>>> Jake Raper Jr 10/18/2011 11:26 AM >>>
Jim - do you have this scheduled? Need to advise. Jake

>>> "Hopkins, Jane" < Jane.Hopkins@dhs.gov > 10/18/2011 11:20 AM >>>
Dear Mr. Raper:
I am writing to ask when can FEMA expect to have a signed and certified copy of the Tulare County Floodplain Management Ordinance. As a reminder, this was due to this office on April 1, 2011. James May requested an extension for a few months, which was granted. Now I would like to know when the updated/revised ordinance will go before the Board. I have enclosed the report submitted to your office last December. There is a section entitled "Community Action Needed", that has list of requested actions. Note that earlier in the report the regulations were rated as the most seriously deficient aspect of the County program. Regarding the other items, I mentioned to James May that I would be satisfied with a description or list of how community would like to address remaining violations, since it is community-administered program. For those already dealt with, a spreadsheet or description for each property and associated action would be fine. Finally, the requested procedures will be due to this office before the CAV report can be closed. I appreciate your efforts with assisting with closure, as I would prefer not to have to initiate compliance actions. Thank you.

Attachment 5c

Mail From: James May
Recipients: BFussel@co.tulare.ca.us, CAnderso@co.tulare.ca.us, DLehman@co.tulare.ca.us, JRaper@co.tulare.ca.us, KMuthusamy@co.tulare.ca.us, jane.Hopkins@dhs.gov
Date: 10/19/2011 12:38:07 PM
Subject: Re: Fwd: Floodplain Ordinance Update & Adoption

Jane,
The eight Community Action Needed items in the CAV were acted upon as requested in the CAV. I did not transmit the information to you, our response follows:
1. -The Building Permit Division is now under the direction of Dennis Lehman. He is FEMA trained to address and support the necessities of FHA permitting.

2. -The nursery that was located on Ave 272 has been removed. Plant material as well as the mobile home are cleared from the site.

3. -Craig prepared a flow chart for development processing to coordinate all Divisions actions dealing with FHAs.

4. -The Ordinance modifications were made and adopted on June 9, 2011. I inadvertently did not send this on to you.

5. -Permit issues that you raised
on 12558 First Drive in Cutler, correct address should have been 12562 First Drive for the non-permitted second story addition significant improvement to the structure has had an ownership change and reissue of the permit violation notice to the new owner, has not and will not be finaled and a lock has been enforced on the property. The County will be investigating a 1316 remedy if no other approach is determined.

on 29752 Avenue 304, the address was incorrect, It should be 27932 Road 182 Elevation Certificates for this property have shown it to be in compliance. See attached

6. -The Flood Study and new FIRMs required by the Lake Kaweah Enlargement project were completed September 2, 2011 by AECom. The agency/public coordination meeting is set for Oct 25 here at RMA.

7. -The violations noted in the CAV subject to jurisdictional changes were: Photo No.
2 This commercial structure was built in the City of Visalia. The city FIRM panel shows this property as Zone B (Panel 5)
4 Residential structure on Linwood JNO Mineral King. House built in 1992. FIRM panel shows Zone B (465). So, pre-DFIRM. Now in city limits.
7 2539 College This is Tract 113. Homes built in late 40s to early 50s. Pre-FIRM. Original panel (470) shows Zone C. Now in Zone AE, so, pre-DFIRM. Now in city limits.
8 2415 College Also in Tract 113 same as No. 7 above.
10 Address should be 18655 Lort Drive. Building permits for structures in 2003 and 2005. Final elev certs on file. Effective FIRM is Zone AO, depth = 2 ft. Now in Zone

Attachment 5d

AE.
14 First Ave in Cutler. 2nd story addition. No final inspection given. No final elev cert received-- only a preliminary cert. Owner probably found out that entire structure needed to be elevated??

8. -We re presently exploring procedures to assure that information on FHA structures or properties in annexations are transmitted to the receiving jurisdiction.

If I can be of any additional assistance, please call me at 559 624-7150.

Thank you,
Jim

ATTACHMENTS:

Name	Size	Date
Elev Cert 1 27932 Rd 182.pdf	118490	10/19/2011 12:38:07 PM
Elev Cert 2 27932 Rd 182.pdf	111558	10/19/2011 12:38:07 PM
Ordinance 3425.pdf	1030131	10/19/2011 12:38:07 PM
SFHA Flowchart.pdf	29994	10/19/2011 12:38:07 PM

MINUTES OF THE
TULARE COUNTY FLOOD CONTROL COMMISSIONERS MEETING
March 23, 2011

Commissioners present:
Dale Brogan, Bruce George, Steve Martin, Dan Vink, Dale West

Commissioners Absent:
Walter Bricker

County Representation:
Alan Ishida-Supervisor District #1, Denise Akins-County Administrative Office, Arlene Silva-County Counsel, James May –Flood Control District Engineer

Meeting called to order at 10:10AM

Introductions of Supervisor Alan Ishida and new CAO Water Representative-Denise Akins.

There were no public comments.

