Before the Well Runs Dry: Improving the Linkage Between Groundwater and Land Use Planning**

Based on an Uncommon Dialogue on Groundwater and Land Use Planning, Stanford University

PREPARED BY WATER IN THE WEST | APRIL 2014

A joint program of the Stanford Woods Institute for the Environment and The Bill Lane Center for the American West



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### About Water in the West

Water in the West is a partnership of the faculty, staff and students of the Stanford Woods Institute for the Environment and The Bill Lane Center for the American West. The mission of Water in the West is to design, articulate, and advance sustainable water management for the people and environment of the American West. Linking ideas to action, we accomplish our mission by engaging in cutting-edge research, creative problem solving, active collaboration with decision-makers and opinion leaders, effective public communications and hands-on education of students.

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*Cover Photos (from top to bottom): Berkeley Bowl Produce Aisle, Central Valley Irrigation, Paso Robles Ranchette for Sale (from Pete Clark, LandAndFarm), Romaine Lettuce in Salinas Valley, Almond Blossoms in the Central Valley, Strawberry in Salinas Valley, Building in Sacramento, Artichokes in Berkeley Bowl.*

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## EXECUTIVE SUMMARY

There is no comprehensive regulation of groundwater use in the state of California, and the right to withdraw groundwater is based on surface land ownership. This creates a direct linkage between every land use that requires water and the groundwater underneath that land. Because so many aspects of groundwater use are not regulated by the state, local governments' land use decisions become a key driver of demands on groundwater. Nonetheless, land use decisions and planning are not well coordinated with groundwater management.

Understanding how land use decisions affect groundwater resources has become increasingly important in recent years, as groundwater provides approximately 30 percent of California's water supply in average years and 40 percent of the supply in dry years. In some places, the reliance on groundwater during droughts is much higher, due to reduced supplies of surface water. Growth from housing and irrigated agriculture, among other demands, have led to chronic overdraft and declining groundwater elevations in many communities that rely heavily on groundwater.

To address this problem, Water in the West convened groundwater managers, land use planners, water lawyers, consultants and academics at Stanford University for an Uncommon Dialogue in the fall of 2013. Its aim was to discuss a growing consensus that more effective integration of land use planning and groundwater management is an essential component of preserving groundwater aquifers for the future, and to share possible means of accomplishing this in California.

This report, shaped in part by the Dialogue, provides the background and regulatory context for land use planning and groundwater management in California, shares case studies that highlight the intersection of groundwater and land use, and makes specific recommendations to improve the linkage between land use decisions and groundwater management in the state.

## KEY FINDINGS

- Many communities are facing groundwater shortages due to land use changes; they seek tools, including clarity on their authority to regulate groundwater use. For example, groundwater-level declines in the Paso Robles Groundwater Basin have caused some wells to go dry, necessitating a temporary county urgency ordinance to curb the increasing rate of groundwater decline while permanent tools and a structure for managing the basin are explored.
- Local jurisdictions want to avoid adjudication because it is time-consuming, expensive and fails to incorporate a community's vision for the future. The case of Orcutt, a community overlying the adjudicated Santa Maria Groundwater Basin, illustrates that the water accounting done for adjudication by a judge bears little relation to what a community might envision or plan for the future.



- Effective integration of groundwater and land use from the perspective of land use planners is most likely to be driven by incorporating groundwater goals and policies into a jurisdiction's general plan, specific land use decisions and local ordinances. At least 96 cities and counties in California have adopted an optional water element in their general plans. More than half of these were adopted in the past decade.
- Regional water management, as illustrated by the Kings Basin Integrated Water Management Plan, can increase collaboration between land use planners and groundwater managers. Such collaboration builds trust and relationships that lead to projects on the ground that are coordinated to meet regional and basin goals. The regional scale is also a more natural scale to manage groundwater basins.
- A huge and chronic problem is the lack of groundwater data and access to such data. Well information is considered confidential by law, and many communities lack the information to make sound groundwater management decisions.

## SPECIFIC RECOMMENDATIONS

**Tailor Development to Water Availability:** Communities in California need tools to manage new development and crops in a way that does not place additional strain on aquifers that are in chronic overdraft. These communities need locally tailored and flexible options, including regulations supported by state law, that give them the ability to limit the overall demand on these aquifers as land use changes. These tools can include requirements that new water use be offset by reduced demand, or that new demands seek alternative supplies of water.

**Require General Plans to Focus on Water:** All new general plans in California should include a water element. This new element would strengthen the linkage between land use and water by incorporating water goals into the public planning process. It would also ensure that plans for growth take into account the available water supply.

**Increase Data Collection and Availability:** The lack of data is a major contributor to groundwater overdraft. Many communities find out their aquifers are in overdraft when it is too late. The state needs to set standards for collecting and sharing groundwater data, including individual well data.

The report focuses on several local case studies — Paso Robles Groundwater Basin, Orcutt (Santa Maria Groundwater Basin), Butte County and Kings Basin Integrated Regional Water Management — to show how different communities in the state are responding to their groundwater and land use challenges.

## INTRODUCTION

Water in the West convened an Uncommon Dialogue<sup>1</sup> on groundwater and land use planning at Stanford University on September 12 and 13, 2013. Land use planners and groundwater managers from throughout California, as well as water lawyers, consultants, NGOs, scientists and academics attended the meeting. The goals of the Uncommon Dialogue were to: 1) stimulate dialogue between land use planners and groundwater managers; 2) identify barriers to and explore opportunities for managing land and groundwater more coherently; and 3) develop recommendations for policies and practices that could lead to improved management of land and groundwater.

Groundwater is often called an “invisible” resource. Groundwater basins are not only hidden from sight, but understanding them well enough to manage is complicated and expensive. Groundwater basins are not defined by property boundaries or political subdivisions, which further compounds the difficulty of their governance. In California, landowners have a property right to withdraw groundwater from beneath their land, and the state does not regulate groundwater withdrawals. Land uses on the surface are closely linked to the groundwater underneath that land. Land use changes can require new or additional groundwater pumping, limit groundwater recharge and decrease groundwater quality. Because so many aspects of groundwater use are not managed or regulated by the state of California, a local government’s land use decisions become a key driver of demands on groundwater.

Understanding how land use decisions affect groundwater resources has become increasingly important in recent years, as groundwater provides approximately 30 percent of California’s water supply in average years and 40 percent of the supply in dry years.<sup>2</sup> In some places, the reliance on groundwater during droughts is much higher as surface water supplies get reduced. Development, whether in housing or in irrigated agriculture, usually increases demand on groundwater supplies. In communities that rely heavily on groundwater, that kind of growth has led to chronic overdraft and declining groundwater elevations in many parts of the state.

### [Overdraft]

Groundwater overdraft is a condition in which pumping exceeds recharge in a groundwater basin over a period of time, resulting in harm to the basin. Negative effects could include land subsidence, loss of groundwater quality, loss or decline of stream flows and riparian habitat, higher pumping costs and seawater intrusion.

California legislation of the last 30 years reflects the increasing need for collaboration between land use planners and water managers to protect groundwater. Most state regulations, however, are voluntary or pertain only to very large projects. Groundwater management has largely been delegated to local jurisdictions, court-mandated water masters or regional collaborations. In some places, groundwater conflicts have escalated with land use changes, requiring resolution

<sup>1</sup> Through Uncommon Dialogues, Water in the West brings together leaders from different sectors to develop practical solutions to pressing environmental challenges centered on water.

<sup>2</sup> California Legislative Analyst Office, “Liquid Assets: Improving Management of the State’s Groundwater Resources, 2010.

by the courts or through the creation of special districts by legislation. In California, there are 22 adjudicated groundwater basins and 10 or more major basins managed by special water-management districts.

Some local jurisdictions have been managing groundwater for a long time. The Santa Clara Valley Water District (SCVWD) and Orange County Water District manage basins with a strong local and regional presence. SCVWD has had a tax on groundwater pumping for 80 years. Fox Canyon Groundwater Management District has a system of phased management responses based on ambient basin conditions.

While many examples of successful local groundwater management exist,<sup>3</sup> on a whole, land use decisions are still largely made without considering water demands, and groundwater decisions are made without considering land use. As groundwater depletion continues, there is growing consensus that effective integration of land use planning and groundwater management is essential. The need for this integration created the urgency for the Uncommon Dialogue. This report summarizes and builds on that meeting.

The report provides background and regulatory context for land use planning and groundwater management in California.<sup>4</sup> It also shares case studies that highlight the intersection of groundwater and land use, and makes specific recommendations to improve the linkage between land use decisions and groundwater management in California. While the Dialogue helped shaped the recommendations, the recommendations are not meant to represent a consensus of the group, and Water in the West is responsible for its contents.

Although not explicitly addressed in this report, the quality of groundwater is an important issue that is inseparable from groundwater quantity and is directly affected by land use planning. The increasing costs of groundwater treatment and distribution can become significant challenges for a community, particularly those that are not connected to a regional system. Another issue not addressed here is the relationship between surface water and groundwater. Surface water and groundwater are governed separately under California law, despite the close physical connection between these water resources.

## BACKGROUND

This section briefly describes the key land use planning and groundwater regulations and legislation in California in order to provide the context for the report's analysis and recommendations.

### *General Plans*

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<sup>3</sup> Rebecca Nelson, "Uncommon Innovation: Developments in Groundwater Management Planning in California," *Water in the West*, Stanford University, 2011.

<sup>4</sup> A comprehensive overview of the regulations and policies pertaining to the intersection of water and land use planning at the state, regional, and local levels is provided in the 2013 update of the State Water Plan, currently in draft. California Department of Water Resources, "Land Use Planning and Management," Draft Final State Water Plan, Update 2013, Vol. 3, Ch. 24.

Under state planning law, cities and counties must adopt a long-term (typically 10 to 20 years) general plan for the physical development of the jurisdiction and any related land outside its boundaries. A general plan is developed through a public process and is intended to reflect the community's values and priorities. It is a policy document that guides future development; city and county ordinances must be consistent with the plan. Guidelines for general plans, developed by the Governor's Office of Planning and Research (OPR), require seven mandatory elements and allow additional optional elements that the jurisdiction may choose to adopt. The seven mandatory elements for a general plan are: 1) land use; 2) circulation; 3) housing; 4) conservation; 5) open space; 6) noise; and 7) safety.

Because a water resource element is not mandatory in the general plan, groundwater policies (if they exist) have typically been placed in the conservation element or in other elements of the plan. Groundwater provisions in the general plan may incorporate specific goals, policies, actions and development standards intended to improve the coordination of groundwater supply and land use planning, stabilize groundwater levels, and protect the groundwater basin from contamination.

Some jurisdictions choose to address groundwater resources in an optional water resources element in their general plan. This element can set goals, objectives and policies for the use and protection of water resources. Guidelines for an optional water element are included in the OPR's guidelines for general plans<sup>5</sup> and encompass potential strategies on water supply and demand, water quality, flood management, stormwater management, data and analysis, collaboration and coordination, and other water-related issues in the context of land use planning. Importantly, the OPR guidelines recommend considering the entire hydrologic cycle and how community policies and actions affect each component of the system.

### *Land Use Planning and Water Legislation*

Several related pieces of legislation — Senate Bills (SB) 901, 610, and 221 — have attempted to increase collaboration between water managers and land use planners. Passed in 1995, SB901 was the first bill to require a water supply assessment for proposed new development projects, but it provided little direction and its reach was limited. Seven years later, companion measures SB610 and SB221 were enacted to promote more collaborative planning between local water suppliers and cities and counties.<sup>6</sup> Overall, SB610 and SB 221 have had limited impact due to their high thresholds (500 units or equivalent), lack of guidance on when and how to implement, and lack of linkage to general plans.

#### **SB610 and SB221**

Both statutes require water providers to submit detailed information regarding water availability to city and county decision-makers prior to approval of large residential, commercial,

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<sup>5</sup> Jeff Loux, "Optional Water Element," Chapter 6 of General Plan Guidelines, State of California, Governor's Office of Planning and Research, 2003.

<sup>6</sup> For more information on the implementation of SB611 and 221, see Ellen Hanak's 2010 report entitled, '[Show Me the Water Plan: Urban Water Management Plans and California's Water Supply Adequacy Laws](#)' and her 2005 Public Policy Institute of California report, '[Water for Growth: California's New Frontier](#).'

or industrial projects.<sup>7</sup> Under SB610, a water supply assessment must be provided for any development or related land use plan that is 1) defined as a “project” under the California Environmental Quality Act (CEQA); and also 2) consists of more than 500 housing units, 50,000 square feet of retail use, 250,000 square feet of office use, 500 hotel rooms, 40 acres, or 650,000 square feet of business park use or a mixed-use project with water demand equivalent to 500 housing units.

Under SB221, a land use agency approving a subdivision of more than 500 housing units (or a proposed subdivision of fewer than 500 units if the project represents 10 percent or more of all connections of a smaller water purveyor) requires a written verification from a water provider that a sufficient and reliable water supply is available. For groundwater-dependent communities, the lack of or access to groundwater data makes it difficult to determine basin condition and its potential as a long-term supply.

SB221 is intended as a fail-safe mechanism to ensure that water supplies are available and identified at the earliest stages of planning. It is also important to recognize that CEQA review is needed to address water supply adequacy regardless of project scale or size, which is another important safeguard for California communities.

These water supply evaluations cannot prohibit a land use agency from approving a project, but the SB610 water supply assessment must be included in its environmental document for the project. For SB221, if a written verification concludes that water supplies are insufficient, the approving agency may conclude that water sources not considered by the public water system will be available or may waive the condition imposed by SB221. These statutes have been litigated, culminating in a 2007 California Supreme Court decision in *Vineyard Area Citizens for Responsible Government v. City of Rancho Cordova*,<sup>8</sup> which affirmed that short-term and long-term water supply must be addressed for large-scale development.

It should be noted that agricultural projects (e.g., development of irrigated agriculture) are not subject to SB610 and SB221.

#### *Urban Water Management Plans*

Under the Urban Water Management Act of 1983, urban water providers must submit an Urban Water Management Plan (UWMP)<sup>9</sup> to the Department of Water Resources and update that plan every five years. UWMPs typically include population, demographics and climate; water supply sources; water demand; reliability and water-shortage contingency planning; and demand-side management measures. If groundwater is identified as an existing or potential water source, the following information is required: a copy of the groundwater management plan; a description of the groundwater basin(s), including adjudication or overdraft status as applicable (if overdraft is identified, a description of efforts to eliminate overdraft must be included); location, amount and

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<sup>7</sup> This detailed information must also be included in the administrative record that serves as the evidentiary basis for an approval action by the city or county on such projects.

<sup>8</sup> *Vineyard Area Citizens for Responsible Government v. City of Rancho Cordova*, 40 Cal. 4th 412 (2007). *County of Amador v. El Dorado County Water Agency*, 76 Cal. App. 4th 931(1999) is an example of an earlier ruling.

<sup>9</sup> This requirement pertains to urban water providers with more than 3,000 connections or providing more than 3,000 acre-feet of water annually.

sufficiency of groundwater pumped by the urban water supplier for the past five years; and pumping projections for average years, single dry years and multiple dry years.

Cities, counties, water districts, property owners and developers are able to use this document when planning for and proposing new projects. Both SB610 and SB221 suggest that UWMPs may be a good source of information for developing water assessments and verifications if the supply-and-demand analysis in the plan meets the requirements of these two statutes. UWMPs, while non-binding, can also serve as important source documents for cities and counties as they update their general plans. Conversely, general plans are source documents for water suppliers updating their UWMPs. The accuracy and usefulness of these planning documents are interdependent.

#### *Groundwater Regulations*

California has no statewide regulation of groundwater, and most groundwater management is done through local jurisdictions and agencies. In California, there are currently three ways to manage groundwater resources: through the California Water Code and related state statutes, through local ordinances and through court adjudications. The following summary of Assembly Bill (AB) 3030, SB1938, SBX7-6, SB1672 and AB359<sup>10</sup> provides the state-level regulatory context under which groundwater managers and land use planners work.

#### **AB3030 and SB1938**

The passage of AB3030 was spurred by the U.S. Environmental Protection Agency, which encouraged states to adopt mandatory groundwater-quality management guidelines or regulations for local agencies. Concurrently, pressure for groundwater management programs increased at both the state and local levels as a result of worsening groundwater overdraft and contamination problems.

The Groundwater Management Act, commonly referred to as AB3030, was signed into law in 1992. The legislation is designed to provide local public agencies with increased management options for groundwater resources through voluntary and collaborative efforts, including the use of groundwater management plans. According to the California Department of Water Resources (DWR), 149 agencies have adopted groundwater management plans to date.<sup>11</sup> Some plans have been created in partnerships by multiple jurisdictions and water districts, which better reflects the natural regional scale of groundwater basins.

SB1938 was passed to amend AB3030 in 2002; it requires new groundwater management plans to include documentation of public notification on how interested parties may participate in developing the groundwater management plan. In addition, the bill requires communities to have a groundwater management plan in order to be eligible for DWR funding for groundwater-related projects. The plan requires a blueprint for involving and cooperating with other agencies serving or overlying the groundwater basin; a map of the

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<sup>10</sup> To learn more about groundwater management legislation, refer to the Department of Water Resources, "Bulletin 118 – Update 2003."

<sup>11</sup> For more information, see Department of Water Resources, 'Assembly Bill 3030,' available at [water.ca.gov/groundwater/gwmanagement/ab\\_3030.cfm](http://water.ca.gov/groundwater/gwmanagement/ab_3030.cfm).

groundwater basin; and management objectives for the basin, including monitoring and management of groundwater levels, groundwater quality, inelastic land surface subsidence, and changes in surface water flow and surface water quality that directly affect groundwater levels or quality or are caused by groundwater pumping. It also requires adoption of monitoring protocols for the mandatory elements of the plan to track changes in conditions to meet the management objectives.

The legislature passed a final related bill, AB359, in 2011. AB359 adds a new prerequisite for a public agency to be eligible for state funding for water projects: namely, that its groundwater management plan include groundwater recharge maps to be provided to local planning agencies for use in their land use decisions. Unlike urban water management plans, groundwater management plans are not required to be submitted to DWR. Thus, this information is unavailable for preparing the California Water Plan.<sup>12</sup>

#### SBX7-6

In November 2009, the California State Legislature passed a series of bills focusing on the management, monitoring and conservation of the State's water resources. SBX7-6 mandates a statewide groundwater elevation monitoring program to track seasonal and long-term trends in groundwater elevations in California's groundwater basins. The amendment requires collaboration between local monitoring entities (e.g., water agencies) and DWR to collect and disseminate groundwater elevation data in the California Statewide Groundwater Elevation Monitoring (CASGEM) database. If local entities do not volunteer to perform groundwater monitoring, and DWR assumes those functions, then those entities and the counties in which they are located become ineligible for water grants or loans from the state.<sup>13</sup>

#### SB1672

Passage of SB1672 established the state's Integrated Regional Water Management (IRWM) program in 2002. IRWM is an optional collaborative regional planning process to coordinate the management of water quality, quantity and reliability issues. The IRWM process is intended to address the many issues and differing perspectives of the regional entities and stakeholders involved in water management across jurisdictional, watershed and political boundaries. Several state propositions passed subsequently provide grant opportunities for IRWM planning and implementation. These grant opportunities are the primary direct incentives for communities to engage in the IRWM process.

## WHERE ARE THE GAPS?

While California has made progress over recent years in linking groundwater management and land use, the emerging and continuing groundwater problems throughout the state are clear indications that improvements are needed.

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<sup>12</sup> California Department of Water Resources, "California's Groundwater Update 2003: Findings," Bulletin 118, 2003.

<sup>13</sup> See SBX7-6, Section 10933.7. The fact that a county is potentially penalized is a way to ensure that all groundwater basins in the state are addressed; a basin may not be in a water agency, but all basins are in at least one county.

As illustrated in the case studies in Appendix A, many communities are facing groundwater shortages due to land use changes. One example is the Paso Robles Basin in San Luis Obispo County along the Central Coast. Rapidly declining groundwater levels in the aquifer, largely driven by an increase in vineyards and low-density residential housing, have caused some residential and smaller agricultural wells to go dry. The community is now facing a water crisis driven by land use changes. The crisis triggered the passage of a two-year emergency county ordinance requiring new groundwater pumping to be offset by an equal amount of reduced groundwater demand in the basin. While this temporary measure only holds the rate of groundwater withdrawal constant, it allows the county and local stakeholders some time to explore management options, including a special water district or other governance structure, to more effectively manage groundwater and land use in the basin.

Although the community was aware that it had a limited water supply, there was no mechanism for either limiting land use changes to the available supply, or to change the county's water management plans to cope with land use changes. In addition, the county must now deal with a higher level of "hardened" water demand — that is, demand created by perennial crops and urban growth that is difficult to reduce during periods of water shortage. This increase in perennial crops — primarily vineyards, and fruit and nut trees — and the inflexibility in demand they create, is a notable land use change that creates challenges for water managers and land use planners.

Local jurisdictions such as San Luis Obispo County have the unenviable job of not only needing to address immediate groundwater crises, but to also construct a proactive and long-term framework for aligning groundwater and land use planning. While this is an opportunity for planning based on a community and regional vision, constructing such a framework is neither easy nor straightforward. While a number of groundwater management districts have been able to successfully manage groundwater for decades,<sup>14</sup> many other jurisdictions are unclear about how to proceed or what authority they have to regulate groundwater and the land uses dependent on the resource.

In addition, the threat of adjudication looms over many groundwater basins. Most jurisdictions want to avoid this time-consuming and expensive process whereby a court allocates groundwater rights within a basin. There are currently 22 adjudicated basins in California, with many more agencies managing portions of these basins.<sup>15</sup> One of our case studies focuses on the unincorporated community of Orcutt, which overlies a portion of the adjudicated Santa Maria groundwater basin in northern Santa Barbara County. The Orcutt case highlights that while a court adjudication of a basin provides an allocation of water rights and addresses the immediate crisis, it is not a proactive long-term planning approach to groundwater management that is linked to a community's vision for the future.

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<sup>14</sup> Examples include Santa Clara Valley Water District, Orange County Water District, Sacramento Groundwater Authority, Monterey County Water Resources Agency and Fox Canyon.

<sup>15</sup> California Department of Water Resources, 'Groundwater Management: Court Adjudications,' available at [water.ca.gov/groundwater/gwmanagement/court\\_adjudications.cfm](http://water.ca.gov/groundwater/gwmanagement/court_adjudications.cfm).



In its simplest form, adjudication is an accounting of available water and then a division of that water, according to legal principles, that has little to do with any existing general plan or community vision.

One place that realized the importance of groundwater policies to protecting quality of life and preserving a sense of place is Butte County, also described in Appendix A. A history of water exportation, starting in the 1960s for the State Water Project and continuing with the Emergency State Drought Water Bank in 1994, created heightened awareness of the need for the county to protect and manage their water resources. The county adopted a water resource element in its 2010 general plan that formalized and publicly affirmed groundwater and land use policies. Those policies included protecting groundwater recharge areas and assessing development impacts on groundwater for projects that fall below the SB610 and SB221 thresholds. While many implementation details need to be worked out, Butte County is demonstrating a broad commitment to assessing the implication of local land use decisions on water resources.

Land use planners and groundwater managers face many challenges and conflicting demands. In particular, the ability of land use planners to adopt effective tools is often limited by staffing and funding constraints. They are also constrained by the conflicting interests that must be addressed in a community's land use decisions. Accordingly, the success of land use and groundwater integration from a land use planner's perspective often is driven by the interest and commitment of the local land use jurisdictional leadership (i.e., board of supervisors and city councils) and is accomplished by integrating groundwater goals and policies into a jurisdiction's general plan, specific land use decisions, and local ordinances.

Because groundwater is a common-pool resource with withdrawal rights for overlying landowners, the planner's role in groundwater management is limited. The permitting of new wells, for example, tends to be a ministerial process requiring no environmental review or land use approval process. Such a ministerial process makes it difficult — if not impossible — to manage groundwater demand or gather information for more informed planning. Within this context, groundwater managers must effectively communicate priorities to planners and decision-makers to inform a community discourse on groundwater management options. However, a huge and chronic problem is the lack of groundwater data or lack of access to such data. While many water agencies have local monitoring programs, many others don't; groundwater-level monitoring is encouraged but not required by the state and the CASGEM database is a recent development (see the discussion of SBX7-6 above). For nongovernmental entities, getting well data is even more challenging because the California Water Code (Section 13752) considers well information confidential in the state; public agencies that possess well information can release the information only under certain circumstances.<sup>16</sup>

Another challenge is that land use planning and groundwater management operate at different time scales. A general plan is typically updated every 10 to 20 years, while some water plans,

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<sup>16</sup> According to Section 13752 of the California Water Code, "well information shall not be made available for inspection by the public, but shall be made available to governmental agencies for use in making studies, or to any person who obtains a written authorization from the owner of the well."

such as the urban water management plan, are updated every five years. As a result, data may be outdated; different plans may use different projections on population, land use changes, and water supply needs; and goals and objectives of different plans could be misaligned.

Some jurisdictions are incorporating an optional water element in their general plans as a tool to better integrate land use and water, as well as to highlight the importance of the resource. According to the respondents of the 2011 and 2012 California Office of Planning and Research Annual Planning Survey, 96 cities and counties have adopted an optional water element in their general plan (Figure 1). Of the 96 jurisdictions, 25 are counties — signifying that 43 percent of California counties have adopted a water element. Fifty-three of the 96 water elements were adopted in 2003 or later, after the release of the model optional water element in the general plan guidelines.

Anecdotal evidence suggests that the public process of adopting a water element as part of the general plan generates a valuable community conversation about water and affirms the importance of this resource. More research is needed, however, to determine how effectively this planning tool links land use and groundwater management decisions, and whether it leads to a more sustainable outcome.

More state oversight and funding to address the linkage between groundwater and land use planning is needed, while giving local jurisdictions the authority and flexibility to adapt policies to local conditions. Groundwater basins are not aligned with political boundaries, necessitating basin-wide or regional cooperation and governance — tasks that would benefit greatly from state funding assistance. An example of the state's success in using funding to motivate regional cooperation on water management is highlighted in our case study on the Kings Basin in the San Joaquin Valley.

This case shows that stakeholders are leveraging the integrated regional water management plan (IRWMP) to provide a roadmap for multi-faceted regional approaches to water and groundwater management. They're also using the plan to build relationships for addressing these issues across jurisdictions at a more natural scale. The Kings Groundwater Basin is a primary water supply for this region; at the same time, overdraft is estimated to be over 100,000 acre-feet per year. Agriculture and urban development are the primary drivers of land use changes and groundwater demands. To face these difficult challenges, the Kings River IRWMP stakeholders have evolved to embrace a regional perspective based on a better understanding of each member's issues and concerns to achieve collective goals. (Read the full case studies on the Paso Robles, Orcutt, Butte County and Kings basins in Appendix A.)

# California Jurisdictions with Optional Water Elements in Their General Plans

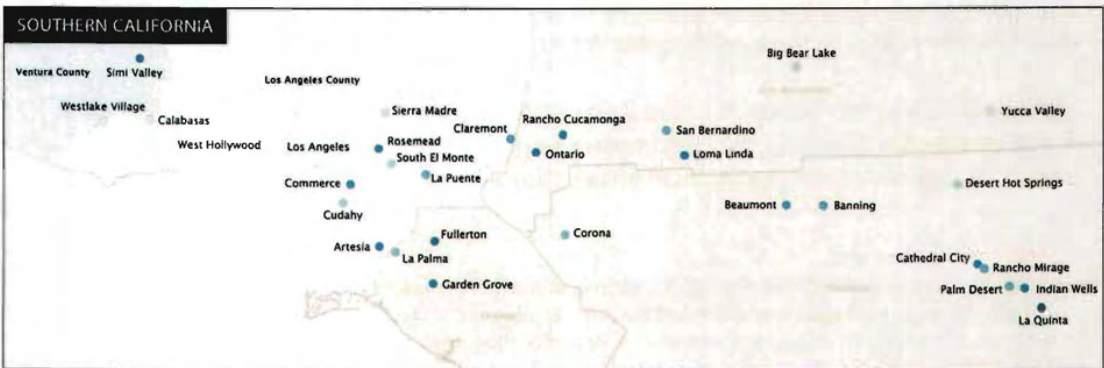
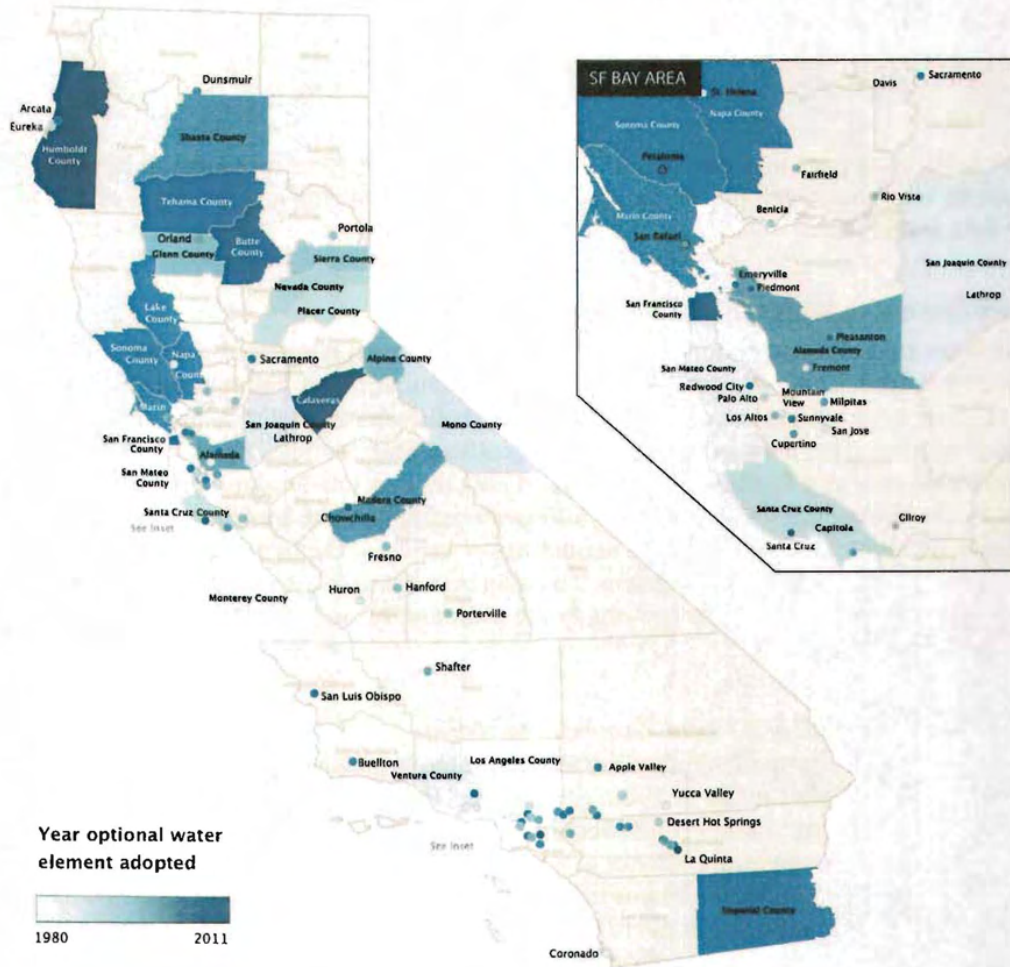


Figure 1. Cities and counties in California that have adopted an optional water element in their general plan. Source: Water in the West and The Bill Lane Center for the American West, based on the California Office of Planning and Research 2011 and 2012 Annual Planning Surveys.

## RECOMMENDATIONS

To address the existing gaps in groundwater and land use planning, we recommend focusing on three key areas: tailoring development to water availability, enhancing general plans and increasing data availability.

### **Tailor Development to Water Availability**

Land use changes that outstrip water supply are perhaps the most persistent cause of chronic groundwater overdraft. This includes both changes that planners have historically exercised control over, such as development, and changes that jurisdictions typically do not plan for or regulate, such as increasing acreage in irrigated agriculture. State policies need to enable and support locally tailored and flexible regulations and policies that link land use changes, ranging from urban to agriculture uses, to available groundwater supply. First, basins that are in chronic overdraft must be identified. This requires estimating or knowing the “water balance,” or the groundwater inflows and outflows of a basin. If a basin is in “critical” overdraft, local governments and agencies need tools to remedy the problem through managing groundwater extractions and land use.

- *Update State Analysis of “Critical” Groundwater Basins*  
A comprehensive assessment of overdraft in the state’s groundwater basins has not been conducted since Bulletin 118 in 1980. At that time, the Department of Water Resources responded to California Water Code Section 12924, which directed the Department to “investigate existing general patterns of groundwater pumping and groundwater recharge within groundwater basins to the extent necessary to identify basins which are subject to critical conditions of overdraft.” In the 1980 assessment, 42 groundwater basins were identified as in overdraft, and 11 basins were identified as subject to “critical conditions of overdraft.”<sup>17</sup> As acknowledged in the findings of the 2003 update to Bulletin 118, the extent and impacts of overdraft must be evaluated to determine whether groundwater will provide a sustainable water supply.
- *Manage Groundwater Basins in Critical Condition Differently*  
For groundwater basins in dire circumstances, such as those in critical condition of overdraft, the state should give local jurisdictions and agencies the ability to limit or

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<sup>17</sup> “A basin is subject to critical conditions of overdraft when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social or economic impacts.” California Department of Water Resources, “Groundwater Basins in California: A Report to the Legislature in Response to Water Code Section 12924,” Bulletin 118-80, 1980.

mitigate new demands—a function closely tied to land use. Here are some ways that could be done:

**Allow local jurisdictions to limit groundwater extractions.** Within the framework of AB3030, which is a voluntary law, give local jurisdictions and agencies the ability if they so choose to manage groundwater demand in dire circumstances. Some experts believe that local governments already have the jurisdiction to regulate groundwater extraction and use as part of their general police powers, and that local water agencies have similar authority under AB3030.<sup>18</sup> The extent of a jurisdiction's ability to manage groundwater extraction and use under existing law should be clarified, and AB3030 should be amended as necessary to allow local management of groundwater demand in dire circumstances.

**Limit basins in critical overdraft as water sources.** Only groundwater basins that are *not* in chronic overdraft should be allowed for consideration as sources for future water demands in Urban Water Management Plans.

**Permit land use changes.** Local jurisdictions should be able to subject land use changes in basins under critical overdraft conditions to permitting based on mitigation of new demand. How this option could be implemented depends on the circumstances. It could be folded into land use decisions or well permits. In conjunction, local water districts and jurisdictions, perhaps in consultation with DWR, resource conservation districts and others, should develop guidance on how to create and maintain water supply offset programs. The guidance should be for those areas in which overdraft conditions or lack of available water sources has made it difficult to approve new projects or allow new water demands of any type. Information on model programs that have been established and their effectiveness would be highly useful to some local jurisdictions.

- *Lower the threshold for water supply assessments to 100 units or the equivalent; clarify and simplify compliance requirements*  
The current threshold of 500 units or equivalent affects only very large projects that would have received extra scrutiny regardless, and does not capture the vast majority of developments that have individual and cumulative water demands on water supply. Overall, SB610/221 has garnered little attention from most communities. A 100-unit threshold, while still high, would be a practical step forward in assessing water availability for larger projects as originally intended. It would also keep the issue of water supply adequacy for ongoing growth before local governments more effectively. The state should lower the threshold for water supply assessments and make compliance more explicit and simpler. For example, clarify that general plans are not subject to SB610, and allow projects to comply on the basis of an Urban Water Management Plan's demand analysis when it shows that there is water available from a jurisdiction's general plan.

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<sup>18</sup> Ellen Hanak, Jay Lund, Ariel Dunar, Brian Gray, Richard Howitt, Jeffrey Mount, Peter Moyle and Barton "Buzz" Thompson, "Managing California's Water: From Conflict to Reconciliation," Public Policy Institute of California, 2011.

### **Enhance General Plans with Water Element**

Requiring a water resources element would strengthen the linkage between land use and water by explicitly connecting general plans with groundwater management plans, urban water management plans and other pertinent water plans. At least 96 counties and cities in the state have voluntarily adopted a water element and momentum is gaining.

- *Require a water resources element as part of the general plan*  
As an initial step, requiring a water resources element would raise the profile of this critical resource in communities, incorporate water goals into a highly visible public planning process and put all water-related policies in one place. This would ensure broad agreement on goals and hopefully improve coordination in projections used for population and water-demand analyses. While work is needed to determine how well water elements have worked and how much of a difference they have made on the ground, incorporating a water element is an important step forward for a community to create a vision that enables it to live within its water supply.

### **Increase Data Collection and Availability**

A major contributor to unsustainable groundwater use is the lack of data. Sometimes this is because it has not been collected, but often, it is because the data cannot legally be shared. Both of these issues must be addressed. We recommend starting with the following actions.

- *Make well data publicly available*  
Some agencies have simply collected little groundwater data on their basin. But for many others, the problem is not the lack of data, but the unavailability of data for analysis by other agencies or groups.<sup>19</sup> Information from well drilling is publicly restricted. Per Section 13752 of the California Water Code, information about wells is considered confidential. Public access to this data would increase understanding of groundwater conditions and issues and help identify where the data gaps are. Data would also enable research that could advance groundwater technologies to help solve some of our groundwater problems. Many people fear that making information available would lead to an increase in regulation, but “business as usual” until the point of collapse is far worse for individuals and communities.
- *Create a water budget for each groundwater basin*  
A water budget should be developed for each groundwater basin. To create it, the amount of annual recharge and discharge, including pumping, should be determined to define basin status and determine actions necessary to ameliorate any water shortages that could lead to overdraft. Districts such as Pajaro Valley and Fox Canyon already require groundwater-pumping data.<sup>20</sup>

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<sup>19</sup> Ellen Hanak, Jay Lund, Ariel Dunar, Brian Gray, Richard Howitt, Jeffrey Mount, Peter Moyle and Barton “Buzz” Thompson, “Managing California’s Water: From Conflict to Reconciliation,” Public Policy Institute of California, 2011.

<sup>20</sup> Rebecca Nelson, “Uncommon Innovation: Developments in Groundwater Management Planning in California,” Water in the West, Stanford University, 2011.

- *Create web-based tools that effectively convey data to the public*

Allocating groundwater and making difficult land use decisions require public support and buy-in. Unfortunately, groundwater data and modeling can be difficult for the public to process. The state should help communities develop web-based tools to effectively convey to the public the status of local aquifers and the level of groundwater use.

## CONCLUSION

More state oversight and support in conjunction with local groundwater management is needed to help communities address the many stresses on groundwater supply throughout California as land use changes occur over time. The recommendations provided in this report are intended to help further this critical conversation given groundwater's crucial role. The state should consider an ongoing source of funding to help local institutions accomplish these goals given the importance of groundwater to the state's economy and vitality. Due to the interconnected nature of the water system in the state, most if not all Californians have a stake in this conversation about the "invisible" resource that is our groundwater.

## APPENDIX A. CASE STUDIES

The four case studies presented here show how several different communities in California are responding to their groundwater and land use challenges. The cases are meant to help other communities, practitioners and policymakers gain a fuller understanding of the current state of groundwater management on the ground. There are agencies and districts that have been highlighted for good groundwater management over time and we have nothing to add to those in this report.<sup>21</sup> We are focusing instead on more recent emergences of different methods and tools being used that show successes and shortcomings in today's groundwater management. These case studies originated from the presentations and discussions in the Uncommon Dialogue and were developed in collaboration with the land use planners and/or groundwater managers in each case.

### **Case Study 1: Paso Robles Aquifer, Northern San Luis Obispo County**

Over the last four years, rapidly declining groundwater levels in the Paso Robles aquifer have caused some residential and smaller agricultural wells to go dry. This triggered an emergency county ordinance requiring any new groundwater pumping to be offset with an equal amount of reduced groundwater demand in the basin. The community is still dealing with this crisis and searching for long-term water management solutions.

#### *Background*

The Paso Robles aquifer is a large groundwater basin underlying 505,000 acres in San Luis Obispo County along the central California coast. The basin is the primary water source for the northern part of the county, which includes several small communities, rural residences, vineyards and other irrigated agriculture.<sup>22</sup> In July 2013, more than 100 rural property owners went to the San Luis Obispo (SLO) County Board of Supervisors (the Board), with complaints that their water wells were going dry. On August 27, 2013, the Board passed a 45-day temporary "urgency" ordinance requiring new development and new irrigated agriculture to offset projected water use in the basin at a 1:1 ratio. This temporary urgency ordinance was intended to give the county and local stakeholders time to investigate permanent solutions for managing

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<sup>21</sup> In the Santa Clara Valley Water District, a permit is required for new wells that intersect the groundwater aquifers of Santa Clara County. Groundwater monitoring is conducted, with monthly reports on groundwater levels and recharge and pumping estimates. For more information, see [valleywater.org/Programs/Ordinance901.aspx](http://valleywater.org/Programs/Ordinance901.aspx) and [valleywater.org/DocumentList.aspx?id=236&terms=groundwater+ordinances](http://valleywater.org/DocumentList.aspx?id=236&terms=groundwater+ordinances). Fox Canyon Groundwater Management District is an independent special district created by the California Legislature in 1982 to oversee both confined and unconfined aquifers within several groundwater basins underlying the southern portion of Ventura County. Over the past 32 years, the district has adopted a comprehensive set of ordinances that require well owners to register their wells, report annual extraction, pay an annual groundwater extraction charge; install a flow meter on all wells; and limit groundwater extractions, with the objective of reducing extractions to a "safe yield," while providing for historical, baseline, and efficiency allocations, credits for under pumping, and penalties for pumping more groundwater than is provided by an allocation. Available at [fcgma.org](http://fcgma.org).

<sup>22</sup> San Luis Obispo County, "Paso Robles Groundwater Basin." Available at [slocounty.ca.gov/planning/commguidelines/PRgroundwater.htm](http://slocounty.ca.gov/planning/commguidelines/PRgroundwater.htm).



the groundwater basin.<sup>23</sup> In accordance with state law, the Board extended the ordinance for two years, starting October 11, 2013.

While the groundwater crisis in the Paso Robles Basin erupted in 2013, its roots can be traced back 30 years, when lands uses overlying the Basin started changing from dryland agriculture and grazing to irrigated agriculture and residential development (Table 1). With respect to irrigated agriculture, alfalfa production declined over time as vineyard development increased. Along with the changes in irrigated agriculture, the period between 1980 and 2010 also saw the rise of low-density residential development around the basin; sizeable lots and cheap land attracted people to the area. Many of these residences have their own domestic wells, typically drilled to a depth of 400 feet.

**Table 1. Land Use Changes Over Time in Paso Robles Basin (in acres)**

Year	Irrigated Agriculture		Residential		
	Alfalfa	Vineyard	Low Density Residential	Med. Density Residential	High Density Residential
1985	10,945	6,032	3,261	0	0
1997	4,702	13,706	19,461	0	0
2007	2,726	38,864	145,537	2,481	1,074

Data obtained from the Draft Approach and Methodology for Water Balance Estimation - Paso Robles Groundwater Basin Model Update, 2013.

The first groundwater study of the basin conducted by the county in 2002 indicated that groundwater pumping was rising with the land use changes as shown in Table 1. The first groundwater model for the Paso Robles basin completed in 2005 established a perennial yield of 97,700 acre-feet per year and estimated pumping at 80,000 acre-feet per year. By 2011, a Resource Capacity Study<sup>24</sup> showed that pumping had increased to 95,000 acre-feet per year, which is at or approaching the estimate of perennial yield. Recognizing the severity of the issue, and using its land use authority, the Board adopted a set of actions on groundwater monitoring, water conservation, and land use measures. These actions were meant to address groundwater demand based on recommendations of the Resource Capacity Study.<sup>25</sup> In 2011, a voluntary groundwater management plan (under AB3030) was completed.

<sup>23</sup> David Sneed, 'Supervisors approve emergency Paso groundwater ordinance,' August 27, 2013, *San Luis Obispo Tribune*. Available at [sanluisobispo.com/2013/08/27/2654250/emergency-paso-groundwater-ordinance.html](http://sanluisobispo.com/2013/08/27/2654250/emergency-paso-groundwater-ordinance.html).

<sup>24</sup> A Resource Capacity Study is a San Luis Obispo County General Plan study to assess whether resources and services are adequate to serve new development.

<sup>25</sup> Examples of actions include subdivision prohibition and 2:1 water offset for all discretionary land uses. San Luis Obispo County, "Paso Robles Groundwater Basin." Available at [slocounty.ca.gov/planning/commguidelines/PRgroundwater.htm](http://slocounty.ca.gov/planning/commguidelines/PRgroundwater.htm).

["Safe", "Perennial", and "Operational" Yields]

Safe yield is the rate at which groundwater can be withdrawn without causing long-term decline of water levels or undesirable effects (e.g. groundwater quality, surface subsidence). It is also defined as the amount of groundwater that can be economically and legally withdrawn from a basin on a sustained basis without producing undesired effects. Safe yield is generally considered equal to the average replenishment rate of the aquifer from natural and artificial recharge.

Perennial yield is defined as the amount of usable water of a groundwater basin that can be withdrawn and consumed economically each year for an indefinite period of time. It cannot exceed the sum of the natural and artificial recharge without causing basin depletion.

Operational yield is the amount (or rate in acre-feet per year) of localized groundwater withdrawn on an annual average basis by an agency that does not exceed the long-term annual average recharge rate of the localized aquifer.

Despite groundwater pumping at or below level the estimated perennial yield for the basin, groundwater elevations in the Basin have dropped substantially (Figure 2). Several factors are likely contributing to declining groundwater levels, including increasing groundwater pumping and below-average precipitation.

Through a five-part series entitled 'Wine and Water,' reporters from the *San Luis Obispo Tribune* raised public awareness of the basin's groundwater issues and generated sufficient momentum locally and regionally for the Board of Supervisors to pass the urgency ordinance.

*What is the outcome?*

While the urgency ordinance is intended to provide the county and local stakeholders with time to investigate permanent solutions for managing the groundwater basin, it is important to note that the 1:1 water-offset ratio only maintains current rates of basin overdraft. As a result, without significant decreases in groundwater pumping or increases in groundwater recharge, the Paso Robles Groundwater Basin will continue to be in a state of overdraft.