Nomination of Bruce George for Chairman was moved by Dale West and second by Dan Vink, unanimous vote to continue his Chairmanship as long as he can serve. Vice-Chair nomination of Dale West by Dan Vink with second by Bruce George, unanimous vote.

Discussion of Commission Member residency qualifications to fill the #3 seat vacated by the retirement of George Serpa. Suprvs Ishida noted the general advertising requirement of the open seat, Dan Vink added the need for knowledge of the flood field and issues in the County.

The Flood Control District is still monitoring the Deer Creek/White River/Frazier Creek Army Corps projects. The flood prone nature in Strathmore community from the Friant-Kern Canal requires a more immediate response than can be expected from Army Corps. Some alternatives were described along with the existing area system. Need to provide MOUs with Irrigation Districts for wet weather use of irrigation districts ditches to clean out and carry flood flows.
It was presented that the County in the past has cut Road 88 when flood flows. Increased participation in IRWMPs for flood issues expected in the future.

This discussion flowed into the following Agenda Item on specific flood control projects that could be recommended to the Board of Supervisors. Preliminary vision and reconnaissance level is needed to identify the projects. Discussion centered on development of detention ponds for recharge and to reduce peak flood flows in conjunction with Irrigation Districts. A request for development of flow rates throughout the County, and an update on the current revenue stream for flood control

Attachment 6

was made by the Chair. The Army Corps Dam and Storm Flow projects were discussed and the delays presented by Congress/Corps blame strategies. The Chairman suggested that to function the Commission needs to have staff to focus research and time to support all issues in the County in order to develop projects and procedures to properly manage.

Next meeting date will be the 29th of April, at 10:00 AM.

Meeting adjourned at 11:50 AM

MINUTES OF THE
TULARE COUNTY FLOOD CONTROL COMMISSIONERS MEETING
April 29, 2011

Commissioners present: Bruce George, Steve Martin, Walter Bricker, Dale West

Commissioners Absent: Dale Brogan, Dan Vink

County Representation:
Arlene Silva-County Counsel, James May –Flood Control District Engineer

Visitors: Mark Larsen - KDWCD

Meeting called to order at 10:02 AM

Approval of March 23, 2011 Minutes moved by Steve Martin, second by Dale West. Unanimous vote.

There were no public comments.

Discussion of removing Commission Member residency qualifications. Alene noted the general advertising requirement to recruit for the open seat, she will bring the necessary language back to the Commission to propose to the Board of Supervisors a general alteration of the qualifications.

The Army Corps Success Dam Remediation project has suffered prioritization funding delays that would postpone the project beyond reasonable funding expectations. A proposed temporary incremental pool elevation raise to 640 was also placed on hold due to risk. This could result in diversion of the local dam project co-sponsorship funds to develop more immediate and feasibly constructed projects.

Repair of County wide flood damages from the Winter 2010 storms, is now being hampered by environmental agency restrictions. It was suggested that these restrictions be agendized to the Commission for discussion for the foreseeable future.

We have not begun the development of MOUs with most if not all of the Tulare County Irrigation Districts to allow wet weather maintenance of irrigation district's facilities by County forces to pass flood flows.

Chairman George requested sufficient staff with RMA to meet the needs of an active Flood Control District. He asked that reports continue on the status of this position.

A request was also made for mapping of frequently occurring or potential flood prone areas that might offer viable projects so that the Commission could ascertain and support projects to the Board of Supervisors. The identification of problem areas should not be limited to road impacted areas.

Attachment 7

Commissioner West identified an area near the Cottonwood Creek / Stone Corral Canyon area on Paramount Orchards property that could be a location for flood controls.

Chairman George recommended development of a project list of areas that are impacted. This list could be extended and refined resulting in stand alone projects as well as potential participation in IRWMPs for flood components. We could start the list with this Stone Corral Canyon area, the Sand Creek watershed (including confluence with Cottonwood Creek and the Dam outlet structure), Cottonwood Creek, Dry Creek, Mehrten Creek, Yokohl Creek, Frazier Creek, Deer Creek, White River, and Poso Creek.

Commissioners Bricker and Martin provided some insight to the Poso Creek issues. They noted that the Wildlife Refuge dammed Poso Creek, thus created flooding issues for properties nearby the canal that drains to the Homeland Canal. Jack Mitchells concern over pipes that are placed on the canal, one was placed to feed the canal from Homeland Canal.

There was no "other business".

The Fourth Friday of the month is recommended for consideration by the Commissioners for the regular meeting date.
The next meeting date will be the 23rd of May, at 10:00 AM. Same location.

Meeting adjourned at 11:32 AM

MINUTES OF THE
TULARE COUNTY FLOOD CONTROL COMMISSIONERS MEETING
July 19, 2011

Commissioners present: Dale Brogan, Bruce George, Steve Martin, Dale West, Dan Vink.

Commissioners Absent: Walter Bricker

County Representation: Arlene Silva-County Counsel, James May –Flood Control District Engineer

Visitors: Mark Larsen – KDWCD, Shane Smith - KDWCD

Meeting called to order at 3:02 PM

Change in the 6/24/11 Minutes requested by Arlene Silva, on the first page, fourth paragraph from the bottom, following the word "provided", add "consistent of Section 111-7 of the Water Code". Approval of April 29, 2011 Minutes moved by Commissioner Vink, second by Commissioner West. Unanimous approval of the action.