Local stakeholder groups representing certain basin landowners have been investigating a more permanent structure for managing the Paso Robles groundwater basin. The two main stakeholder groups are PRO Water Equity, a coalition of rural residential property owners and small landowners; and Paso Robles Agricultural Alliance for Groundwater Solutions, representing large agricultural landowners. It is clear that the current AB3030 plan is not adequate to deal with the current crisis, and the county is working with these stakeholders to enhance that plan. These two groups have also joined to recommend a special district for managing local groundwater supply and obtaining supplemental water, but they are still working out the exact terms of the district and its governance before they submit a bill to the Legislature.<sup>26</sup> While the issue of fair representation among small and large basin landowners on the Board of the future district has been a major topic of debate, the proposed district's goals and objectives, particularly its regulatory ability to manage water demand in addition to

<sup>26</sup> Julie Lynem & David Sneed, 'Groups reach agreement on managing Paso Robles groundwater basin,' *San Luis Obispo Tribune*, December 5, 2013. Available at [sanluisobispo.com/2013/12/05/2819418/paso-robles-groundwater-basin.html](http://sanluisobispo.com/2013/12/05/2819418/paso-robles-groundwater-basin.html).

procurement of supplemental water, have not been discussed as prominently. Some believe that a water district should require well metering, with the ability to determine the fair share of water among basin users and supervise their water use.<sup>27</sup>

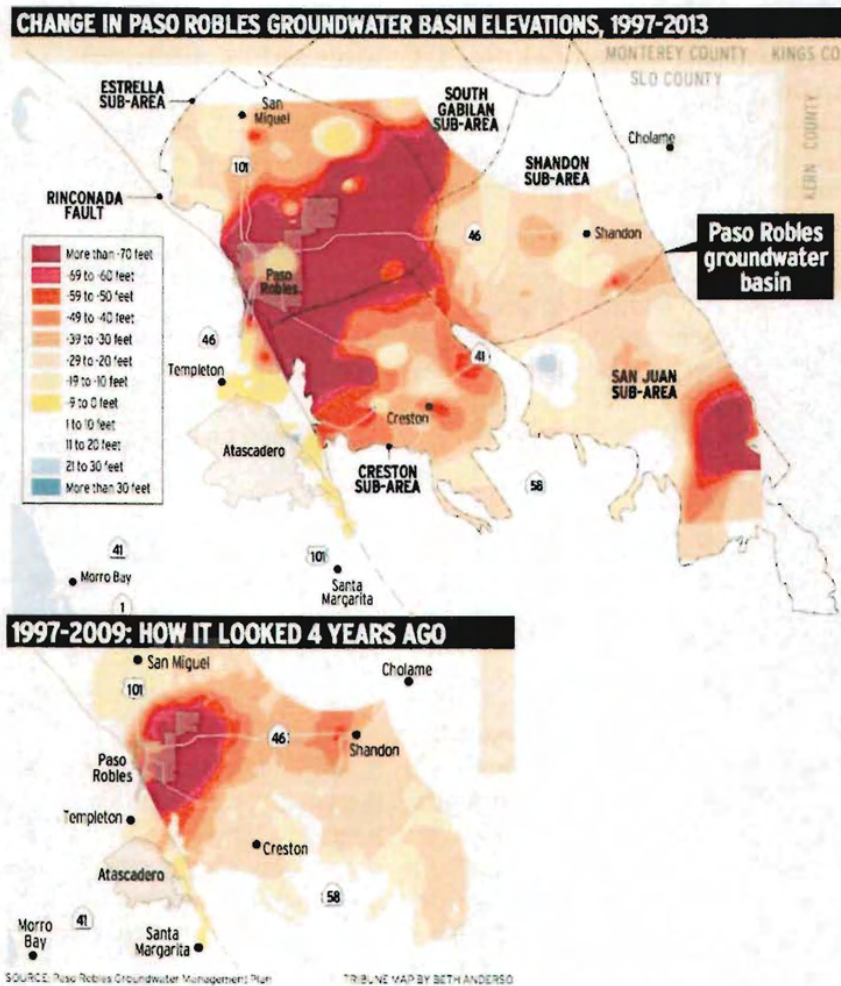


Figure 2. Changes in Paso Robles Groundwater Basin Elevations, 1997-2013 (top) and 1997-2009 (bottom). Source: Paso Robles Groundwater Management Plan, 2011 and *San Luis Obispo Tribune*.

There has also been controversy over vested rights that predate the urgency ordinance. Some landowners petitioned for an exemption from the offset requirement, arguing that they had invested planning and resources into activities for new irrigated agriculture prior to the passage

<sup>27</sup> Phil Dirx, 'Groundwater pumping needs to be regulated,' *San Luis Obispo Tribune*, December 5, 2013. Available at [sanluisobispo.com/2013/12/05/2819978/groundwater-pumping-needs-to-be.html](http://sanluisobispo.com/2013/12/05/2819978/groundwater-pumping-needs-to-be.html).

of the urgency ordinance. In response, the county developed eligibility criteria for vested rights to determine who may proceed without the offset requirement.<sup>28</sup>

To implement the new urgency ordinance, the county is in the process of developing the details of the offset program for rural residential development and new irrigated agriculture. As of January 2014, new development will have to meet CAL Green standards with an anticipated water use of 280 gallons per household per day. Proponents of new development would then pay into a fund an amount that can be used to retrofit existing development to reduce an equivalent amount of existing water use. For new irrigated agriculture, the county is working with the local resource conservation district to develop an offset program that would promote efficiency measures for irrigated fields by fall 2014.<sup>29</sup>

Two lawsuits regarding the Basin were filed in November 2013. One lawsuit is a writ of mandamus seeking to overturn the urgency ordinance, and the other is a quiet title claim that asks the court to affirm the rights of overlying property owners to access basin groundwater. The quiet title claim may be the first step toward an adjudication in which the court would decide who has rights to groundwater in the basin and in what quantity based on historical usage.

For the Paso Robles Groundwater Basin, a special water district, court adjudication and permanent county groundwater ordinance are possibilities in the foreseeable future. Which one or more of these options will ultimately prevail is uncertain.

*What are the main lessons to be learned?*

The situation that emerged in the Paso Robles Groundwater Basin in the summer of 2013 showed that the county had limited tools to deal proactively with the groundwater overdraft problem. Although county officials had just completed an AB3030 plan in 2012, the plan did not give them adequate authority to manage groundwater in a way that would cope with the crisis. Ultimately, the county had to rely on its police powers to pass the urgency ordinance, rather than any powers under the plan. This case highlights that a county's police power can be used to regulate land uses that affect groundwater on a temporary basis until a viable basin management plan that can achieve results on the ground is adopted and implemented.

Cities and counties should regularly review local regulations and antiquated subdivision plans, and modify or remove those that don't make sense. This "housecleaning" would help minimize the unintentional consequences of outdated land use decisions. Antiquated subdivisions in the Paso Robles basin created in the 1920s were developed in the '80s and '90s under entirely

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<sup>28</sup> David Sneed, 'Exemptions to North County water limits on supervisors' agenda,' November 24, 2013, *San Luis Obispo Tribune*. Available at [sanluisobispo.com/2013/11/24/2802409/exemptions-to-north-county-water.html](http://sanluisobispo.com/2013/11/24/2802409/exemptions-to-north-county-water.html); San Luis Obispo County, "Paso Robles Groundwater Basin" available at [slocounty.ca.gov/planning/commguidelines/PRgroundwater.htm](http://slocounty.ca.gov/planning/commguidelines/PRgroundwater.htm).

<sup>29</sup> Most retrofit programs in the county are funded by water rates. So direct-subsidy program (e.g. turf buyback) will require the use of general-fund money.

different conditions than when the plans were first created. These water demands, along with those from irrigated agriculture, contributed to the groundwater depletion in the basin.

In addition, Paso Robles has suffered from not dealing with the groundwater overdraft problem until it turned into a crisis. Regardless of the method used to manage groundwater, communities should take steps earlier when data indicate that a basin is in overdraft.

Finally, the situation in Paso Robles basin demonstrated that public awareness and media focus can make a difference. Reporters from the *San Luis Obispo Tribune* wrote an award-winning five-part series entitled 'Wine and Water' that created public awareness of the basin's groundwater issues and generated sufficient momentum locally and regionally for the Board of Supervisors to pass the urgency ordinance.<sup>30</sup> In part because of these articles, the community acknowledged a major problem, and the Board garnered the political support necessary to pass a fairly serious ordinance.

#### **Case Study 2: Orcutt, Northern Santa Barbara County**

The community of Orcutt provides an example of using an adjudication to resolve a crisis. While the court has issued an order in the adjudication that requires a "physical solution" (acquiring more water), the adjudication did not represent a proactive, long-term management approach to groundwater overdraft.

##### *Background*

Groundwater comprises 83 percent of the water supply for communities along the Central Coast of California.<sup>31</sup> Orcutt is an unincorporated community located in northern Santa Barbara County. Historically an agricultural area, this community is being rapidly converted to residential and commercial land uses. Orcutt's water supply is primarily groundwater drawn from the underlying Santa Maria Groundwater Basin (Figure 3).

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<sup>30</sup> *San Luis Obispo Tribune*, "The Tribune wins top state journalism award for 'Wine and Water' series," October 19, 2013. Available at [sanluisobispo.com/2013/10/19/2740788/the-tribune-wins-top-state-journalism.html](http://sanluisobispo.com/2013/10/19/2740788/the-tribune-wins-top-state-journalism.html).

<sup>31</sup> California Department of Water Resources, "Bulletin 118 – Update 2003." Available at [water.ca.gov/groundwater/bulletin118/update2003.cfm](http://water.ca.gov/groundwater/bulletin118/update2003.cfm).

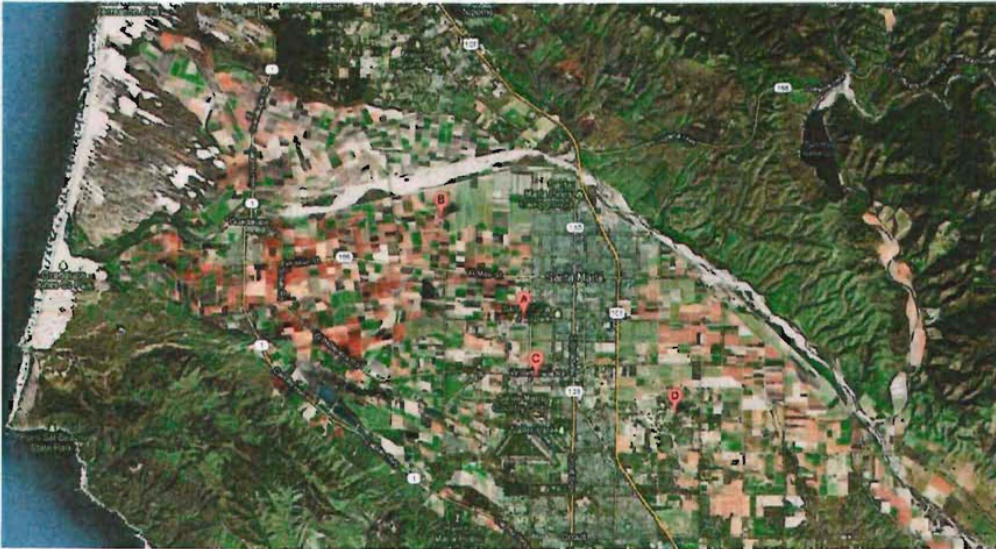


Figure 3. Southern portion of the Santa Maria Groundwater Basin. Source: Brownstein Hyatt Farber Schreck, LLP

In response to ongoing litigation regarding the Santa Maria basin and perceived basin overdraft, the Orcutt Community Plan, when released in 1997, enacted a new water policy (WAT-0-2) requiring that water demand from new discretionary development must be offset by “supplemental water.” This supplemental water must come from other sources besides groundwater.<sup>32</sup> To meet this requirement, developers have been purchasing State Water Project water from the city of Santa Maria — currently the most feasible option for supplemental water — at a one-time cost of \$25,000 per acre-foot. As an unintended consequence, the ability to sell or withhold supplemental water has given Santa Maria some ability to influence land use changes in unincorporated Orcutt.

In 2005, the court responded to a lawsuit seeking an adjudication of the Santa Maria basin by approving a written stipulation, setting forth a physical solution agreed to by a majority of the parties.<sup>33</sup> Significantly, the court did not order reductions in groundwater pumping, but rather required that new users obtain supplemental or “developed” water — including various forms of artificial recharge — instead of “native” groundwater. In addition to the stipulation, the court established groundwater rights and required groundwater monitoring and reporting for the basin. The court also upheld Orcutt’s supplemental water requirement.<sup>34</sup>

<sup>32</sup> Orcutt Community Plan, Santa Barbara County Planning and Development, adopted July 1997.

<sup>33</sup> A “physical solution” has been defined by the court as “an equitable remedy designed to alleviate overdrafts and the consequential depletion of water resources in a particular area, consistent with the constitutional mandate to prevent waste and unreasonable water use and to maximize the beneficial use of this state’s limited resource.” *California American Water v. City of Seaside* (2010) 183 Cal.App.4<sup>th</sup> 471, 480.

<sup>34</sup> *Santa Maria Valley Water Conservation District v. City of Santa Maria, et al* (Lead Case No. CV 770214; consolidated with Case Nos.: CV 784900, 784921, 784926, 785509, 785511, 785515, 785522, 785936, 786791, 787150, 787151, 787152).

*What is the outcome?*

The stipulated agreement is currently the mechanism in place to manage groundwater in the Santa Maria basin. Under the agreement, developers pay for supplemental water for urban development. Agriculture, which uses the majority of the groundwater from the basin, has overlying rights to use groundwater without limitation unless a “several water shortage” occurs. The present situation will continue until groundwater monitoring indicates a severe water shortage, at which point all parties will go back to court for another court-based solution. The agreement calls for continuing judicial oversight because overdraft is a “reasonable certainty” for the basin in the future.

In other words, the adjudication has been about responding to crisis rather than about achieving long-term sustainable groundwater management. While the stipulated agreement could be considered a form of groundwater management, it governs water rights and water accounting only, and perpetuates existing uses and groundwater impacts. It is not, nor is it intended to be, a comprehensive management plan to guide long-term regional and community planning.

*What is the primary lesson to be drawn from this case study?*

Adjudication is a solution to a crisis, but it tends to be a short-term answer to the larger groundwater problem. To be successful, it must be complemented by a long-term approach that manages groundwater resources in concert with regional land use planning. What is needed is a community vision that is consistent with available water resources, and a plan to implement this vision. The process to date has not directly addressed the issue of groundwater depletion. Water supply — in this case, groundwater — should be engaged as part of a public planning process that takes into account the water demands and supplies needed to guide a community’s vision for the future. A broad planning framework already exists in the shape of the county general plan. An initial step would be to create a water element containing the goals and objectives for water management of the community and county and bring together the pieces currently contained within the conservation element and other parts of the general plan.

**Case Study 3: Butte County**

The exporting of water has threatened the sustainability of Butte County water resources and raised awareness of groundwater among its citizens. The community has developed water resource management tools that include assessing the implication of local land use decisions on water resources through local ordinances and polices to preserve the community’s culture and quality of life.

*Background*

Butte County is located in California’s northern Central Valley (Figure 4). The western half of the county is on the valley floor, and the eastern half is in the foothills and mountains of the Sierra Nevada. The county benefits from prime agricultural land, abundant snow-fed surface water and significant groundwater resources. Groundwater directly meets nearly one-third of the county’s water demand, and there is recognition among the public that the vitality of streams and other surface water-dependent ecosystems are tied to the condition of the groundwater basin.



Figure 4. Butte County in northern Central Valley. Source: Butte County

Citizens of Butte County have had a long interest in water, but two events were pivotal in the county's approach to water resources: the establishment of Lake Oroville by damming the Feather River in the 1960s as part of the State Water Project, and the 1982-1992 drought. Both events increased awareness of the need for local water resource protection and management. In 1992, partially in response to a drought, local groundwater users, water districts, water purveyors and local governments formed the Butte Basin Water Users Association (BBWUA). The BBWUA managed the basin's surface water and groundwater resources to prevent adverse impacts from water transfers within and outside the basin. Specific efforts included funding the development of the Butte Basin Groundwater Model and assisting Butte County in producing the annual Groundwater Status Report. Over time, counties and other local agencies institutionalized the efforts started by the BBWUA.

In 1994, the Department of Water Resources, in response to continued drought conditions in the state, established an Emergency Drought Water Bank that included a groundwater-substitution program. Willing sellers, through the irrigation districts, were able to sell a portion of their surface water through the program and replace the transferred surface water with groundwater. The program provided water to buyers in other parts of the state that were experiencing emergency drought shortages. The program raised concerns, such as how the state responded to local reports that the program contributed to some wells going dry. The concerns over how the state managed the program (e.g., planning, communication and response) led to the recognition that the county needed to exercise local oversight of water, including groundwater.



In 1996, Butte County citizens voted to adopt the Groundwater Conservation Ordinance.<sup>35</sup> The ordinance requires a permit, including a public review process, to export groundwater outside the county and to pump groundwater as a substitution for surface water that is exported outside the county.<sup>36</sup> Additionally, the ordinance requires quarterly groundwater monitoring and an annual report on groundwater conditions. In 1999, the county created the Department of Water and Resource Conservation. Its duties were to implement the Groundwater Conservation Ordinance and oversee local water resource management (including groundwater monitoring and reporting). It was also charged with communicating about water resources and their conditions to citizens and leaders, and administering Butte County's State Water Project Table A allocation.

The department subsequently adopted a groundwater management plan, prepared a water inventory and analysis report and an integrated water-resource plan and conducted research to improve the Butte Basin Groundwater Model. The integrated water resource plan's recommendation to consider water resources in updating zoning ordinances led to greater attention on water resources in the 2010 update to the county's general plan.

To further highlight the importance of water and its relationship to land use, an optional water resource element was included in the Butte County General Plan in 2010. While primarily organizational in nature, the element achieved two notable outcomes. One, it heightened communications and technical exchanges between the Planning and Water Resource Departments through the general planning process which has since continued. Two, it validated the water resources programs, policies and actions described above, thereby affirming the importance of water to the county. In addition, the accounting and compilation of the water and land use planning efforts for the water element created an opportunity for a gap analysis to examine current and explore additional actions.

The process allowed water managers and land use planners to educate county leaders and citizens about current water management. For Butte County, the value of having a water element lies primarily in the public process — in having a community discussion about water and what is important to the people.

Butte County's water resource policies and actions allow the county to more proactively manage their groundwater resources and potential land use impacts. Two key policy and program areas relating to groundwater and land use planning were emphasized through the general plan process. The county has been working to identify and characterize groundwater recharge zones. In recharge areas, development proponents must demonstrate that the proposal would not preclude recharge, including using best management practices to minimize potential impacts. Another significant policy example is the requirement that a comprehensive assessment of groundwater impacts would be conducted for significant development projects. While intended to go beyond the state SB610 and SB221 requirements, the county has yet to define the specifics

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<sup>35</sup> Chapter 33 of the Butte County Code.

<sup>36</sup> CDM, 'Integrated Water Resources Plan,' Butte County Department of Water and Resource Conservation, 2005.

of the policy. In any event, the required analyses will provide information to the Planning Commission and the Board of Supervisors on the implications of proposed groundwater-dependent projects. The increased evaluation of groundwater impacts will allow for more informed land use decisions.

*What is the outcome?*

Butte County has set in place groundwater goals and objectives to more effectively manage its resources, including a water element in the general plan, but implementation actions need to be worked out to facilitate benefits on the ground. The long-term benefit is that the interaction between water resources managers and land use planners will foster more informed decision-making.

*What is the main lesson?*

Proactive management of groundwater resources expressed through land use policies and programs provide greater local control for communities that wish to dictate the terms of their own future.

**Case Study 4: Kings Basin Integrated Regional Water Management Plan (IRWMP)**

In a region dominated by agriculture, expanding urban development and declining groundwater levels, stakeholders from the Kings Groundwater Basin have found that coming together around the integrated regional water management plan (IRWMP) builds relationships and provides a roadmap for more multi-faceted regional approaches to water management. These regional-scale approaches to water management are better able to address the intersections between land use planning and groundwater management.

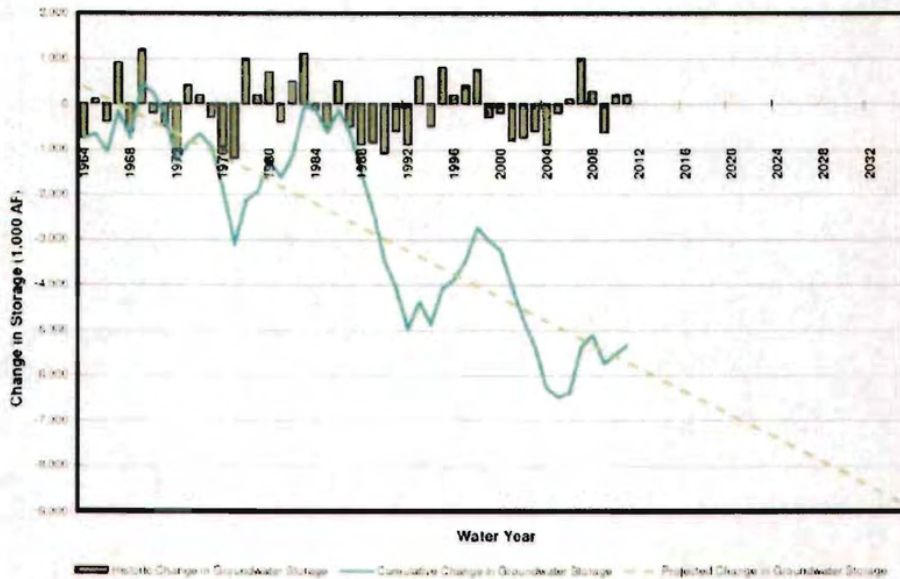
*Background*

The Kings Basin Integrated Regional Water Management Plan (IRWMP) is a collaborative effort between 54 public, private and non-governmental agencies to manage water resources in the Kings Groundwater Basin, a sub-basin of the San Joaquin Valley Groundwater Basin. The Kings Basin IRWMP covers 610,000 acres, of which 480,000 acres, or 79 percent of the total, are used for irrigated agriculture.<sup>37</sup> Groundwater overdraft is generally considered the largest regional problem (Figure 5). Overdraft is estimated to be 100,000 to 150,000 acre-feet per year.<sup>38</sup> One of the main goals of the IRWMP is to stop groundwater overdraft in the Kings Basin and reverse declining groundwater levels.

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<sup>37</sup> Kings Basin Water Authority, Kings Basin Integrated Regional Water Management Plan, 2012.

<sup>38</sup> Ibid.



**Historical and Projected Groundwater Level Decline**

Figure 5. Historical and projected groundwater levels in the Kings Groundwater Basin. Source: Kings Basin IRWMP

Several local agencies in the Kings River region came together in 2000 with a growing awareness that a different way of looking at water was necessary. Around this same time, the California Senate passed SB1672, the Integrated Regional Water Management Act (2002), to encourage local agencies to work cooperatively to manage local and imported water supplies. The aim was to improve quality, quantity and reliability. Soon after, voters passed Proposition 50 in 2002 and Proposition 84 in 2006, directing the Department of Water Resources to offer \$500 million and \$1 billion, respectively, in funding for integrated regional water management planning and implementation.<sup>39</sup> This funding opportunity gave incentives to other regional entities — cities, counties, irrigation districts, and nongovernmental organizations — to come to the table. Motivated by these new laws, the Kings River water forum eventually formalized as a joint powers authority in 2009 and became known as the Kings Basin Water Authority. The first water management plan from the authority was completed in 2007. This plan was redone in 2012 to meet new state requirements.

The plan, or IRWMP, is a reflection of the existing integration of land use planning with water planning across the region. Issues covered include water supply, water quality, flood management, groundwater recharge, conjunctive water use, treatment facilities, water conservation, general plan policies, and planning and development review. The plan is nonbinding; its strength lies in the IRWMP process that allows committed planners and resource managers to collaborate on a regional vision and determine the actions that they should take to

<sup>39</sup> Department of Water Resources, 'Integrated Regional Water Management Grants,' available at [water.ca.gov/irwm/grants/index.cfm](http://water.ca.gov/irwm/grants/index.cfm).

realize their collective goals. For the authority, this includes stopping groundwater overdraft in the basin and reversing declining groundwater levels. Achievement of goals may require local land use agencies to ensure consistency between the IRWMP and their planning documents. For instance, groundwater recharge areas are mapped in the IRWMP and provide an opportunity for local jurisdictions to consider appropriate zoning for these areas.

**[Conjunctive Use]**

Some groundwater basins are managed using conjunctive use strategies, which involves coordinated use of surface and groundwater to meet water supply objectives. In conjunctive use, pumping in a basin may temporarily and intentionally exceed groundwater recharge, but surface waters will be used to recharge groundwater during times of surplus to maintain healthy basin conditions over time. Many conjunctive use and groundwater banking programs exist in California. Some of them — like Kern Water Bank and Semi-Tropic Water Bank — have been in existence for decades, whereas others like the Sacramento Groundwater Authority are newer.

*Benefits and Challenges*

Partnerships, funding opportunities, operational connectivity, as well as increased awareness of planning efforts and potential projects are key benefits of the IRWMP process for Kings Basin.<sup>40</sup> However, local agencies involved in the IRWMP process cite the cultivation of relationships as being the greatest benefit. The IRWMP process highlights the need for land use planners to be cognizant of water throughout the planning process. Heightened awareness of water issues and relationships between the IRWMP members now make it likely that outreach and coordination on water and land use policies will not only happen, but will proceed from a deeper baseline of knowledge and trust.

The IRWMP planning process is not without its challenges. One challenge is that future state funding for IWRM plans and projects is uncertain. The Kings Basin IRWMP has successfully obtained DWR funding for planning and implementation over the past few years. In addition to two state-funded plans, funded projects at the intersection of groundwater and land use include groundwater recharge basins and flood-control facilities that help meet IRWMP goals. Each project has involved multiple partners and significant local and regional outreach efforts. Other projects include an integrated groundwater and surface water model, water meter installation and river trails. But Proposition 50 and 84 funding is nearly exhausted, so alternative funding mechanisms need to be explored. Despite the uncertainty, there seems to be agreement that IRWMP engagement has helped shaped a new norm for regional coordination that will not disappear even as funding changes over time.

Other challenges include programmatic funding and stakeholder fatigue. Programmatic funding provides for the administration and implementation of the IRWMP, which is not included in the state funding. By law, paying members and nonpaying “interested parties” have the same ability to influence decisions by the advisory council and board of directors.<sup>41</sup> Paying members are

<sup>40</sup> Kings Basin Water Authority, Kings Basin Integrated Regional Water Management Plan, 2012.

<sup>41</sup> California Water Code governing the formation of the Regional Water Management Groups such as the Kings Basin Water Authority states that no one is restricted from participating based on ability to pay.

starting to explore creative options for reducing their own fees, which could further impact programmatic funding for the IRWMP. Stakeholder fatigue is another issue. Given the complexity of water issues, the IRWMP group must meet frequently. A deep commitment to the outcome and process is required to keep members energized and invested.

*What has enabled the success of the Kings River IRWMP?*

Several factors have contributed to the success of the Kings River IRWMP process. A shared vision among several local agencies in the region that jointly recognized the need for a more integrated approach to water management was vital, as was the leadership and administration of the Kings River Conservation District. Key people believed in the IRWMP process and got themselves and their staffs involved. Relationships between members existed to a certain degree, so the group was able to leverage those connections toward building a regional vision. Finally, the financial resources from both local and state agencies facilitated the process.

*What is the outcome?*

The Kings River IRWMP process has evolved to embrace a truly regional perspective based on a better understanding of each member's issues and concerns. This partnership enables members to use the network for outreach, education, collaboration and expertise to achieve better water management. While long-term data is not yet available to quantify tangible benefits on the ground, one clear indication of the success of the Kings River IRWMP is its ability to obtain grant funding for plans and projects, which highlights the state's confidence in the region's ability to work together to achieve results.

*What is the primary lesson to be drawn from this case study?*

The IRWMP is a dialogue about water and land use, not about individual projects. Getting all parties involved in a functioning regional partnership is not easy, and requires that all involved parties want the process to succeed. True regional collaboration is a time-consuming process that requires dedication, financial resources and frequent communication. Despite the challenges, the IRWMP process has been worthwhile for the Kings Basin because long-term goals have been created and the way forward has become clearer, with many goals likely to be achieved.

Recognizing the alternative of the IRWMP process — mandated participation because water is not available to support people and the land — helps all parties to fully engage in the process. The IRWMP framework could be utilized by federal agencies as vehicles for partnerships, outreach, policy implementation and funding.

## APPENDIX B. UNCOMMON DIALOGUE PROGRAM

### **The Nexus of Groundwater and Land Use Planning September 12 - 13, 2013 Stanford University**

#### **Day 1**

9:15 – 9:45

**Welcome — Introductions — Goals**

9:45 – 11:15

**Panel Discussion**

**Land Use Planner's View and Challenges** — Pete Parkinson, Sonoma County Water Agency and Glenn Russell, Santa Barbara County

**Groundwater Manager's View and Challenges** — Tim Parker, Parker Consulting and Jay Jasperse, Sonoma County Water Agency

**Facilitated Discussion** — Jeff Loux, University of Davis

11:15 – 11:30

**Break**

11:30 – 12:15

**Leveraging Water and Land Use Planning Laws to Strengthen Local Resources Management** — Ellen Hanak, Public Policy Institute of California

12:15 – 1:30

**Lunch**

1:30 – 3:00

**Legal and Institutional Constraints/Challenges** — Stephanie Hastings, Brownstein Hyatt Farber Schreck, and David Aladjern, Downey Brand

3:00 – 3:15

**Break**

3:15 – 4:45

**The Promise of Integrated Regional Water Management** (opportunities for coordinated land use and groundwater management) — Cristel Tufenkijan, Kings River Conservation District and Bernard Jimenez, Fresno County Department of Public Works and Planning

4:45 – 5:00

**Overview of Day**

6:30 – 9:00

**Dinner**

#### **Day 2**

9:00 – 9:30

**Continental Breakfast**

9:30 – 11:00

**Land Use Planning and Groundwater Management** (recharge zoning, general plans, water element) James Caruso and Courtney Howard, San Luis Obispo County, and Paul Gosselin, Butte County Department of Water and Resource Conservation

11:00 – 11:15

**Break**

11:15 – 12:00

**Synthesis and Discussion** — Buzz Thompson, Stanford University

12:00 – 1:00

**Lunch**

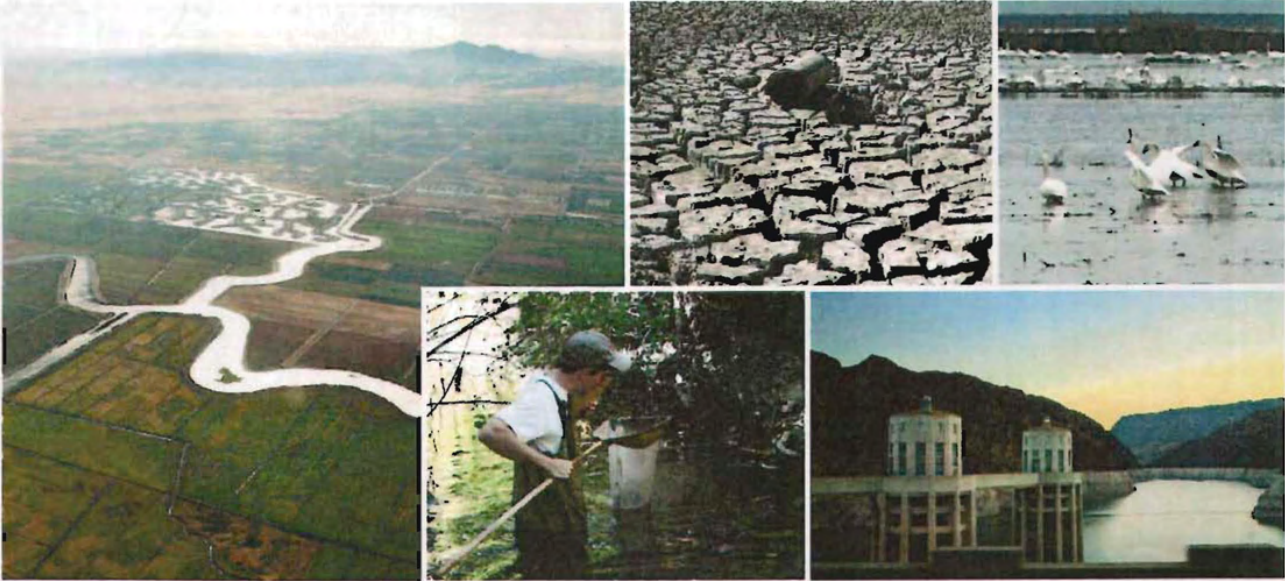
1:00 – 2:00

**Next Steps**

## APPENDIX C. UNCOMMON DIALOGUE PARTICIPANTS

David Aladjem, Water Law Attorney, Downey Brand  
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Joya Banerjee, Program Officer, S.D. Bechtel, Jr. Foundation  
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James Caruso, Senior Planner, San Luis Obispo County  
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Michelle Fodge, Senior Planner, City of Scotts Valley  
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Jay Jasperse, Chief Engineer, Sonoma County Water Agency  
Bernard Jimenez, Deputy Director of Planning, Fresno County Department of Public Works  
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Patrick Lowe, Natural Resources Conservation Manager, Napa County Division of Water Resources  
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Pete Parkinson, Planning Director, Sonoma County  
Iris Priestaf, President, Todd Engineers  
Glenn Russell, Planning Director, Santa Barbara County  
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Barton "Buzz" Thompson, Co-Director, Stanford Woods Institute for the Environment



# Uncommon Innovation:

## Developments in Groundwater Management Planning in California

By Rebecca Nelson

Woods Institute for the Environment | The Bill Lane Center for the American West  
Stanford University



# Uncommon Innovation: Developments in Groundwater Management Planning in California

By Rebecca Nelson\*

Water in the West Working Paper 1

March 2011

Woods Institute for the Environment

The Bill Lane Center for the American West

Stanford University

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**COVER IMAGES, CLOCKWISE FROM LEFT:** DISCOVERY BAY DEVELOPMENT NEAR SAN JOAQUIN DELTA; DRY BED OF LEXINGTON RESERVOIR NEAR LOS GATOS, CA IN 2008; SWANS ON THE SACRAMENTO RIVER DELTA; HOOVER DAM ON THE COLORADO RIVER, NEVADA; WORKING IN MATADERO CREEK, PALO ALTO, CA **CREDITS:** SARA TOLLEFSON; CHRISTOPHER HYNES; INGRID TAYLAR; ANDREAS METZ; ALAN LAUNER

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Figure 1: Basin Management Objective Information Center for Butte, Tehama, Glenn and Colusa Counties – screenshot of map interface and individual well information ( <a href="http://gis.buttecounty.net/bmoic3/GIs/Default.asp?loadfile=map.asp&amp;county">http://gis.buttecounty.net/bmoic3/GIs/Default.asp?loadfile=map.asp&amp;county</a> ) .....	16
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**GLOSSARY**

DWR	Californian Department of Water Resources
GWMP	Groundwater Management Plan
UWMP	Urban Water Management Plan

## EXECUTIVE SUMMARY

Unusually among western states in the United States, California has no statewide regulation of groundwater allocation or management. Rather, a complicated network of local agencies manages groundwater. The lack of state oversight means that there is little easily accessible information about how these agencies plan for the development and management of groundwater resources. We do know that significant areas of the State suffer from critical conditions of overdraft, where groundwater pumpers withdraw a far greater volume of groundwater than appears to be sustainable. These continually lowering water tables threaten serious economic, social, and environmental harms. Even so, groundwater use is increasing, and is projected to increase at a greater rate in the future.

Over decades, commentators have advocated reforming California's groundwater laws to alleviate problems of groundwater overdraft. Many suggestions derive useful inspiration from the experience of other States, and sometimes other countries. This report takes a different tack. It draws inspiration from how local agencies currently manage groundwater in California. It analyzes a collection of over 50 local groundwater management plans—most sourced directly from the agencies themselves—to find promising and innovative approaches to local groundwater management. These approaches are organized into four key themes: involving stakeholders, collecting good information, adopting a diverse “portfolio” of approaches to groundwater management, and taking steps to ensure that a plan can be implemented in practice.

Contrary to popular expectations, the report uncovers a treasure trove of innovative strategies for groundwater management in California. Among other things, we see agencies using measurable objectives for limiting groundwater drawdown; analyzing suites of management options with transparent decision criteria and simulations; collaborating with neighboring agencies; involving a broad range of agricultural, municipal, environmental, State, and federal stakeholders in their planning decisions; undertaking groundwater metering as well as monitoring; actively controlling pumping to limit groundwater drawdown; and protecting hydrologically connected surface waters and groundwater-dependent ecosystems. These practices may not be common, but they should be. This report is intended, in part, as a resource for local agencies, to enable these practices to become more widespread.

The home-grown innovations uncovered by this report point the way forward for local agencies to better manage groundwater in California, and the way towards an updated and improved State policy structure to encourage them to do so. Strengthening California's legislation for groundwater management planning, informed by current best practice, would provide a path towards better groundwater management and retain the State's historical focus on local agencies driving local change. The local planning actions uncovered by this report are not only innovative, they are also practical, down-to-earth and doable—they are being undertaken by different types of local agencies, with widely varying resources, across the State, right now.

## **PART ONE: INTRODUCTION**

Unusually among western states in the United States, California has no statewide regulation of groundwater allocation or management. And although the State Water Resources Control Board has the legal power to prevent the “unreasonable use” of groundwater in the State and to control pumping by initiating adjudications of groundwater rights (Cal. Water Code §§ 2100-2102), it does not exercise that power (Sandino, 2005, p. 478). Instead, by convention, the state refrains from intervening and leaves these matters to local agencies, of which there are many different “species” established under different state statutes.

Commentators have advocated reforming California’s groundwater laws over decades. Their suggestions have ranged from regulating groundwater at the State level (Hanak et al., 2010; Sax, 2003, p. 288; Taylor, 2010), to enforcing and improving prohibitions on wasting water generally (Neuman, 1998), to establishing a groundwater reserve as protection from drought (Langridge, 2009). Many suggestions derive useful inspiration from the experience of other States, and sometimes other countries. But in the short term, wholesale State-level water reform seems a distant prospect.

This report takes a different tack. It draws inspiration from how local agencies currently manage groundwater in California. Based on an analysis of a randomly selected collection of 52 groundwater management plans made by local agencies under Californian law (out of some 130 in total), this report highlights current “best practice” in local groundwater management planning in California. Here, best practice is defined by reference to accepted principles of water resources planning, like collecting adequate information, involving stakeholders, and pursuing multiple goals and strategies.

The innovations presented here are neither common nor representative of groundwater management in California—they are exceptional. Even putting the desirability of longer term reforms aside, these practices chart a path forward for local agencies in California in a way that is innovative, practical, down-to-earth and doable—a path that requires only that Californians look to each other for inspiration.

This report marks the start of a multi-year groundwater research program—part of the Joint Initiative on Water in the West, of the Woods Institute for the Environment and the Bill Lane Center for the American West at Stanford University. As a preliminary step, it does not seek to offer definitive solutions. Rather, it aims to challenge the common view of all groundwater management in California as lawless and backward, by highlighting innovative practice that can help chart a path to reforms which could grow organically from current practice. It also hopes to spur further empirical research on how groundwater management planning activities on paper translate to challenges and successes on the ground, by pointing to selected agencies and areas that show promise.

Part Two of this report sets out key practical and policy rationales for local water agencies to engage in groundwater management, with reference to the effects of overdraft. Part Three describes in more detail what is meant by “groundwater management planning” and presents a vision that defines “best practice” for the purposes of this report. Part Four sets the stage, outlining the roles of groundwater pumpers and local water agencies in managing groundwater in California, and how Californian law and policy provide for groundwater management plans. It suggests that this law and policy is now out of date and in need of reform, when compared to other legal developments in water planning in California. Part Five gives detailed examples of how selected local agencies in California approach groundwater management in an innovative and practical way. Part Six concludes and suggests how the innovations outlined in this report could lead to further policy developments in, and research on, Californian groundwater management.

## **PART TWO: WHY MANAGE GROUNDWATER?**

To appreciate the need to manage groundwater, and the responsibilities that local agencies face in doing so, it is necessary to consider how groundwater is used and the consequences of depletion at the ground level. Californians use groundwater primarily for irrigation (around 75%) and municipal and domestic purposes (around 23%) (Kenny & U.S. Geological Survey, 2009, p. 7). Groundwater use is increasing, and is projected to increase at a greater rate as climate change threatens the reliability of surface water supplies (Cal. Dep't of Water Resources, 2008, p. 5).

Even at current rates of use, in some regions of California, groundwater pumpers withdraw a far greater volume of groundwater than appears to be sustainable. The latest state assessment of critical groundwater overdraft in California dates from 1980. It found that 11 basins suffered from "critical conditions of overdraft", meaning that "continu[ing] present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts"—terms which are defined at the local level (Cal. Dep't of Water Resources, 2003, p. 98).

Economically, water production costs may increase because diminishing groundwater levels mean that more energy is needed to pump water to the surface. It also costs more to treat groundwater that has been affected by quality problems associated with overdraft, such as intruding seawater, saline groundwater, or newly mobilized contaminants (Zekster, et al., 2005, pp. 402-403). At the extreme, impaired quality can render groundwater unusable (Cal. Dep't of Water Resources, 2003, p. 8), and possibly without economic value. Groundwater extraction has caused groundwater levels to decrease by more than 200 feet in some parts of California (U.S. Geological Survey, 2003, p. 3), and ground subsidence affects over half of the San Joaquin Valley (Zekster, et al., 2005, p. 401). This permanently reduces the storage capacity of the aquifer and may damage overlying infrastructure and aggravate seawater intrusion. In some areas, subsidence has resulted in the need for costly flood control infrastructure (Santa Clara Valley Water Dist., 2001, pp. 13, 44).

Intensive groundwater use also represents a powerful potential source of social conflict, although it has certainly provided significant social benefits from economic development (Llamas & Martinez-Santos, 2005). Though there appears to be little sustained work on the social effects of overdraft in California, the economic harms described above naturally have corresponding social effects.

In ecological terms, groundwater depletion may adversely affect connected streams, lakes, wetlands, springs, coastal environments, and the flora and fauna which depend on aquifers directly, or on these connected systems (Alley, et al., 1999, pp. 30-44). The ecological impacts of groundwater overdraft in California include diminished streamflow and lake levels, damaged vegetation, and corresponding effects on fish and migratory birds. Effects are felt at Lake Merced near San Francisco, Redwood Creek in northern California, the Cosumnes River near Sacramento, and the Owens River Valley, to name a few (Zekster, et al., 2005, pp. 398-401).

Groundwater management planning is a key way to prevent and holistically deal with these effects on a vital water supply for farms and cities in California.

## **PART THREE: GROUNDWATER MANAGEMENT PLANNING**

Historically, water resource problems were considered “technical challenges to be resolved through purely technical means” (Feldman, 1991, pp. 72-73). A more modern view of water resources management conceives of a much more comprehensive, planning-based approach to water management. Such an approach involves managing all water sources, involving stakeholders, meeting the basic needs of both human water users and the environment, and managing demand through greater efficiency, public education, and incentives to conserve water—in addition to simply augmenting water supplies (Brooks, et al., 2009; Palaniappan & Gleick, 2009, p. 13). This report adopts this holistic understanding of groundwater management and draws out elements of California’s local agency plans that together, build such an approach. Before discussing these local approaches in detail, it is appropriate to consider in greater depth what each element of this holistic vision of groundwater management planning requires.

### **1. Overview of water resources planning**

Water resources planning refers to a process of (Gardner, et al., 2009, p. 273; Gleick, 1998):

- systematically gathering information about a water resource, including its status and its environmental, social and economic values;
- identifying existing rights and interests;
- evaluating present and future water needs;
- setting guidelines for future management;
- regularly reviewing the plan to ensure it can adapt to changing circumstances; and
- publicly reporting on the plan’s implementation.

Water planning is particularly important as a way to formally anticipate and deal with variable water availability in arid and semi-arid areas, and as groundwater extraction and resource stress intensify. Although some jurisdictions use water plans as a primary way to control access to groundwater, in California, management plans for groundwater overlay allocation systems founded on common law rights. Groundwater management plans are one type of water management plan among many, including:

- the five-yearly State Water Plan, which sets out goals and objectives (Cal. Water Code § 10004);
- integrated water resources management plans (Cal. Water Code §§ 10530-10550);
- urban water management plans (Cal. Water Code §§ 10610-10656); and
- agricultural water conservation programs (Cal. Water Code §§ 10520-10523).

Whether or not they have legal force, plans are “the basic instrument for ensuring the rational management of the water resources available” (Caponera, 2007, p. 137; Sax, 2003, p. 317).

### **2. Involving stakeholders**

Public participation has been a feature of water planning in the United States for decades, though its implementation has not always been uncontroversial (Wengert, 1971). The two key issues are who to consult, and what role they should play. It is increasingly recognized that in water matters, “everyone is a stakeholder”, including disadvantaged groups, individuals, non-government entities, and local groups of all kinds (Global Water Partnership Technical Advisory Comm., 2000, pp. 15-17; Iza & Stein, 2009, p. 86). Stakeholders should make “significant contributions to outcomes”, rather than merely “legitimize decisions already made” (Bergkamp, et al., 2009, p. 39; Global Water Partnership Technical Advisory Comm.,

2000, pp. 15-17). For example, in the groundwater sphere, stakeholders should be involved in "decid[ing] the specific conditions under which the undesirable consequences [of groundwater depletion] can no longer be tolerated" (Alley, et al., 1999, p. 76). Formal advisory committees of stakeholders assist local water agencies by providing a variety of perspectives, reducing future conflicts, achieving local buy-in, and broadening the discussion beyond purely operational issues (City of San Diego Water Dept, 2007, pp. 3-18).

### **3. Collecting information**

Pumping groundwater without monitoring extraction or the state of the aquifer has been compared to a business continually withdrawing money from a bank account without any bookkeeping system (U.S. Geological Survey, 2003, p. 4). Indeed, the Californian Legislature itself acknowledges that information about groundwater is required to properly manage the resource (Cal. Water Code § 10750(b)). The most fundamental data for groundwater management relates to groundwater levels, quality, extraction (Taylor & Alley, 2001, p. 1), and the health of dependent ecosystems. When local agencies require well owners to register and meter their wells, and report groundwater extraction, they gain crucial information about the stress on the resource and the wider local impacts of depletion, for example, ground subsidence. When they also collect ecological information—information that may initially seem outside their "mission"—they gain the ability to manage the resource for broader and longer-term sustainability, beyond a narrow focus on short-term water supply goals.

### **4. Adopting a portfolio approach to groundwater management strategies**

A portfolio approach to groundwater management, as presented here, has two key characteristics—it involves multiple goals, and it involves using multiple strategies to pursue each goal. Traditionally, local water agencies in California focus on a narrow portfolio of goals. They focus very strongly on groundwater supply for consumptive purposes, often to the exclusion of other goals, like maintaining or restoring ecosystems, protecting connected surface waters, or ensuring that groundwater use minimizes third-party impacts on society.

Historically, California has also preferred engineering solutions to water problems over other approaches, and to some extent, this remains true, unnecessarily impoverishing California's portfolio of water management strategies (Hanak, et al., 2010, p. 25). Rather than seeking a "silver bullet", water problems are better approached with a portfolio of strategies (Hanak, et al., 2010, p. 34). Although the local context will determine which strategies are likely to be effective, empirical evidence suggests that having a larger and more diverse suite of water management actions is likely to enhance overall effectiveness and robustness; redundancy can encourage greater compliance because different users will respond to different approaches and increase "complementarity", whereby different approaches reinforce each other (Cash, 2006, p. 285).

Water resources literature is filled with different methods of dealing with managing groundwater to control depletion. Given the historical emphasis on engineered, supply-side solutions, this report focuses on how local Californian agencies manage groundwater demand using voluntary and mandatory measures; infrastructure measures are covered to a lesser degree, with an emphasis on the conjunctive management context, as described below.

A mandatory approach to demand management involves limiting extraction to a target level by mandating reductions in existing pumping, limiting the construction of new wells, or requiring conservation measures. Ideally, the target extraction level should avoid irremediable impacts on immediate and downstream freshwater ecosystems and maintain their integrity; consider links with water quality; and include



"measures aimed at coping with droughts", such as a drought reserve, given that groundwater is often required as a buffer against drought (Dellapenna, 2004, pp. 89, 90; Flint, 2004, pp. 41, 47; Nevill, 2009, p. 2627). Since mandatory measures often encounter strong opposition from existing and aspiring rights-holders; limits should be set well before extraction approaches those levels (Nevill, 2009, p. 2628).

A voluntary approach to demand management entails using fees, educational measures or water efficiency projects to reduce groundwater pumping. The fee-based approach entails charging private well owners fees for groundwater extraction. In theory, the economic value of water comprises both its market value and its "non-market values to human capital and ecosystem service values" (Lant, 2007, p. 64). In practice, realizing this vision through fees is difficult—it is far easier to leave out or under-account for costs that are difficult to calculate, like the costs of "servicing the regulatory framework, environmental degradation, forced social change, impacts on future generations and this generation in the future" (Connell, 2007, p. 31). One method of introducing fees while reducing resistance and encouraging conservation is to use tiered charges, or allow users to pump a certain volume free of charge (Schiffler, 1998, p. 171).

Infrastructure measures entail either constructing or changing the operation of existing infrastructure. Infrastructure measures include reducing demand for local groundwater by treating and recycling wastewater or importing water from other basins. However, it must be noted that relying heavily on imported surface water may be ecologically damaging to the source area (Langridge, 2009, pp. 317-318). Another infrastructure-related measure is conjunctive management—using surface water and groundwater in a coordinated way, such that surface water is used to recharge groundwater when surface supplies are abundant, and groundwater is used preferentially ("recovered") in times of shortage. This can involve directly replenishing aquifers using spreading basins, injection wells or riverbeds. While this has obvious advantages, recovering groundwater from storage during a severe drought can compromise connected surface water systems and cause all of the problems of severe overdraft discussed above (Langridge, 2009, pp. 317-318). Alternative solutions include changing the spatial or temporal management of pumping to reduce the intensity of local depletion effects (Alley, et al., 1999, pp. 72-73).

This Part has presented a theoretical vision of holistic groundwater management planning. With this vision in mind, Part Four now examines the law and policy of groundwater management planning in California, before Part Five discusses Californian groundwater management planning in practice.

**PART FOUR: GROUNDWATER PUMPERS, WATER AGENCIES, AND THE LAW AND POLICY OF GROUNDWATER  
MANAGEMENT PLANNING IN CALIFORNIA**

Before discussing how Californian law provides for groundwater management plans, this report first sets the stage by presenting answers to two vital preliminary questions. What role do groundwater users have in controlling groundwater? And which local water agencies have an interest in managing groundwater?

**1. What role do groundwater pumpers have in managing groundwater?**

In most areas, well owners can pump groundwater without holding any administrative permit (Sax, 2003, p. 270). The common law doctrine of correlative rights regulates the taking and use of groundwater, unless local arrangements apply. That doctrine limits groundwater pumping to the “safe yield”, being the volume of natural and artificial recharge of the aquifer, which is shared by overlying landowners on an “equitable basis” (regardless of their particular uses), and by non-overlying landowners, if there is sufficient water available (Katz v. Walkinshaw, 74 P. 766 (Cal. 1903)).

These common law rules have been heavily criticized as insufficient to properly manage groundwater or control groundwater depletion (Sandino, 2005, p. 479). To limit extraction, they require an individual user to file a lawsuit to settle all the groundwater rights in a basin, a course of action which is expensive and time-consuming (Langridge, 2009), and one which most agencies are very eager to avoid. As a result it is rarely done: adjudications cover only 22 of California’s 431 basins (Cal. Dep’t of Water Resources, 2003, p. 106; 2009). Without basin adjudications, “users can continue their use unabated”, and the system may even encourage overpumping (Krieger & Banks, 1962, pp. 61-62; Sandino, 2005, p. 477). Adjudications are also limited thematically, since they cannot regulate groundwater pumping to protect water quality (Cal. Dep’t of Water Resources, 2003, p. 40), nor plan for future changes in supply. Finally, some view resolving water disputes adversarially, rather than collaboratively, as inherently “dysfunctional”, a process that “hinders our ability to create win-win outcomes” (Sheer, 2010, pp. 3, 4).

Groundwater management plans can help to address some of the problems with this common law system. In contrast to basin adjudications, groundwater management plans can cover large areas, and can integrate considerations of water quantity and quality, all with an eye to the future. Nonetheless, even with California’s system of voluntary groundwater management plans, if local water agencies do not act, groundwater pumpers have complete management control over the resource, with no higher level of cooperation or rational planning.

**2. Which local water agencies have an interest in managing groundwater?**

California’s Water Code provides for an astounding array of over 20 general types of local water agencies, which may be established anywhere in the State (Cal. Dep’t of Water Resources, 2003, p.34, Table 32). On the ground, there are around 2300 of these agencies,<sup>2</sup> which may have interests in groundwater. These agencies may supply groundwater to their customers, or supply surface water to customers who also use groundwater, or they may wish to protect the resource because they plan to use it as a source of supply in the future. Such agencies include California water districts, county water

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<sup>2</sup> This number was arrived at by taking the 20 statutes, which the current State Groundwater Bulletin indicates may have groundwater management powers, and noting the number of agencies which fall into these types, as set out in the California Controller’s latest report on special districts (Cal. Dep’t of Water Resources, 2003, p. 34; Cal. State Controller, 2010, p. 1061).

districts, irrigation districts, reclamation districts, water conservation districts, water replenishment districts, water storage districts, and waterworks districts.

In addition to these general types of agencies, several State acts target specific geographical areas suffering from local groundwater problems by creating special districts with powers tailored to dealing with these problems. Their powers include controlling in-basin pumping in situations of actual or threatened overdraft, limiting exports, spacing wells to minimize well interference, and imposing groundwater-related charges. Some view these districts as “the state-of-the-art in local groundwater management . . . successful in addressing their groundwater problems, and [] useful models to be considered for use in other parts of the state”, while conceding that State-level political will may be insufficient to extend this technique to other overdrafted basins (Sandino, 2005, p. 484). Indeed, sometimes a local water agency is created in the form of a general statutory district (not a special district) to deal with serious groundwater depletion problems, possibly giving force to this view (Turlock Groundwater Basin Assoc., 2008, pp. 33-34). The DWR lacks an oversight function in relation to water management by both local water agencies and also special districts (Cal. Dep’t of Water Resources, 2003, p. 33).

As these complicated agency arrangements suggest, a vast range of local agencies has an interest in managing groundwater. This includes many general statutory types of agencies which have varying interests in managing groundwater—as an existing or potential future user, or as a supplier of surface water to customers who also use groundwater. It also includes specially created districts which were established to deal with serious local groundwater problems.

### **3. How do Californian law and policy provide for groundwater management plans?**

In California, statutory arrangements for groundwater management plans overlay the common law allocation system, and allow agencies to manage groundwater more proactively than is possible under common law rules (Hanak, 2003, p. 108; Sandino, 2005, p. 484).

California’s Groundwater Management Act (AB 3030) encourages local-level groundwater management in basins with significant water use, which are not adjudicated (Cal. Water Code §§ 10750(a), 10750.2, 10752(b)). It permits a local agency, which includes a special district or a group of agencies, to adopt and implement a groundwater management plan (GWMP) for all or part of the agency’s service area (Cal. Water Code §§ 10752(g), 10753(a), 10755.2).

Adopting a GWMP involves formal procedural steps, including making specific resolutions, issuing public notices and conducting public hearings (Cal. Water Code §§ 10753.2-10753.6). If landowners representing more than 50 percent of the assessed value of the land within the local agency protest against the GWMP, the local agency may not adopt it (Cal. Water Code § 10753.6). A GWMP may cover 12 enumerated matters. The quantity-related matters are: mitigating conditions of overdraft, replenishing extracted groundwater, monitoring groundwater, facilitating conjunctive use operations, and constructing and operating groundwater recharge, conservation, water recycling, and extraction projects (Cal. Water Code § 10753.8). An agency “shall adopt rules and regulations to implement and enforce” a GWMP (Cal. Water Code § 10753.9(a)).

When a local agency adopts a GWMP, it gains power to manage groundwater that may go beyond its powers under its establishing legislation. First, it may limit or suspend groundwater extractions, provided it “has determined through study and investigation that groundwater replenishment programs or other alternative sources of water supply have proved insufficient or infeasible to lessen the demand for groundwater” (Cal. Water Code § 10753.9). In this context, it is important to note that pumping limits need not amount to a constitutional taking, since groundwater pumpers are restricted to pumping for a

reasonable beneficial use (*Allegretti & Co. v. County of Imperial*, 42 Cal. Rptr. 3d 122 (Cal. App. 2006)). Second, a local agency may impose charges for groundwater extraction or replenishment on the endorsement of a majority of voters (Cal. Water Code § 10754.3). On the other hand, failing to adopt a GWMP makes a water agency ineligible to receive water grants and loans from the state (Cal. Water Code § 10753.7(b)).

Californian law for GWMPs fills the void of comprehensive management that common law rules create, granting California's complicated web of local water agencies powers to plan and manage local groundwater proactively. But it is now out of date, and does not match up to modern principles of groundwater planning. It emphasizes augmenting supply to the exclusion of managing demand, and does not require local agencies to take any sort of action, even in cases of severe overdraft (Cooley, et al., 2009, p. 11; Hanak, 2003, pp. 107-108). While procedures are set out for amending a GWMP, a local agency is not *required* to review its GWMP, keep it up-to-date, or even implement it. Indeed, agencies have sometimes adopted GWMPs as a strategy to head off state intervention, without a strong intention to implement them (Hanak, 2003, p. 107).

Almost twenty years of groundwater management planning in California (since 1992) have seen policy on the subject mature. Early GWMPs focused on preventing the export of groundwater from local areas rather than on comprehensive management, and did not focus strongly on implementation (Cal. Dep't of Water Resources, 2003, p. 54). The Legislature responded by requiring greater rigor, directing the DWR to develop criteria for evaluating GWMPs, and requiring a local agency to prepare a GWMP that met certain requirements in order to be eligible for public funds for groundwater projects (Cal. Dep't of Water Resources, 2003, p. 54).

There are five broad types of information that local agencies preparing GWMPs either *must* include to meet the funding criteria, or *should* include, according to the DWR (Cal. Dep't of Water Resources, 2003, pp. 54-62):

- **Context:** a description of the area to be managed under the plan, and a map showing the basin, the agency's service area, and surrounding agencies;
- **Public and agency involvement:** a plan to involve other local agencies with overlapping service areas; a description of current or planned actions to coordinate with agencies that have powers over land use and surface zoning; a statement that the public was informed of how they could participate in developing the GWMP; and an advisory committee of interested parties to help develop and implement the plan;
- **Basin management objectives** and links between these objectives and the goals and actions of the plan;
- **Monitoring:** components related to monitoring and managing groundwater levels and quality, subsidence, and changes in surface flow and surface water quality that directly affect groundwater levels or quality, or are caused by pumping; monitoring protocols for the purpose of measuring against the basin management objectives; and a detailed description of the monitoring plan, including elements that relate to the type of monitoring, the type of measures, and the frequency and locations of monitoring;
- **Accountability and review:** a commitment to produce periodic reports that cover implementation of monitoring, management actions, the success or otherwise of management actions in meeting

objectives, proposed management actions, and any plan changes; and a commitment to periodically re-evaluate the entire plan.

While DWR's official groundwater bulletin sets out a small number of examples in relation to some of these elements, it provides little guidance on innovative planning approaches or best practice (Cal. Dep't of Water Resources, 2003, pp. 54-62). Nonetheless, GWMPs have reached significant milestones, sometimes the result of truly impressive multi-year collaborations between multiple agencies and scores of stakeholders (N.E. San Joaquin County Groundwater Banking Auth., 2004, p. 4; Sacramento County Water Agency, 2006, p. 1-8; Sonoma County Water Agency, 2007, p. 1-6).

Recognizing that there is currently very little information available on sophisticated groundwater management planning efforts across California, and that water planning principles in California have moved beyond DWR's recommendations of 2003, the next section describes elements of current local GWMPs which capably address broader issues in groundwater management.

Stepping back from GWMPs, water planning practice more generally has become much more sophisticated both inside and outside California since the GWMP provisions were last amended. Rigorous legislative requirements, developed between 2002 and 2009, now apply to urban water management plans (UWMPs). These requirements demonstrate that best practice water planning in California now involves higher expectations than local agencies are asked to meet under the elements that are required or recommended for GWMPs.

Under the UWMP legislation, large water suppliers *must* adopt UWMPs, including for groundwater sources, regardless of whether they are seeking grants from the State (Cal. Water Code §§ 10610-10656). UWMPs must include:

- **Greater analysis of the planning context** through an evaluation of climate-related risks, and by considering environmental, social, and technological factors (Cal. Water Code § 10631(c), (g)(1));
- **More extensive public involvement**, namely involving disadvantaged groups in the planning process (Cal. Water Code § 10642);
- **A focus on managing demand in addition to enhancing supply**, including methods for evaluating the effectiveness of demand management measures, prohibiting wasteful uses during water shortages and imposing penalties for excessive use (Cal. Water Code §§ 10615, 10620(f)); and
- **More rigorous requirements for accountability and review**—requirements to review and update UWMPs every five years and to *implement* the UWMP or become ineligible for water management grants or loans from state water agencies (Cal. Water Code §§ 10621(a), 10631.5, 10640). UWMPs are also required to be much more accessible, transparent, and subject to accountability requirements than GWMPs. UWMPs must be submitted to the DWR, the California State Library, and "any city or county within which the supplier provides water supplies within 30 days after adoption" (Cal. Water Code § 10644(a)). DWR must also submit a report on the status of UWMPs and data on their effectiveness to the Legislature (Cal. Water Code § 10644(b)). None of this is true of GWMP plans.

Water planning law and policy have undoubtedly moved beyond the current requirements and policy recommendations in relation to GWMPs. In response, Part Six suggests reforms, inspired by the vision of groundwater planning presented in Part Three, the newer provisions for UWMPs discussed here, and the innovations in GWMPs now presented in Part Five.

## PART FIVE: INNOVATIONS IN GROUNDWATER MANAGEMENT PLANNING IN CALIFORNIA

California's local water agencies have significant powers to plan and manage their local groundwater resources. But they are not subject to any legal mandates to do so, and they may come under significant pressure from local groundwater users to refrain from curbing local use or imposing additional responsibilities (Mendocino City Community Services Dist., 1990 (as amended, 2007), p. 39).

Despite these pressures, some local water agencies in California develop and implement innovative approaches to groundwater management. But few know about them. Not only is there very little academic or policy literature on GWMPs in California, but there is no comprehensive State-wide database of digital GWMPs, and information barriers sometimes prevent even neighboring agencies from finding out about planning activities. GWMPs themselves refer to the "independent character" of local water agencies creating fragmented governance and management, and to the difficulty of sharing control, building trust, and resolving inter-agency differences (GEI Consultants, 2009, p. 60; Kings River Conservation Dist., 2005, p. 5-1; N.E. San Joaquin County Groundwater Banking Auth., 2004, p. 98). Others also recognize that acting independently, local agencies "have found it difficult to wield the political and financial power necessary to mitigate conditions of groundwater overdraft" (N.E. San Joaquin County Groundwater Banking Auth., 2004, p. 20).

Acknowledging these substantial pressures, and the present lack of any widely available analysis of local groundwater management planning efforts, the body of this report describes elements of current local GWMPs that address key issues in groundwater management, and give substance to the theoretical vision of holistic groundwater management planning presented in Part Three. Where possible, examples of different statutory types of entities (for example a county government vs. a water district vs. an irrigation district) or entities in different circumstances (a large vs. a small irrigation district) are given for each issue. As the examples show, elements of best practice planning are found in the actions of small agencies with very limited resources, as well as in large agencies; in the actions of general water districts as well as special districts dedicated to groundwater management; and in the elements of older as well as more recent GWMPs.

While each solution may not be universally feasible or legally possible, it is hoped that local agencies around California will consider the approaches described here in formulating their own groundwater management actions, recognizing that management innovation is not necessarily precluded by scarce resources, or any particular statutory form.

It is important to emphasize that this Part discusses examples of single innovative practices in groundwater planning. It does not evaluate each GWMP as a whole, but rather, suggests that the particular element found in that GWMP, together with other elements suggested here, would constitute innovative practice. This Part also does not suggest that the elements of GWMPs given here are the only examples of these elements, or that they are the best that GWMPs can be; indeed, there are elements of best practice described in the foregoing sections that do not appear in any of the GWMPs reviewed for this report.

This Part largely takes the form of tables which collate elements of agencies' GWMPs, in the following categories:

- **Planning for action:** elements that help to ensure that GWMPs may successfully be implemented, independent of their content;
  - Table 1: Examples of governance structures for implementing GWMPs, listed in increasing levels of formality;

- Table 2: Determining goals and assessing and reporting performance;
- **Cooperation and stakeholder participation:** elements for meaningfully using stakeholder collaboration to pursue the goals of a GWMP:
  - Table 3: Subjects of collaboration between water agencies in GWMPs;
  - Table 4: Structures for involving stakeholders in GWMPs;
  - Table 5: Avoiding and resolving disputes when formulating and implementing GWMPs;
- **Collecting information about the groundwater context:** ensuring informed planning by collecting information on groundwater and its context:
  - Table 6: Gathering and standardizing information on groundwater status and use;
- **A portfolio approach to groundwater management planning:** embracing multiple goals and multiple strategies for achieving GWMP goals:
  - Table 8: Methods of managing groundwater demand;
  - Table 9: Methods of using different water sources conjunctively;
  - Table 10: Methods of protecting and enhancing recharge and examples of water banking;
  - Table 11: Methods of protecting connected surface waters;
  - Table 12: Methods of restoring ecosystems and minimizing ecological impacts; and
  - Table 13: Methods of considering economic and financial sustainability.

References to groundwater basins and agencies appear in bold.

#### 1. Moving beyond words: Planning for action

As Part Four described, many early GWMPs did not focus strongly on implementation—so much so that the Legislature took action to require them to be more rigorous. Nonetheless, it stopped short of requiring an agency to *implement* its GWMP, as is the case for UWMPs. Regardless of legal requirements, foremost among the desirable characteristics of a GWMP are that it should be able to be implemented, and it should be possible to determine whether it is working with reference to goals.

Choosing an appropriate governance structure is an important part of ensuring that a GWMP can be implemented. Various governance structures are used to implement GWMPs, at varying levels of formality (Table 1). Considerations relevant to deciding on a governance structure include: the powers necessary to implement the plan; how stakeholders will be represented; how other interest groups can participate; how the group will coordinate with basin neighbors; how it will be funded; and whether an independent coordinating group will construct projects, rather than individual members (N.E. San Joaquin County Groundwater Banking Auth., 2004, p. 98).

**Table 1: Examples of governance structures for implementing GWMPs, listed in increasing levels of formality**

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<i>Loose group based on MOUs</i>	The <b>Stanislaus and Tuolumne Rivers Groundwater Basin Association</b> is a loosely bound group of entities, organized around a memorandum of understanding which aims to promote coordination of groundwater management planning activities (Stanislaus & Tuolumne Rivers Groundwater Basin Assoc., 2005, App. A).
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Similarly, a series of MOUs links the **Kaweah Delta Water Conservation**

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	<b>District</b> and, as of 2007, each of 16 stakeholder entities (Kaweah Delta Water Conservation Dist., 2006, pp. 50-51; 2008, p. 19).
<i>Non-profit corporation</i>	Local water and land management agencies may become voluntary members of a non-profit corporation, to which they pay dues. This form of group is not a new agency, but operates by consensus for the mutual benefit of its member agencies. The <b>Water Resources Association of San Benito County</b> is one such group. Its purposes include to “refine, select, and coordinate implementation of management actions” set out in the GWMP, deal with proposals for water banking and transfers, and communicate with the public (Jones & Stokes Assoc., 1998, p. 67; <a href="http://wrasbc.isoars.com/index.html">http://wrasbc.isoars.com/index.html</a> ).
<i>Joint powers authority</i>	<p>A joint powers authority (JPA) is formed by two or more public agencies. Such an entity is a separate legal entity which can, for example, issue bonds, employ staff, and construct, operate and maintain facilities. JPAs themselves can prepare, adopt, and implement GWMPs.</p> <p>Examples of such entities, which have adopted and implemented GWMPs, are the <b>Soquel-Aptos Area Groundwater Management Committee</b>, the <b>Chowchilla Water District-Red Top Resource Conservation District JPA</b>, the <b>Sacramento Central Groundwater Authority</b>, and the <b>Tulare Lake Bed Groundwater Basin JPA</b> (Angiola Water Dist. et al., 1999, p. 1; Chowchilla Water Dist.-Red Top Resource Conservation Dist. Joint Powers Auth., 1997; Sacramento Cent. Groundwater Auth., 2009, p. 1; Soquel Creek Water Dist. &amp; Cent. Water Dist., 2007, p. 1).</p>

As a result of legislative amendments in 2002, Californian GWMPs are now required to include basin management objectives (BMOs) to identify issues and goals for the plan area. Regardless of the precise nature of groundwater management objectives (see section 5.4 for a discussion of their content), they should have specific criteria that make it possible to determine whether they are being achieved, and they should trigger management actions if they are not achieved (Table 2). Agencies may choose between the many management options available to them by running performance simulations and using decision criteria that are keyed to their BMOs. Agencies can also demonstrate their commitment to implementing a GWMP and increase their accountability by including a plan of prioritized actions with a timeline and reporting structure.

**Table 2: Determining goals and assessing and reporting performance**

<i>Using measurable objectives</i>	<p>The objectives of the GWMP for <b>Central Sacramento County</b> include:</p> <ul style="list-style-type: none"> <li>• Maintaining the long-term average groundwater extraction rate at or below 273,000 af/yr, a level which was agreed to avoid undue risk “to private and public well owners by dewatering wells, degrading water quality, creating ground subsidence, and adding cost to pumping groundwater from lower elevations”. The GWMP provides a full definition of “long-term average” and supporting material on the modeling process used to develop the limit (Sacramento County Water Agency, 2006, pp. 2-29, 3-22).</li> <li>• Maintaining groundwater elevations within all areas of the basin within</li> </ul>
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	<p>specific operating ranges. A five-square-mile grid is used to define and report on this objective (Sacramento County Water Agency, 2006, pp. 3-2 to 3-3).</p>
	<p>The <b>Eastern San Joaquin Groundwater Basin GWMP</b> envisions setting “basin operations criteria”, being “quantitative target groundwater levels and descriptive basin condition levels”. The primary uses of these targets would be judging the effectiveness of groundwater recharge and controlling groundwater exports (N.E. San Joaquin County Groundwater Banking Auth., 2004, p. 147).</p>
<p><i>Using triggers for management action</i></p>	<p>Each objective of the <b>Central Sacramento GWMP</b> has four defined “trigger points”, at which the basin governance body will consider taking specified actions, in response to conditions not meeting the objective. These actions include: investigating the cause of the condition, reducing pumping to comply with the objective, and imposing a monetary assessment against well owners who continue to pump at high levels in areas that do not comply with the objective (Sacramento County Water Agency, 2006, p. 4-3).</p> <p>Similarly, the <b>Ojai Basin Groundwater Management Agency</b> plans to establish “action levels” for groundwater elevations and stream flow, at which it will take special action to protect groundwater supplies in the basin. These will be implemented, in part, through ordinances dealing with conservation measures (Ojai Basin Groundwater Mgmt. Agency, 2007, p. 9).</p>
<p><i>Analyzing management options with decision criteria and simulations</i></p>	<p>The <b>San Benito GWMP</b> applies explicit selection criteria to compare and select management options. Options are favored if they meet multiple objectives, do not adversely affect any objective, are cost-effective, equitable, maintain management flexibility, involve relatively little administrative effort, have few permitting requirements and raise few legal issues, and are likely to win public acceptance (Jones &amp; Stokes Assoc., 1998, pp. 44-45).</p> <p><b>Borrego Water District’s GWMP</b> transparently evaluates the costs of different combinations of strategies, where each combination would solve the 17,000 af annual overdraft experienced in the region (Borrego Water Dist., 2002, pp. 66-69).</p> <p>The GWMP for the <b>Eastern San Joaquin Basin</b> describes a process of modeling groundwater elevations and groundwater salinity based on a no-action (status quo management) scenario, projected to 2030. The plan considers a wide range of management options related to groundwater quantity, including options relating to surface supply, groundwater recharge and demand reduction. For each option, it compares the cost per acre-foot of water, infrastructure requirements, land requirements, effectiveness, and operation and maintenance requirements (N.E. San Joaquin County Groundwater Banking Auth., 2004, pp. 72-74, 85). However, it does not fully explain the “effectiveness” criterion, nor how this was calculated for each option. Nor does it quantify or model the basin impacts that would result from implementing each option or combinations of options. As a result, the infrastructure-based projects described later in the plan seem disconnected</p>

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from the groundwater management options initially presented.

The **Sonoma Valley** GWMP assesses the benefit of different management options by modeling them under a range of different water availability scenarios, taking into account projected changes in demand. The results are presented as quantified changes in groundwater storage and levels to 2030 for each scenario. The plan anticipates, but does not quantify, changes in extraction costs, quality degradation, streamflow, and environmental conditions (Sonoma County Water Agency, 2007, pp. 2-38 to 2-41).

Similarly, the GWMP for the **Consolidated Irrigation District** uses an integrated surface and groundwater model to simulate changes in groundwater levels and flow direction (GEI Consultants, 2009, pp. 37-44).

The **Sacramento Groundwater Authority** considers how climate change might impact future hydrologic conditions, and how such impacts might affect conjunctive use operations (Sacramento Groundwater Auth., 2008, pp. 55, 65).

The **Central Sacramento County** GWMP models different management options and measures impacts in terms of water quality degradation, dewatering of wells, higher pumping costs, and ground subsidence. See *Table 7: Methods of controlling groundwater extraction.*

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*Formulating an implementation plan*

In its implementation plan, **Butte County** sets out an implementation schedule for a series of actions. They are categorized into five GWMP “components” which aim to achieve seven management objectives. The actions range from cooperating with other parties to undertake groundwater monitoring, to sponsoring annual stakeholder meetings, to administering ordinances that relate to the proper construction and permitting of wells, limits on well pump capacity, well spacing, and minimum domestic well depths (Butte County, 2005, pp. 3-1 to 3-22).

The **Fox Canyon Groundwater Management Agency’s** GWMP presents an action plan that categorizes and ranks its strategies (most of which are physically carried out by other agencies) more broadly, in 5-year intervals (Fox Canyon Groundwater Mgmt. Agency, et al., 2007, pp. 82-85).

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*Reporting on implementation*

The **San Benito County Water District** provides an electronic, publicly available annual report on groundwater resources. The report includes water management activities, water supply sources, groundwater levels and trends, water demand, revenues, expected future conditions, and recommendations for refining management (Todd Engineers, 2009).

The **Santa Clara Valley Water District** produces an electronic, publicly available annual report on groundwater protection and augmentation activities. The report includes information on current and project water requirements, programs to sustain the reliability of water supplies, and financial information (Santa Clara Valley Water Dist., 2009). The District also provides a monthly report on groundwater levels

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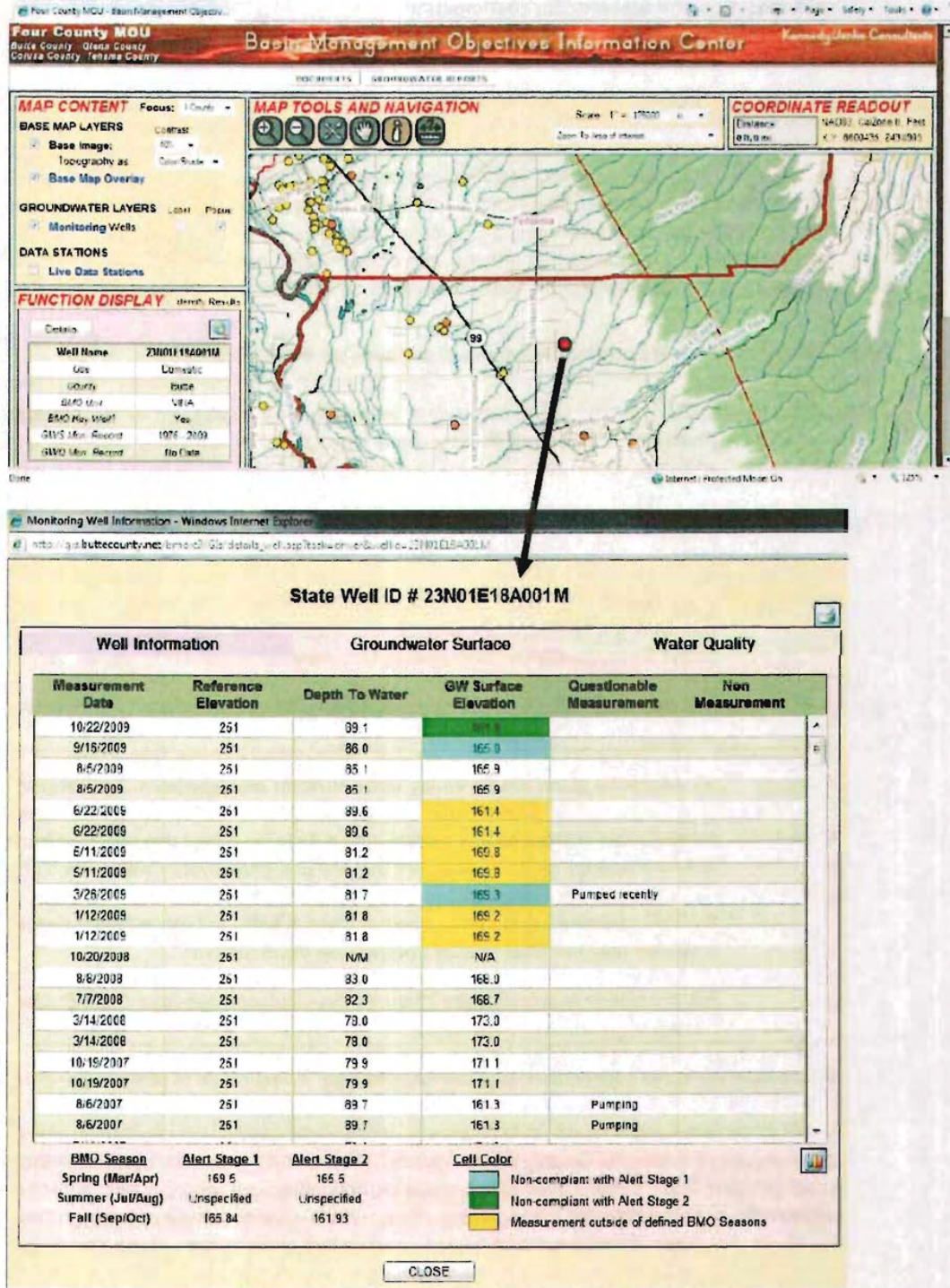
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(<http://www.valleywater.org/Services/GroundwaterMonitoring.aspx>).

**Butte County's** GWMP plans the development of quantitative BMOs, supported by a county ordinance (now Ch. 33A, Butte County Code) (Butte County, 2005, pp. 3-13, 13-20). That ordinance requires representatives from each BMO sub-area annually to report groundwater levels, groundwater quality, and subsidence monitoring results to the County water department to be assessed against the BMOs. Under its GWMP, **Butte County** also commits to pursuing funding to develop a web-based BMO Information Center for monitoring and reporting information. The Information Center's interactive maps show monitoring wells for four adjacent counties. Each well can be selected to show current and historical groundwater elevation and quality data (sometimes stretching back decades), color-coded to show compliance or non-compliance with the county's BMOs. *See Figure 1: Basin Management Objective Information Center for Butte, Tehama, Glenn and Colusa Counties – screenshot of map interface and individual well information.* The Information Center also houses annual BMO documents for each BMO sub-area, which explain how BMOs were developed for that year, and include monitoring data (<http://www.buttecounty.net/Water%20and%20Resource%20Conservation/BMO.aspx>).

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Figure 1: Basin Management Objective Information Center for Butte, Tehama, Glenn and Colusa Counties – screenshot of map interface and individual well information  
 (http://gis.buttecounty.net/bmoic3/Gis/Default.asp?loadfile=map.asp&county)



## 2. Cooperation and stakeholder participation

There are numerous barriers to local water agencies cooperating in groundwater management planning, including difficulties in building trust between local water management entities, and difficulties in matching benefits and funding burdens (GEI Consultants, 2009, p. 60). Further barriers prevent local water agencies from cooperating with other agencies, which undertake activities that can affect groundwater management, for example city land-use planning departments. Yet cooperation can save agencies time and money by reducing duplication in management efforts, taking advantage of economies of scale when contracting for similar goods and services, and avoiding inadvertently counterproductive management measures being taken by neighbors that are unaware of each other's actions. The examples given below show the wide range of groundwater management issues on which local water agencies can cooperate.

**Table 3: Subjects of collaboration between water agencies in GWMPs**

<i>Collaborating to investigate GW resources</i>	In 2001, a group of 15 local water districts in the San Joaquin Valley, including the <b>Poso Creek Regional Management</b> group of 7 districts, jointly prepared a report analyzing local groundwater resources to identify favorable areas for groundwater recharge and recovery (Kern-Tulare Water Dist. & Rag Gulch Water Dist., 2006, p. 17).
<i>Collaborating on a strategic data collection plan</i>	After the <b>Sacramento Groundwater Authority</b> identified significant inconsistencies between the data collection methods of its 14 member agencies, it initiated a Standard Operating Procedure (SOP) for collecting water level data, provided member agencies with DPH guidelines for the collection of water quality data, and offered training in the use of these standards (Sacramento Groundwater Auth., 2008, pp. 44, App.D).  <i>NB: See also Table 6: Gathering and standardizing information on groundwater status and use.</i>
<i>Coordinating to control groundwater-intensive development</i>	An ordinance of the <b>Sierra Valley Groundwater Management District (SVGMD)</b> (Ordinance 83-01) puts in place arrangements commonly known as "assured water supply" rules. It requires any person who is seeking a land use approval from a local land use agency for a development that will use groundwater within the SVGMD's boundaries, to file documents regarding the water source with the SVGMD. The SVGMD makes a finding as to whether there is sufficient groundwater available, and only then may the local agency approve the development.  <i>NB: In relation to groundwater intensive development, see also Table 8: Methods of managing groundwater demand.</i>

In addition to local agencies collaborating between themselves, a vast range of stakeholder groups has helped formulate GWMPs in California. Undeniably, broad stakeholder involvement takes time. Some GWMPs that cover large areas report up to 6 years of consensus-building and negotiation with tens of stakeholder groups (Sacramento County Water Agency, 2006, p. 1-4). However, broad stakeholder involvement brings multiple perspectives to help meet multiple objectives, and can help avoid conflicts that have derailed past groundwater management efforts, which were otherwise promising (Thomas, 2001, pp. 15-16, 19). Their involvement also helps to ensure that plans and programs are consistent across agencies, avoiding potential inter-governmental conflict, which can be particularly problematic in the groundwater sphere, when jurisdictional boundaries are blurred and may overlap (Thomas, 2001, pp.

24-25). Table 4 sets out examples of different structures for involving stakeholders in GWMPs.

**Table 4: Structures for involving stakeholders in GWMPs**

<i>Structures for involving stakeholders</i>	<p>Stakeholders may be involved as part of a formal Stakeholder Group, or on formal committees such as a Technical Committee or Policy Committee formed to advise the GWMP agency, as is the case at the <b>Borrego Water District</b> (Borrego Water Dist., 2002, p. 17).</p> <p>Similarly, the <b>Glenn-Colusa Irrigation District's</b> GWMP provides for establishing a Basin Management Committee consisting of stakeholder representatives, which is charged with creating a Technical Advisory Committee to set limits on withdrawals and mitigation measures. The Basin Management Committee considers changes to the GWMP, the rules and regulations required to implement it, and budget issues (Glenn-Colusa Irrigation Dist., 1995, p. 35).</p>
<i>Involving a broad range of stakeholders</i>	<p>GWMPs have involved a wide range of stakeholders, including:</p> <ul style="list-style-type: none"> <li>• Other local water supply-oriented entities, including water districts, irrigation districts, city utility departments, water agencies, water conservation districts, public works districts, county water districts, private water companies, surface water masters, etc (Castaic Lake Water Agency, 2003, p. 4; Yuba County Water Agency, 2005, p. 29).</li> <li>• General agricultural and business interests, e.g. farm bureaus, and chambers of commerce (Sacramento County Water Agency, 2006, p. 3-10).</li> <li>• Local residents who pump groundwater, including agricultural users and domestic users, and representatives from water users associations (Butte County, 2005, pp. 3-17, 13-18; HydroMetrics LLC, 2007, p. 8).</li> <li>• Members of the public generally (HydroMetrics LLC, 2007, p. 8).</li> <li>• Local, regional, and state-level environment- and community-oriented entities, e.g. the Sierra Club, The Nature Conservancy, other local environmental non-profits, the League of Women Voters, recreation and parks districts, and community associations (City of San Diego Water Dep't, 2007, App.G; Sacramento County Water Agency, 2006, p. 3-10).</li> <li>• State participants, including staffers of members of the State Senate and Assembly, representatives of the Department of Water Resources, the Department of Fish and Game, Regional Water Quality Control Boards, and nearby State Parks (HydroMetrics LLC, 2007, p. 8; N.E. San Joaquin County Groundwater Banking Auth., 2004, p. 4)</li> <li>• Federal participants, including the Natural Resource Conservation Service, U.S. Geologic Survey, U.S. Army Corps of Engineers (N.E. San Joaquin County Groundwater Banking Auth., 2004, p. 27).</li> </ul>

Collaborating widely with agencies and stakeholders with different interest areas can attract numerous benefits, but may also invite disputes. GWMPs can address this proactively by incorporating explicit procedures for resolving disputes locally. Such procedures exist at various levels of formality (Table 5).

**Table 5: Avoiding and resolving disputes when formulating and implementing GWMPs**

<i>Reaching consensus and avoiding disputes</i>	The planning efforts of the <b>Northeastern San Joaquin Groundwater Banking Authority</b> and the <b>Sacramento Groundwater Authority</b> (formerly Sacramento North Area Groundwater Management Authority) both benefited from using the California Center for Collaborative Policy as a neutral third-party facilitator. These entities consider that using professional facilitators in the context of complex stakeholder negotiations is a key factor contributing to the success of their efforts (N.E. San Joaquin County Groundwater Banking Auth., 2004, p. 102; Thomas, 2001, p. 48).
<i>Resolving disputes</i>	<p>The <b>Olympic Valley</b> and <b>Soquel Area</b> GWMPs explicitly nominate a process and a forum for resolving disputes. The body charged with implementing the GWMP hears disputes, receives submissions, holds public hearings, and makes decisions by majority vote, guided by “what action would serve the best interest of the public” (HydroMetrics LLC, 2007, p. 95; Soquel Creek Water Dist. &amp; Cent. Water Dist., 2007, p. 136).</p> <p>The <b>Kaweah Delta Water Conservation District</b> uses a formal dispute resolution policy to avoid litigation in relation to groundwater management by encouraging mediation (Kaweah Delta Water Conservation Dist., 2006, App.C).</p> <p>The GWMP for the <b>Turlock Groundwater Basin</b> uses meetings of the Turlock Groundwater Basin Association, an association of local water agencies, to resolve issues associated with groundwater management. Meetings are open to the public (Turlock Groundwater Basin Assoc., 2008, pp. 1, 67).</p>

### 3. Collecting information about groundwater context

Formulating a GWMP often occurs in complex and uncertain hydrological and ecological contexts. Collecting information about the status of groundwater bodies and groundwater use; standardizing data collection; sharing data; and considering the ecological impacts of management options all arise as concerns for GWMPs.

Historically, Californian local water agencies have strongly resisted metering groundwater use. This sentiment is slowly changing. Many special districts and some general districts now apply mandatory or voluntary groundwater metering. There is great variation in the motivations and practice of metering. Some agencies use metering as part of a program of imposing groundwater augmentation charges on users; others simply to improve their knowledge of the groundwater resource. Agencies require metering at different levels of use, and with different arrangements for reporting use.

There is much greater acceptance of the need to monitor groundwater levels, as distinct from use. However, many problems can strike a monitoring system, potentially compromising its comprehensiveness, accuracy, and the length of its record. Such issues appear common around the State. It is worth listing a small selection of these problems, to demonstrate the challenges that GWMPs should be designed to withstand. Economic factors can intervene: budget cuts can result in data gaps

and infrequent measurements; older wells with long measurement records can be abandoned when they require expensive maintenance; and production wells may be used without any dedicated monitoring wells, which can risk inaccurate data caused by a non-static water surface (Kings River Conservation Dist., 2005, p. 4-26; Turlock Groundwater Basin Assoc., 2008, p. 55; Yuba County Water Agency, 2005, p. 31). Data may be collected but not compiled into a useful format for many years (Yuba County Water Agency, 2005, p. 31). In some cases, the construction data associated with monitoring wells may be unknown, so that it is not clear which of several aquifers are being monitored (City of Tracy, 2007, p. 27). Sometimes monitoring systems are simply not evaluated for their sufficiency, particularly for assessing whether a GWMP is meeting its objectives, or to model the safe yield, or to model predicted responses to management actions selected for the GWMP.

There is also significant variation across the State in relation to monitoring groundwater quality, which is much less commonly monitored outside of municipal areas (see e.g., Carpinteria Valley Water Dist., 1996, p. 2; Kreinberg, 1994, p. 3-5). This makes it quite difficult to draw links between overdraft and changing water quality, although it is not uncommon for agencies to report such a connection (Indian Wells Valley Cooperative Groundwater Mgmt. Group, 2006, p. 2; Stanislaus & Tuolumne Rivers Groundwater Basin Assoc., 2005, p. 12; Turlock Groundwater Basin Assoc., 2008, p. 41). Using standard data collection and management methodologies or protocols to ensure that the data collected are accurate and consistent is as important as monitoring.

Final, as ecological concerns are becoming more prevalent in GWMPs, the plans should include strategies to collect information to determine how ecological conditions influenced by groundwater management are faring.

Table 6 sets out examples of how agencies gather and standardize data on groundwater and its context.

**Table 6: Gathering and standardizing information on groundwater status and use**

<i>Monitoring the status of groundwater bodies</i>	<p><b>The Sacramento Groundwater Authority (SGA) and Western Placer County</b> GWMPs aim to maintain a “consistent long-term network” of wells to monitor groundwater elevation, each measured at least semi-annually. The wells are selected “to provide uniform geographic coverage” throughout the respective areas, using a grid of polygons, each containing a monitoring well. Non-producing wells with long records of consistently collected data are favored for inclusion in the network (City of Roseville et al., 2007, p. 3-8; Sacramento County Water Agency, 2006, p. 3-11; Sacramento Groundwater Auth., 2008, pp. 38-39).</p> <p><b>Butte County’s</b> Groundwater Conservation Ordinance requires a countywide groundwater monitoring program that involves monitoring groundwater elevations either continuously using water level sensors, or otherwise at least four times per year (Butte County, 2005, p. 3-3), whereas semi-annual readings are much more common throughout the State.</p> <p><b>Yuba County</b> uses its monitoring network “both for the health of the <i>long-term basin storage</i> and for <i>localized-short-term</i> impacts of pumping”, with the latter particularly aimed at the effects of external groundwater transfers (Yuba County Water Agency, 2005, p. 30).</p>
<i>Metering groundwater use</i>	<p><b>The Pajaro Valley Water Management Agency</b> generally requires every groundwater pump that produces 10 af/yr or more to be metered. It reads each flow meter twice per</p>



	<p>year for the purposes of assessing groundwater augmentation charges (Pajaro Valley Water Mgmt. Agency, 1993; 1996).</p> <p>The <b>Fox Canyon Groundwater Management Agency</b> requires metering of all wells except those which serve domestic purposes on parcels of land of one acre or less. The owner is responsible for associated expenses and must report groundwater use twice annually. The Agency undertakes random checks of meter reports to ensure they are accurate (Fox Canyon Groundwater Mgmt. Agency, et al., 2007, p. 49).</p> <p>In certain zones of the <b>Salinas Valley</b>, the <b>Monterey County Water Resources Agency</b> requires wells used for agricultural, urban or industrial purposes to be metered if they have a diameter of three inches or more, with operators required to report their use annually (Monterey County Water Resources Agency, 2006, p. 4-2).</p>
<p><i>Standardizing data collection and management, and sharing data</i></p>	<p>The primary purpose of the GWMP for the <b>Gillibrand Groundwater Basin</b> is to “present a standard methodology for the collection of data” on groundwater levels, use and quality, which applies to the basin’s two largest water users, being a county waterworks district and a private mining company. The methodology covers measurement instruments, the frequency of measurement, quality assurance procedures, data storage, and procedures for reporting data (Geoscience Support Services Inc., 2007). The GWMP demonstrates that private and public entities can work together to standardize data collection and management.</p> <p>The <b>San Benito</b> GWMP includes in its list of actions for meeting its objectives, a plan to develop jointly with “all local agencies involved in water-related data collection and management ... a strategic program for data collection and management”, aimed at supporting groundwater management decision-making. It should “specify the types of data to be collected and the frequency of measurement; evaluate the accuracy of data collection procedures; outline the structure, format, and units to be used in computerized databases; and indicate procedures to ensure data consistency and transfer among agencies” (Jones &amp; Stokes Assoc., 1998, p. 65).</p> <p>The <b>Sacramento Groundwater Authority</b> is also developing a standard Water Accounting Framework for its member agencies. <i>See Table 10: Methods of protecting and enhancing recharge and examples of water banking.</i></p>
<p><i>Collecting data relevant to the health of groundwater dependent ecosystems</i></p>	<p>The <b>Lassen County</b> GWMP “supports efforts to map and compile information on riparian habitats and phreatophyte vegetation” (Brown &amp; Caldwell, 2007b, p. 3-7).</p> <p>Whereas much groundwater use for consumptive purposes in California depends on deep aquifers, ecosystems associated with wetlands may be connected to shallow aquifers. In such situations, monitoring the state of shallow aquifers is important to assessing ecological impacts. The <b>Squaw Valley Public Service District’s</b> GWMP includes monitoring shallow groundwater levels in the Olympic Valley meadow, which are connected to wetlands that have high ecological and aesthetic value (HydroMetrics LLC, 2007, p. 64).</p>

#### 4. A portfolio approach to groundwater management planning

A portfolio approach to groundwater management planning responds to information collected (including information from stakeholders) about the values of a resource, with goals that champion those values and multiple strategies for pursuing those goals. Goals include securing water supplies for consumptive purposes, maintaining or restoring ecosystems, protecting connected surface waters, and ensuring that groundwater use minimizes third-party impacts on society. This section sets out examples of agencies that adopt and pursue each of these goals, and the strategies they use to do so.

##### 4.1 Securing groundwater supply for the long term

Securing groundwater supplies for consumptive purposes is the overriding focus of many GWMPs. The innovative strategies presented here emphasize an extensive range of options, beyond simply building more—or bigger—infrastructure solutions. They include limiting waste or drawdown in different ways, managing water demand using fees and education, using different water sources conjunctively, protecting and enhancing recharge, and water banking.

Table 7 outlines various mandatory measures to limit pumping, either directly, or by controlling developments that use groundwater intensively.

**Table 7: Methods of controlling groundwater extraction: limiting waste, groundwater drawdown, or pumping**

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<i>Defining sustainable yield and an acceptable operating range</i>	<p>The <b>Central Sacramento County</b> GWMP uses a “long-term average annual pumping limit” of 273,000 <i>af/yr</i> which stakeholders accepted as a negotiated limit “under which groundwater can be pumped and not exceed average natural recharge over a long-term period of time”. Negotiators developed this limit by using groundwater models to quantify basin conditions in terms of four key areas of impact:</p> <ul style="list-style-type: none"><li>• water quality degradation;</li><li>• dewatering of wells;</li><li>• higher pumping costs; and</li><li>• ground subsidence,</li></ul> <p>in 10-year increments from 1990 to 2030, comparing the impacts of different pumping levels to baseline pumping levels. The chosen sustainable yield level was found to maximize the yield of the aquifer while minimizing the four key impacts. In addition, the GWMP sets out an “operating range” of groundwater levels that will minimize these impacts for different areas of the basin (Sacramento County Water Agency, 2006, pp. 2-29, 3-23, App.A). However, the projections included in the GWMP do not include uncertainties, and it appears that historical hydrological data was used rather than data which attempts to factor in potential climate change impacts.</p>
<i>Taking action in response to non-compliance with BMOs</i>	<p><b>Glenn County’s</b> GWMP, which itself is an ordinance, sets out a process for taking action in the event that its basin management objective for groundwater levels is breached. Its Technical Advisory Committee reports the details of the non-compliance to its Water Advisory Committee and the public, and recommends a course of action within five days. Negotiation with parties in the area is the preferred way to resolve the non-compliance, but should that fail, “the Water Advisory Committee may recommend a plan to the Board to modify, reduce or terminate groundwater extraction in the</p>

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	<p>affected area for the remainder of that irrigation season”, first in relation to wells involved in exports, then in relation to all other wells (Glenn County, 2000, [20.03.120], [120.103.130]).</p>
<p><i>Controlling pumping by using area limits</i></p>	<p>The <b>Western Canal Water District</b> GWMP envisions its Board of Directors annually re-evaluating its basin management objectives, including by considering whether to establish “quantitative limitations on groundwater extractions from particular areas . . . to limit adverse impacts of groundwater extractions on wells within and without the District” (Western Canal Water Dist., 2005, [3.2.3]). The District has adopted rules and regulations to implement and enforce its GWMP (Western Canal Water Dist., 2006); this would presumably be the vehicle for implementing pumping limits.</p>
<p><i>Controlling pumping by using individual extraction permits</i></p>	<p>The Groundwater Extraction Permit Ordinance of the <b>Mendocino City Community Services District</b> (MCCSD) requires any person who seeks “to extract groundwater for a new development, change in use, expansion of existing use, or to construct or modify a well” to obtain a permit. A permit allows the holder to extract only the quantity of water which is deemed necessary under “water use standards” that form part of the Ordinance. New wells are metered, and the District retains the right to enter the permit holder’s premises to collect meter information. Violating the ordinance attracts penalties, including rescission of an extraction permit (Mendocino City Community Services Dist., 1990 (as amended, 2007), p. 21, 2007).</p>
<p><i>Controlling pumping by prohibiting new wells</i></p>	<p><b>MCCSD’s</b> GWMP envisions prohibiting any new wells in times of serious water shortage, in addition to other mandatory measures (Mendocino City Community Services Dist., 1990 (as amended, 2007), p. 108).</p> <p>Under <b>Sutter Extension Water District’s</b> GWMP, after 1995, landowners who wish to construct new wells “may be required” to request the approval of the District’s Board of Directors, which may approve the request with conditions (Sutter Extension Water Dist., 1995, p. 8).</p>
<p><i>Controlling water waste</i></p>	<p>The <b>Pajaro Valley Water Management Agency</b> has adopted an ordinance prohibiting water waste (Ordinance 92-1). The Ordinance defines water waste and prohibits listed wasteful practices within the boundaries of the Agency. It prohibits wasteful practices in agriculture as well as urban settings, although the former are specified in vague terms (e.g. “unreasonable evaporation loss” and “unreasonable deep percolation loss”). The Ordinance sets out a system of warnings followed by enforcement proceedings heard before a panel, and a penalty structure for first and repeated violations.</p>
<p><i>Adjudicating groundwater basins</i></p>	<p>Only one GWMP reviewed for this report—that of the <b>Borrego Water District</b>—lists adjudicating the groundwater basin as a management tool, albeit the lowest priority option (Borrego Water Dist., 2002, p. 74).</p>
<p><i>Limiting the expansion of water-intensive uses</i></p>	<p>Spurred by the recommendations of a local planning advisory group, <b>Borrego Water District’s</b> GWMP includes the following potential strategies to limit the development of water-intensive land uses (Borrego Water Dist., 2002, pp. 57-59):</p> <ul style="list-style-type: none"> <li>• prohibiting the as-of-right conversion of unused land to agriculture (agriculture would only be allowed to be developed under a permit to be issued after a public</li> </ul>

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	hearing and environmental review);
	<ul style="list-style-type: none"> <li>• designating all unused land as “Desert Estate”, which would allow 10 or 20 acre lot subdivisions, but would limit the use of non-native plants to a small portion of the lot; and</li> <li>• requiring future developments that seek a domestic water service from the Borrego Water District to sign over their rights to extract groundwater to the District (a strategy for which there is a precedent in the Borrego Valley).</li> </ul>

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*Rotating/  
fallowing  
cropland*

The **Eastern San Joaquin Basin** GWMP very cautiously mentions “voluntary crop rotation”, which would compensate farmers for removing cropland from production, as a groundwater management tool (N.E. San Joaquin County Groundwater Banking Auth., 2004, p. 87).

The **Borrego Water District** more proactively includes in its GWMP a goal of obtaining funding to acquire agricultural land from willing sellers, and contemplates “paying farmers to not farm”. The GWMP suggests that such a program could be funded by a water use fee, and sets out sample costs (Borrego Water Dist., 2002, pp. 60-64, 71-73).

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GWMPs commonly include general statements about “raising public awareness” of overdraft and groundwater management or implementing “education measures” about conservation. However, relatively few refer to concrete actions to manage water demand; even fewer are specific to groundwater, or relate to non-municipal contexts. Moreover, no surveyed plan quantifies the effectiveness of such voluntary demand management programs. It is therefore difficult to describe best practice in this area.

Some examples of education measures contemplated by GWMPs include: water utilities participating in local fairs, inserts in water bills detailing water conservation tips, public signs, demonstration gardens for low water use, fact-sheets, water use audits and surveys, school education, rebates on water efficient appliances, water education classes and presentations (Borrego Water Dist., 2002, p. 73; City of San Diego Water Dep’t, 2007, App.G-6; HydroMetrics LLC, 2007, p. 86; Mendocino City Community Services Dist., 1990 (as amended, 2007), pp. 111-112; Neuman, 1998; Orange County Water Dist., 2009, p. 1-9; Soquel Creek Water Dist. & Cent. Water Dist., 2007, pp. 59, 113-117, 125-127).

In the agricultural conservation sphere, programs include supporting organizations that carry out field irrigation evaluations and farm water conservation assistance and farm water tours (Kaweah Delta Water Conservation Dist., 2006, p. 16; North Kern Water Storage Dist. & Rosedale Range Improvement Dist., 1993, p. 10; Reclamation Dist. 2068, 2005, p. 3-9). More detailed examples of agricultural water demand reduction programs have been compiled outside of GWMPs (Agricultural Water Mgmt. Council, 2008).

Reducing water demand may, unfortunately, jeopardize the ability of agencies to carry out resource-intensive groundwater management programs by reducing revenue (Orange County Water Dist., 2009, p. 6-14). Ensuring that groundwater management programs are financially sustainable is vital (see section 4.4 of this report).

Fees can be used both to reduce demand and also to sustain other groundwater management actions. Table 8 sets out methods of reducing demand using fees.

**Table 8: Methods of managing groundwater demand**

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<i>Using fees to manage demands on aquifers</i>	<p>Under <b>Orange County Water District's</b> much-celebrated pump-and-pay system, retail groundwater pumpers pay fees (a "replenishment assessment") to OCWD based on their metered usage. Additional fees (a "basin equity assessment") apply above a pre-determined allowable pumping amount, expressed as a ratio of the customer's groundwater pumping to its total water usage (the "basin production percentage", BPP). These fees are used to purchase imported water to replenish groundwater, administer water monitoring, and maintain the replenishment systems. The fees are structured so as to create a disincentive to use groundwater above the BPP (Orange County Water Dist., 2009, pp. 1-5, 5-28, 26-13).</p> <p>Similarly, the <b>Fox Canyon Groundwater Management Agency</b> imposes penalties on pumpers who extract more water than is allowed under the Agency's detailed allocation system. Its GWMP proposes using these penalties to purchase water to replace the extracted water (Fox Canyon Groundwater Mgmt. Agency, et al., 2007, p. 80).</p> <p>The <b>Soquel Creek Water District</b> uses tiered pricing (also described as increasing block water pricing) in the context of groundwater distribution systems for residential, commercial and agricultural purposes (Soquel Creek Water Dist. &amp; Cent. Water Dist., 2007, p. 59).</p>
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Beyond manipulating demand by mandatory, voluntary or fee-based means, agencies may effectively increase their water supplies by using water from different sources in a conjunctive way (Table 9). This can involve introducing altogether new sources of water with different characteristic reliability profiles. For example, desalinated water and recycled water from municipal sources provide a supply that is largely unaffected by climatic conditions. Managing pumping distribution can "smooth" pumping pressure and ensure more uniform drawdown, avoiding deep cones of depression. This technique is also used to help avoid harming groundwater quality, and the flows and quality of connected surface waters.

**Table 9: Methods of using different water sources conjunctively**

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<i>Encourage greater surface water use</i>	<p>Agencies in the <b>Modesto Sub-Basin</b> and the <b>Chowchilla Groundwater Basin</b> regard annexation as a potential groundwater management tool, through in-lieu recharge—annexation enables areas reliant solely on groundwater to access surface water, thereby reducing pumping pressure (Chowchilla Water Dist.-Red Top Resource Conservation Dist. Joint Powers Auth., 1997, p. 13; Stanislaus &amp; Tuolumne Rivers Groundwater Basin Assoc., 2005, pp. 28-29, 96).</p> <p>The <b>Soquel Creek Water District</b> uses incentives to encourage private well owners to cease using well water and connect to water distribution systems (Soquel Creek Water Dist. &amp; Cent. Water Dist., 2007, p. 107).</p>
<i>Managing surface water-groundwater substitutions</i>	<p>The <b>Western Canal Water District</b> envisions transferring surface water out of the district, to be replaced by increased groundwater pumping. In such cases, monitoring and metering rules apply to ensure that: (1) the action does not create or exacerbate overdraft; (2) the additional volume pumped does not exceed the volume of surface water transferred; and (3) to mitigate any adverse effects of lower groundwater levels</p>

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on farmers, e.g. by compensating them for additional energy costs (Western Canal Water Dist., 2005, p. 19, 2006, section VI).

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*Using  
desalinated  
seawater or  
brackish  
groundwater*

Several agencies commit to investigating and pursuing desalinating brackish groundwater as an additional source of supply (City of San Diego Water Dep't, 2007, pp. 1-5, 3-49, 43-50; Monterey County Water Resources Agency, 2006, p. 2-1). **Alameda County Water District's** Newark Desalination Facility (part of its Aquifer Reclamation Program) has desalinated brackish groundwater caused by past seawater intrusion, since 2003. The Program aims to meet multiple objectives: "1) increase useable basin storage, 2) improve overall water quality, 3) prevent movement of brackish water toward ACWD production wells, and 4) provide (future) supply augmentation" (Alameda County Water Dist., 2010, p. 6; 2001, pp. 4, A1-7, A1-8). Agencies in the **Fox Canyon Groundwater Management Agency's** area have also seriously considered desalinating brackish groundwater to move pumping away from areas of lowering groundwater levels, increase supply, deal with water quality degradation, and potentially also restore coastal wetlands (Fox Canyon Groundwater Mgmt. Agency, et al., 2007, pp. 54-58).

The **Soquel Creek Water District** intends to partner with the **City of Santa Cruz** to construct and operate a seawater desalination plant as a way to reduce pumping demands during dry years and reduce the potential for seawater intrusion (City of Santa Cruz & Soquel Creek Water Dist., 2010; Soquel Creek Water Dist. & Cent. Water Dist., 2007, p. 62).

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*Managing  
pumping  
distribution*

**Orange County Water District's** Temporary Coastal Pumping Transfer Program shifted pumping pressure from the coast to inland areas to minimize seawater intrusion (Orange County Water Dist., 2009, pp. 6-16). Similarly, modeling a shift in pumping pressure in the **Pajaro Valley** was found to "nearly double the basin sustainable yield" by preventing seawater intrusion (Pajaro Valley Water Mgmt. Agency, 2002, p. 3-4).

In the inland area of **Indian Wells Valley**, managing the spatial distribution of new wells to minimize adverse effects on groundwater *quality* is a GWMP objective (Indian Wells Valley Cooperative Groundwater Mgmt. Group, 2006, p. 3). Similarly, the GWMP for the **Modesto Sub-Basin** contemplates optimizing well operations to achieve multiple different objectives, including "minimizing pumping costs, maintaining groundwater levels within a specified range . . . avoiding the migration of contaminant plumes", and improving downstream water quality by reducing high groundwater levels in areas of poor groundwater quality (Stanislaus & Tuolumne Rivers Groundwater Basin Assoc., 2005, p. 123).

County well permitting requirements that apply within the **Fox Canyon Groundwater Management Agency's** area shift pumping from a lower aquifer system to an upper aquifer system, to reduce the potential for overdraft and seawater intrusion in the lower system and ensure conjunctive use of both groundwater sources. Another tool considered in the area is shifting pumping to areas which are comparatively easy to recharge (Fox Canyon Groundwater Mgmt. Agency, et al., 2007, pp. 47, 76).

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In addition to limiting extraction from a basin, agencies' GWMPs also plan to maximize "deposits" to a basin, by either protecting or enhancing natural recharge, or "banking" water for themselves or third parties, using recharge basins or injection wells (Table 10).

California's groundwater laws—or rather, legal uncertainties—challenge the development of groundwater banking. Legal uncertainties surround who is liable for displacing natural recharge; how to control the actions of third parties who are not party to management agreements, where their actions affect the quality or quantity of stored water; and liability for changes in water quality, to name a few (Foley-Gannon, 2008). One GWMP refers to "the monumental task of overcoming the institutional, political, financial and physical challenges of groundwater banking" (N.E. San Joaquin County Groundwater Banking Auth., 2004, p. 20).

**Table 10: Methods of protecting and enhancing recharge and examples of water banking**

<i>Protecting existing recharge areas</i>	<p>As an initial step, the <b>Sonoma Valley GWMP</b> calls for "studies to identify groundwater recharge areas, to develop approaches to enhance groundwater recharge, and to identify ways to protect recharge areas from being covered by low permeability surfaces" (Sonoma County Water Agency, 2007, p. 3-3).</p> <p>The GWMP for the <b>Modesto Sub-Basin</b> takes a slightly more developed approach. It directs its implementing agencies to "[i]dentify areas having high potential for contributing to aquifer recharge and encourage agencies to communicate with land use planning entities to enact measures that will protect these lands from development that would reduce their value as recharge sites". It also includes, as a potential groundwater management tool, "pricing and incentive programs to encourage the continued use of surface water for flood irrigation" in areas with significant recharge potential (Stanislaus &amp; Tuolumne Rivers Groundwater Basin Assoc., 2005, pp. 108, 120).</p> <p>The GWMP of the <b>Fox Canyon Groundwater Management Agency</b> considers a strategy of requiring "Low Impact Development" to maximize the infiltration of stormwater in new developments that overlie recharge areas, but does not outline how this might be achieved (Fox Canyon Groundwater Mgmt. Agency, et al., 2007, p. 69).</p> <p>The GWMP for the <b>Soquel-Aptos area</b> outlines an objective of participating in land use planning processes and supporting Santa Cruz County to protect and enhance groundwater recharge zones. Specific actions include supporting the County to update its groundwater recharge maps, supporting USGS in its work characterizing recharge areas, and pursuing a formal system for allowing water agencies to review development proposals that could affect primary recharge zones (Soquel Creek Water Dist. &amp; Cent. Water Dist., 2007, pp. 75, 99, 100).</p>
<i>Enhancing recharge</i>	<p>The GWMP for the <b>Soquel-Aptos area</b> documents cooperation between Santa Cruz County, the GWMP agencies, and other neighboring water and resource agencies to introduce a recharge enhancement element to projects designed to control erosion and reduce stormwater runoff. The GWMP agencies pledge to "support County efforts to develop a program that will include standards regulating impervious surfaces . . . and provide for water impoundments, protecting and planting</p>

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vegetation, and installing cisterns, dry wells, bioswales and other measures to increase runoff retention and groundwater recharge". They also commit to incorporating such design features in their own construction projects (Soquel Creek Water Dist. & Cent. Water Dist., 2007, pp. 102-103).

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*Replenish GW  
for later use*

The **Santa Clara Valley Water District** manages extensive recharge facilities, including 90 miles of stream channel and spreader dams, 71 off-stream recharge ponds, and an injection well. Its recharge water sources are imported water and local surface water. The aim of the program is to "sustain groundwater supplies through the effective operation and maintenance of District recharge facilities" (Santa Clara Valley Water Dist., 2001, pp. 16-18). The District releases an annual report on its groundwater augmentation activities, the most recent of which states that 65% of groundwater pumped in the County originates from artificially replenished water (Santa Clara Valley Water Dist., 2010, p. i).

The **Kings River Conservation District** GWMP includes the North Fork Group Program as an economical recharge strategy. It involves flooding seasonally fallowed agricultural areas and keeping canals full to increase percolation. It proposes to continue this Program and develop better ways of monitoring and measuring recharge (Kings River Conservation Dist., 2005, pp. 4-10, 14-11, 14-14, 16-14, 16-15).

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*Water banking  
for third parties*

The **Arvin Edison Water Storage District** is party to a 25-year agreement with the **Metropolitan Water District of Southern California** (MWD), which began in 1997, to bank 250,000 ac-ft of MWD's water below Arvin-Edison. Water is delivered to Arvin-Edison using the Cross Valley Canal, and is returned (since 2003) during drought years, using the California Aqueduct. The program funded \$25 million of capital works and reimburses Arvin-Edison for pass-through water banking costs (Arvin-Edison Water Storage Dist., 2003, p. 6). Arvin-Edison's Rules and Regulations specify that where it spreads water, or delivers surface water to landowners in lieu of them pumping, it has the exclusive right to use the groundwater storage to recover the water to supply district landowners or third parties (Arvin-Edison Water Storage Dist., 2006, cl.9).

The **Sacramento Groundwater Authority**, which manages the North Area Groundwater Basin in cooperation with its 14 member agencies, is developing a centralized Water Accounting Framework (WAF) to support groundwater banking programs by "setting forth rules for operating a model groundwater bank, and monitoring the basin to ensure its sustainability". The SGA will maintain modeling and management tools needed to assess conjunctive use operations and maintain accounting systems for "deposits" and "withdrawals" (Sacramento Groundwater Auth., 2008, pp. 54-55).

The GWMP of the **Northeastern San Joaquin County Groundwater Banking Authority**, which has eleven member agencies, adopts third party water banking and conjunctive use partnerships as a key element of the plan. This involves many individual sites, some then operating and some to be developed, numerous different surface supply sources, and all forms of recharge methods (direct injection, percolation, and in-lieu) (N.E. San Joaquin County Groundwater Banking Auth., 2004). The Authority recently released its Eastern San Joaquin Integrated

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#### 4.2 Protecting connected surface waters

Californian law generally treats groundwater and surface water separately, though there are some exceptions to this (Hanak, et al., 2010, pp. 54-57). Some local agencies explicitly seek to ensure that groundwater pumping does not cause adverse impacts on surface waters, and implement corresponding measures (Table 11). These measures include studying the interaction between water bodies and reducing the effects of groundwater extraction on surface water.

**Table 11: Methods of protecting connected surface waters**

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<i>Explicitly recognize a goal relating to surface water impacts of groundwater pumping, or vice versa</i>	<p>The <b>Sonoma Valley GWMP</b> includes as a Basin Management Objective (<b>BMO</b>) to “protect against adverse interactions between groundwater and surface water” in relation to Sonoma Creek, which provides habitat for fish and other wildlife and is a source of supply for agriculture, businesses and residences (Sonoma County Water Agency, 2007, pp. 3-4).</p> <p>The <b>Olympic Valley GWMP</b> includes BMOs to “[p]romote viable and healthy riparian and aquatic habitats by avoiding or minimizing future impacts from pumping on stream flows” and to “[s]upport ongoing stream restoration efforts as they relate to groundwater management” (HydroMetrics LLC, 2007, p. 70).</p> <p>The <b>Western Canal Water District GWMP</b> aims both to “[m]inimize changes to surface water flows and quality that directly affect groundwater levels or quality” and also to “[m]inimize the effect of groundwater pumping on surface water flows and quality” (Western Canal Water Dist., 2005, [1.2]), although the GWMP does not appear to include any measures directly specifically to these aims.</p>
<i>Study surface water-groundwater interaction</i>	<p>A component of the <b>Soquel-Aptos area GWMP</b> is to use stream gauges and shallow groundwater monitoring wells adjacent to and in Soquel Creek to investigate surface water-groundwater interactions (Soquel Creek Water Dist. &amp; Cent. Water Dist., 2007, pp. 77, 83).</p> <p>The <b>Olympic Valley GWMP</b> includes as management measures participating in stream/aquifer interaction studies, and annually analyzing baseflow trends, shallow groundwater level trends, and “changes in apparent stream-aquifer interaction” (HydroMetrics LLC, 2007, p. 71).</p> <p>The <b>Central Sacramento County GWMP</b> provides for updating and using an integrated groundwater and surface water model (Sacramento County Water Agency, 2006, p. 3-22).</p>
<i>Include measures to reduce pumping impacts on surface waters</i>	<p>The <b>Soquel-Aptos area GWMP</b> documents a policy of the Soquel Creek Water Management District to use incentives (such as reduced connection fees) to encourage groundwater users with wells located near Soquel Creek to connect to the District’s distribution system. The GWMP includes modifying pumping distribution based on annual analyses of data collected under the District’s groundwater and</p>

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surface water data program, if, for example, it discloses evidence of baseflow depletion (Soquel Creek Water Dist. & Cent. Water Dist., 2007, pp. 107-108).

The **Olympic Valley GWMP** envisions carrying out its BMOs related to surface water interaction by redistributing pumping to reduce surface water impacts and reducing pumping through conservation (HydroMetrics LLC, 2007, pp. 70-71). It does not explicitly address the potential reduction in runoff from conservation, and any consequences for streamflow.

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#### 4.3 Restoring ecosystems and minimizing ecological impacts

Many of the measures described above in relation to securing a long-term groundwater supply and protecting surface waters from the adverse impacts of groundwater pumping also help to protect ecosystems from adverse impacts. For example, conservation measures can reduce total groundwater extraction, limiting groundwater drawdown and therefore helping to maintain connections with wetlands. Conversely, some ecological projects can benefit groundwater storage, for example, stream restoration can result in greater recharge, increasing shallow groundwater levels and thereby increasing shallow groundwater storage (HydroMetrics LLC, 2007, p. 64).

Table 12 presents examples of agencies consciously aiming for and acting on ecological goals in groundwater management planning.

**Table 12: Methods of restoring ecosystems and minimizing ecological impacts**

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<i>Explicitly recognize ecological goals</i>	<p>The <b>Squaw Valley Public Service District's GWMP</b> includes as one of three overarching goals, to "protect, promote, and improve the environmental quality of Olympic Valley" (HydroMetrics LLC, 2007, p. 62). The Basin Management Objectives which underlie this goal include to:</p> <ul style="list-style-type: none"><li>• "promote viable and healthy riparian and aquatic habitats by avoiding or minimizing future impacts from pumping on stream flows",</li><li>• "minimize future impacts from pumping on identified wetlands", and</li><li>• "support ongoing stream restoration efforts as they relate to groundwater management" (HydroMetrics LLC, 2007, pp. 63-64).</li></ul> <p>The <b>Lassen County GWMP</b> includes as an objective to "maintain springs, seeps and riparian habitat" (Brown &amp; Caldwell, 2007b, pp. 1-2).</p>
<i>Recognize and quantify environmental water demands</i>	<p>The <b>Alpine County GWMP</b> includes, by way of characterizing the aquifer and its context, environmental water demands, which "would include State and Federal wildlife refuges, and publicly or privately managed wetland habitat". However, for reasons that are unclear, these demands are allocated zero acre-feet of water (Brown &amp; Caldwell, 2007a, p. 37).</p> <p>Similarly, the <b>Central Sacramento County Water Authority GWMP</b> recognizes "environmental water" as a source of demand, but simply notes that the demand has not been defined for various streams, and does not allocate responsibility for defining</p>

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	<p>these demands or attempt to estimate them (Sacramento County Water Agency, 2006, p. 2-47).</p> <p>The <b>Soquel-Aptos area GWMP</b> seeks to “avoid alteration of stream flows that would adversely impact the survival of populations of aquatic and riparian organisms”. This is defined as maintaining baseflow depletion (caused by pumping aquifers adjacent to identified streams) below current detection levels in order to avoid “significant adverse biological effect” (Soquel Creek Water Dist. &amp; Cent. Water Dist., 2007, p. 76).</p>
<p><i>Mitigate effects of overdrafted areas on stream flows</i></p>	<p>The East Sacramento County Replacement Water Supply Project, described in the <b>Central Sacramento County Water Authority GWMP</b>, provides for releasing environmental water to the ecologically significant Cosumnes River. Although the Cosumnes River historically flowed year-round, it now has completely dry stretches during summer (primarily due to groundwater pumping), when flows are lost to the aquifer. The Project pre-wets the riverbed so that a smaller volume of late fall and summer flows is lost from the river to the underlying overdrafted aquifer, with adverse effects on riparian habitat (Sacramento County Water Agency, 2006, pp. 2-7, 2-44, 3-18).</p>
<p><i>Locate &amp; design recharge basins to enhance wildlife habitat</i></p>	<p>The <b>Kings River Conservation District’s GWMP</b> describes the 6000-acre Gragnani constructed wetland project, which was designed for habitat purposes. It has the secondary benefit of providing “in lieu recharge” by offering an alternative water supply to former groundwater users. The project was developed by the USDA Natural Resources Conservation Service purchasing conservation easements and recharging the wetlands using flood waters (Kings River Conservation Dist., 2005, pp. 4-2, 4-3).</p> <p>The Farmington groundwater recharge project described in the <b>Eastern San Joaquin GWMP</b> uses land leased from farmers at market rates, primarily to reduce saline intrusion and overdraft, and secondarily to provide seasonal habitat for migratory waterfowl. The American Society of Civil Engineers awarded it the Water/Environment Project of the Year in 2003 (N.E. San Joaquin County Groundwater Banking Auth., 2004, pp. 30, 133-137; <a href="http://www.farmingtonprogram.org/">http://www.farmingtonprogram.org/</a>).</p>
<p><i>Remove non-native invasive species</i></p>	<p>The <b>San Diego City</b> water department supports programs that map and remove giant reed, tamarisk, and perennial pepperweed, which are local non-native invasive species that impact groundwater quantity, although the GWMP does not quantify what impact this has on water supplies (City of San Diego Water Dep’t, 2007, p. 2-44).</p>

#### 4.4 Considering economic and financial sustainability

Economic factors are often the elephant in the groundwater management room. While many GWMPs cite the economically “unfeasible” nature of reducing groundwater usage through methods such as voluntary crop fallowing, no GWMP reviewed for this report quantified such impacts, nor estimated the impacts of *not* controlling groundwater use. Encouragingly, some GWMPs at least recognize the gravity of the latter.

Some agencies also seek to put in place measures to compensate well owners for the adverse economic impacts of decreasing groundwater levels.

Ironically, water shortages, including shortages caused by overdraft, threaten not just water users, but also the financial ability of agencies to undertake groundwater management actions to alleviate shortages. The costs of managing groundwater are likely to increase markedly during droughts, with additional enforcement and public outreach, for example, while the revenue of an agency may decrease as water usage drops. Finding a mechanism for sustainably funding groundwater management, under which customer water usage is decoupled from agency revenue is therefore vitally important (Mendocino City Community Services Dist., 1990 (as amended, 2007), p. 112).

Table 13 presents examples of agencies considering economic and financial sustainability in groundwater management planning.

**Table 13: Methods of considering economic and financial sustainability**

<i>Considering the economic costs of not controlling groundwater use</i>	The GWMP for the <b>Merced Groundwater Basin</b> acknowledges that long-term groundwater level declines due to pumping can increase the cost of pumping water and “restrict economic development” (AMEC Geomatrix Inc, 2008, p. 6). The <b>Eastern San Joaquin Groundwater Basin</b> GWMP recognizes that failing to address water management needs will lead to adverse impacts that will result in “business flight, job loss, loss of revenue for public services and general economic decline” (N.E. San Joaquin County Groundwater Banking Auth., 2004, p. 20). However, neither plan attempts to quantify these effects, or assess the long-term economic costs of overdraft against the short-term economic benefits of pumping.
<i>Mitigating the economic costs of overdraft</i>	The <b>Central Sacramento County</b> GWMP includes establishing a Central Basin Well Protection Program, including a “well protection trust fund”. The fund will compensate owners of wells that have failed due to declining groundwater levels for the cost of deepening or replacing wells. The fund will be financed by fees collected as part of building permits for new construction, or well drilling permits. Only well owners who register their wells are eligible for compensation, so that the system also improves information about groundwater use. The fund came about because the sustainable yield negotiated for the GWMP was expected to result in further declines in groundwater levels, before they stabilized, and “current groundwater users should not have to subsidize future growth in the basin by paying the cost of deepening or replacing existing wells” (Sacramento County Water Agency, 2006, pp. 4-7 to 4-9). The recent economic downturn has resulted in the implementation of the fund being delayed (Sacramento Cent. Groundwater Auth., 2009, p. 22).
<i>Ensuring sustainable funding for groundwater management</i>	The <b>Mendocino City Community Services District</b> ensures that its groundwater management activities are sustainable even during droughts, when revenue may drop, by using a surcharge on wastewater and sewer usage fees to fund groundwater management (Mendocino City Community Services Dist., 1990 (as amended, 2007), p. 112).

## PART SIX: CONCLUSION AND NEXT STEPS

The stage for California's groundwater management planning is a complicated and crowded one, filled with numerous actors of different types, who face difficult and sometimes critical groundwater depletion problems. Various institutional barriers often prevent these actors from talking to each other and sharing their stories of groundwater management successes and challenges. Since California's groundwater management planning laws do not involve State oversight, information about GWMPs is difficult to collect, and the state of Californian groundwater management has remained in shadow.

First and foremost, this report has shone a spotlight on some of these actors, and demonstrated that elements of their groundwater management planning efforts present promising and innovative approaches to local groundwater management. While their innovations are not necessarily common, they chart a path to better groundwater management that is practical and doable in a wide variety of different agency circumstances. It is hoped that local agencies around California will consider the approaches described here in formulating their own groundwater management actions, recognizing that management innovation is not necessarily precluded by scarce resources, or any particular statutory form.

Having used GWMPs to identify agencies whose water *planning* efforts stand out as exceptional in California, the next step is to determine whether these efforts are resulting in successful *implementation*, on the ground. Further research should ask of agencies questions like:

- Do you actively use your groundwater management plan—is it a “living” document, or a reference for occasional use?
- Which elements of your plan have been implemented?
- Did the process of formulating and implementing the plan lead to changes in how you manage groundwater?
- What are your success stories in formulating and implementing the plan?
- What constraints have you encountered in formulating and implementing the plan?

At a higher level, this report has contrasted California's groundwater management planning laws with those for urban water management plans, and suggested that water planning law has moved far beyond the current requirements and policy in relation to GWMPs. The many examples of innovative groundwater management planning by California agencies also confirm that the aspirations of GWMP law and policy are out of date.

Questions of State regulation of groundwater aside, there is a need to reform California's GWMP laws and policies to include demand management, and require greater analysis of the planning context, greater accountability through stakeholder participation, and the pursuit of multiple goals. Strengthening California's legislation for groundwater management planning provides a path towards better groundwater management, retaining the State's historical focus on local agencies driving local change. Reform that strengthen and update this legislation would build on a familiar base, and, judging from the significant number of plans in California, one with which many local agencies are comfortable. Law and policy should follow California's innovative local groundwater management agencies, and lead its groundwater agencies as a whole, down the path that this report suggests is both desirable, and also possible.

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## Regarding Master Response 3: Necessity to Amend the Zoning Ordinance

California Government Code Section 65860 requires the county zoning ordinance to be consistent with the General Plan. That includes both **policy consistency** and land use map consistency. When the General Plan was adopted, land use designations were created that did, indeed, create inconsistencies between the land use designation and the historical zoning. That was a known outcome of the General Plan, and the General Plan has policies in it to deal with that. That is how we are in compliance with State law now because we have these policies in the General Plan to allow for it.

**Policy 2.2.5.2** All applications for discretionary projects or permits including, but not limited to, General Plan amendments, zoning boundary amendments, tentative maps for major and minor land divisions, and special use permits shall be reviewed to determine consistency with the policies of the General Plan. No approvals shall be granted unless a finding is made that the project or permit is consistent with the General Plan. In the case of General Plan amendments, such amendments can be rendered consistent with the General Plan by **modifying** or deleting the General Plan provisions, including both **the land use map** and any relevant textual policies, with which the proposed amendments would be inconsistent.

There are very specific General Plan Policies in place that state that parcels should not be rezoned without proper analysis of 19 specific criteria (Policy 2.2.5.3), and when the General Plan has created inconsistencies with existing zoning, lower intensity zoning, may remain in effect (Policy 2.2.5.6). Both of these existing General Plan Policies are being violated with the sweeping rezoning proposed in the TGPA/ZOU due to lack of adequate analysis.

**Policy 2.2.5.3** The County shall evaluate future rezoning: (1) To be based on the General Plan's general direction as to minimum parcel size or maximum allowable density; and (2) To assess whether changes in conditions that would support a higher density or intensity zoning district. The specific criteria to be considered include, but are not limited to, the following:

1. Availability of an adequate public water source or an approved Capital Improvement Project to increase service for existing land use demands;
2. Availability and capacity of public treated water system;
3. Availability and capacity of public waste water treatment system;
4. Distance to and capacity of the serving elementary and high school;
5. Response time from nearest fire station handling structure fires;
6. Distance to nearest Community Region or Rural Center;
7. Erosion hazard;
8. Septic and leach field capability;

9. Groundwater capability to support wells;
10. Critical flora and fauna habitat areas;
11. Important timber production areas;
12. Important agricultural areas;
13. Important mineral resource areas;
14. Capacity of the transportation system serving the area;
15. Existing land use pattern;
16. Proximity to perennial water course;
17. Important historical/archeological sites; and
18. Seismic hazards and present of active faults.
19. Consistency with existing Conditions, Covenants, and Restrictions.

Policy 2.2.5.6 Where approval of this General Plan has created inconsistencies with existing zoning, lower intensity zoning, in accordance with Table 2-4, may remain in effect until such time as adequate infrastructure is available to accommodate a higher density/intensity land use.

If you decide to ignore these policies, then you are ignoring California Government Code Section 65860, which requires the county zoning ordinance to be consistent with the General Plan, including both **policy consistency** and land use map consistency. You cannot pick and choose which policies in the General Plan that you want to be consistent with. Therefore, Master Response #3 is flawed and is not a valid response to comments in the DEIR.

## **Clarification regarding request for Commercial upzoning and Home Occupation proposed policies**

Last Thursday, a statement was made by staff that the General Plan is basically the old Area Plans. I would like to read you a quote from the Shingle Springs Area Plan:

"Commercial land uses have been demonstrated to generate definite conflicts when in close proximity to residential land uses. With commercial land uses being intensive in nature, often requiring advertising signs, volume sales, and the necessary supply and servicing functions, the disruption these activities can cause to normal residential use can be intolerable in many cases... The aesthetic aspects of mixing commercial and residential land uses suggests a desirability in maintaining consistent land use patterns and is supported by the community at large through special statements in the Goals and Development Policies."

This leaves me with a few questions:

1. Regarding those parcels that I brought up last week that are being proposed for higher intensity commercial zoning, did you come up with a policy change that would apply

(Distributed at hearing  
by Don Van Dyke)

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# TGPA/ZOU

Planning Commission Hearing

9/2/2015

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## FEIR Adequacy: Traffic

- Caltrans: Highway 50 Westbound AM Peak is LOS F
- Caltrans uses sensors to ***physically measure*** the traffic
- The County uses a ***theoretical calculation*** which does not reflect real conditions on the ground

County LOS numbers are ***demonstrably incorrect***  
for traffic on the ground today

# FEIR Adequacy: Traffic: Cumulative Impacts

- FEIR Section 5.1 (Cumulative Impacts) clearly shows that future General Plan Amendment projects (e.g. Central EDH, Lime Rock, Dixon Ranch, San Stino, and Marble Valley) need to be included in the analysis :

The County is currently considering applications for the approval of five large residential developments proposed in the western portion of the county (i.e., Central El Dorado Hills Specific Plan, Dixon Ranch, Lime Rock Valley Specific Plan, San Stino, and Village of Marble Valley Specific Plan). These are not part of the project but are being considered in this cumulative impact analysis pursuant to CEQA case law's interpretation of the phrase "probable future projects" (*Communities for a Better Environment v. California Resources Agency* (2002) 103 Cal.App.4th 98). Inclusion in this analysis does not imply that these general plan amendments will be approved by the County. This cumulative impact analysis takes these projects impacts into consideration solely in order to meet the intent of State CEQA Guidelines Section 15130 for a worst case scenario perspective. This analysis also assumes buildout of the grazing land south of U.S. Highway 50 and north of White Rock Road that was annexed to the City of Folsom in 2012 and is slated for suburban development. Together, these major areas of proposed development are hereafter referred to in this DEIR as the *Cumulative Projects*. Their relative locations are shown in Figure 5-1.

## FEIR Adequacy: Traffic: Cumulative Impacts

- But, in the traffic section, the “cumulative scenarios” were based on “achievable density”. As an example, the “achievable density” of Dixon Ranch is 28 parcels, but we know the project as currently defined is 604 parcels.
- Projects such as Marble Valley & Lime Rock would not have been included at all since they are outside the community regions.

4. The development potential within El Dorado County for the cumulative scenarios was determined through an achievable development analysis at a parcel level within the community region boundaries. The achievable development analysis indicated where future growth could occur. The TGPA/ZOU does not forecast land use in Eastern Sacramento County. However, growth in Eastern Sacramento County was assumed consistent with SACOG data input for their model.

The FEIR fails to correctly examine Cumulative impact of Traffic



# FEIR Adequacy: Traffic: Impact Determination

- Our General Plan Policy TC-Xa requires measurement of all intersections, interchanges, and roadways in the county:

**GOAL TC-X: To coordinate planning and implementation of roadway improvements with new development to maintain adequate levels of service on County roads.**

Policy TC-Xa The following policies shall remain in effect until December 31, 2018:

1. Traffic from single-family residential subdivision development projects of five or more parcels of land shall not result in, or worsen, Level of Service F (gridlock, stop-and-go) traffic congestion during weekday, peak-hour periods on any highway, road, interchange or intersection in the unincorporated areas of the county.

The FEIR fails to analyze the impact of known General Plan amendment projects (and foreseeable consequences of rezoning) on intersections and interchanges

# Noise Ordinance Impact not Studied

- Construction (exempt) from 7-7 weekdays, 8-5 on weekends and holidays
  - The EIR studied the wrong policy
- Ag setbacks reduced from 200' to 50', but Ag is now “categorically exempt”
- Parks and playgrounds “categorically exempt”
  - remember the Rescue race track?
- Motocross (OHV) usage in residential areas
  - Administrative permit only
  - No notification of neighbors (*which may be small parcels in transitional areas*)
    - Seriously? How can this possibly be a good thing?
- Day use parks, commercial swimming pools, tennis courts, commercial stables in residential areas

Policy 6.5.1.14 The County will adopt a noise ordinance to resolve neighborhood conflicts and to control unnecessary noise in the County. Examples of the types of noise sources that can be controlled through the use of a quantitative noise ordinance include noisy mechanical equipment (e.g., swimming pool pumps, HVAC units), and amplified music in commercial establishments.

## HOO Impact Not Studied

- Multiple HOO's per household
- Additional 12-24 vehicle trips per HOO
- Heavy vehicles allowed for deliveries

No analysis of the potential for heavy commercial vehicles to create noise, vibration, dust, glare, fumes, odors, or electrical interference is necessary. Subsection C.6 prohibits these impacts "as detectable by normal senses off-site."

Really?

# Zoning

- Claim is that proposed zoning changes are to “Conform to State and Federal laws”
- Our General plan allows for lower density zones within a given land use designation:

*Policy 2.2.5.6 Where approval of this General Plan has created inconsistencies with existing zoning, lower intensity zoning, in accordance with Table 2-4, may remain in effect until such time as adequate infrastructure is available to accommodate a higher density/intensity land use.*

- *Example: AE in LDR is defined as “compatible” in our current General Plan*
- Which *Specific* State or Federal laws are leading us to rezone 37,000 parcels??

## Zoning: AE – why is it going away?

- Today, AE is allowed to exist outside a Williamson Act contract, while maintaining the rights of a parcel within a WAC.
  - *policy **Sec. 130.36.100. - Applicability.** The regulations contained in Sections 130.36.060 through 130.36.090 shall also apply to lands zoned AE but which are not encumbered by agricultural preserve contracts. This section is not a change of but is declaratory of existing law*
- Over 60,000 acres of AE land is affected

## Zoning – cont.

- We've reported several inconsistencies just at cursory examination
- Last week, the PC spent ½ hour on a single parcel
- How many other inconsistencies will be created by mass re-zoning of over 37,000 parcels?

If it ain't broke, don't fix it!

# Overriding Considerations

- Our approved 2013 Housing element shows we don't need additional housing in the county:

Table HO28  
2013 Land Inventory Summary –El Dorado County

	VLL	Income Category		Total
		Mod	Above	
Units approved or under construction	108	2	124	234
Entitlements (lots)*	--	--	5,762	5,762
Vacant land - residential	2,338	764	10,151	13,253
- West Slope	2,134	675	6,720	9,529
- East Slope	204	89	3,431	3,724
Vacant land - commercial/mixed use	257	--	--	257
Underutilized land - residential	925	148	0	1,073
Potential second units**	406	0	0	406
<b>Subtotal</b>	<b>4,034</b>	<b>914</b>	<b>16,037</b>	<b>20,985</b>
RHNA (net 2013-2021)	1,740	821	1,633	4,194
<b>Surplus (Deficit)</b>	<b>2,294</b>	<b>93</b>	<b>14,404</b>	<b>16,791</b>

Source: El Dorado County Community Development Agency, 7/2013  
 \* Includes Approved Specific Plans, Tentative and Parcel maps west slope only  
 \*\* Estimated 4% of Vacant land - residential, "Above"

# Overriding Considerations: Water

- From the FEIR:

El Dorado County

Executive Summary

WS-2: Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)

- How can the county claim “overriding considerations” when we don’t need additional housing, and it will have devastating effects on our groundwater?