There were no public comments.

Continuing discussion on Commissioners residency requirements, Arlene noted the prior waivers of incorporated Cities, recommendation to revert to State Law requirements and state that the TCAG submittal of candidates be removed. Allow the removal of other restrictions but continue with Maddy Act.
Commissioner Brogan brought up Commissioners compensation Commissioner Vink agreed that requiring compensation should be removed from the new Resolution or made voluntary upon request. Commissioner George thought mileage should be included. Commissioner Brogan thought discretionary should be the language. County is to supply forms for mileage reimbursement if discretionary. Approval of the altered Resolution was moved by Commissioner Vink, Commissioner George's recollection was that a new member estimated miles from home, and that Mike Whitlock would provide a form to each for signature accepting reimbursement for mileage and perhaps meeting attendance also. Request must be submitted for reimbursements. Mileage reimbursement is optional also meeting if permissible by statute. Commissioner West seconded on Commissioner Vink's motion. In discussion -Deletion of TCAG provision of candidates and deletion of each Supervisor submittal of two candidates. Unanimous approval of the action.

Regarding the Flood Control District staffing changes, it was noted the potential hire of the Engineer III position to work 50% on Flood Control project development.

Attachment 8

For District funding, the Commission requested cash flow summary and stream for the last two years, to provide an indication of funding for potential projects, where the funds have been programmed in the past and present, by Agency or Department. It should also note how the prior reserves for Success Dam project may be utilized for other works.

The need for a Flood Control Master Plan was discussed and its connection for development of future projects concern for update similar to Spinks Corp Study in 2001 to identify Hot Spots and what we could do, without spending the major portion of project dollars on a study. Provide a broader look at the County as a whole. The new Engineer should review the Murray, Burns Plan to determine what is feasible within 20 years. Commissioner West noted that the area identified in the Study was constructed and is functioning. Chairman George requested an evaluation of an overlay of the past winter flood areas on the existing Master Planning.
A projects list will be sent to all of the Commissioners for consideration.

There was no other business.

The regular meeting was confirmed for August 26, 2011 at 8:00 AM, with the exception that if there is no meaningful progress on project development by the new Engineer or staff that the meeting be postponed until the fourth Friday of September at 8:00 AM.

Meeting was adjourned by Chairman George at 4:06 PM.

TULARE COUNTY WATER COMMISSION
MEETING MINUTES
March 28, 2011

Members Present:

Dale Brogan, District 2 Appointee
Paul Boyer, District 1 Appointee
Laurel Firestone, At-Large Appointee
Bruce George, District 3 Appointee
Allen Ishida, Board Representative and Chairman
Keith Watkins, At-Large Appointee

Members Absent:

Chris Kapheim, District 4 Appointee
Dennis Keller, At-Large Appointee
Richard L. Schafer, District 5 Appointee
Mike Ennis, Board Alternate Representative
Rudy Mendoza, TCAG Representative

Staff Present:

Denise Akins, Tulare County Board of Supervisors Office
Jim May, Tulare County Resource Management Agency
Mike Bairstow, Tulare County Environmental Health
Arlene Silva, Tulare County Counsel

Members of the Public who voluntarily provided their names on the attendance sheet:

Carole Clum
Richard Garcia
Matt Hurley
Shane Smith
Mark Larson
Michael Tharp

1. CALL TO ORDER

2. PUBLIC COMMENT PERIOD

Carole Clum of Three Rivers stated that the heavy rains in December 2010 and March 2011 caused damage to roads, shoulders, and slopes in the foothill area. Ms. Clum indicated that Tulare County's Foothill Growth Management Plan does not require Low Impact Development as recommended by the Regional Water Quality Control Board. Ms. Clum believes that this omission will result in costly road damage, water quality degradation and increase flood risk in the foothills and valley.

Ms. Clum distributed a handout that reported the warming effect of melting ice fields.

Attachment 9

3. APPROVAL OF MINUTES FROM MARCH 7, 2011 MEETING

A quorum was not present; therefore this item is continued to the May 9, 2011 meeting.

4. ADOPT AMENDED BY-LAWS TO REFLECT NEW MEETING TIME.

A quorum was not present; therefore this item is continued to the May 9, 2011 meeting.

5. PRESENTATION FROM TULARE COUNTY FLOOD CONTROL COMMISSION

Jim May of Tulare County Resource Management Agency gave a presentation on the recently re-convened Tulare County Flood Control Commission. Mr. May reported the Flood Control Commission met on March 23, 2011. He stated that Bruce George is Chair of the Commission and Dale West is Vice Chair. Mark Larson has been nominated to fill the seat that was previously occupied by George Serpa.

Mr. May reported that Flood Control projects are under the management of the US Army Corps of Engineers on Deer Creek, White River, and Frazier Creek as well as the Success Dam. The Flood Control Commission discussed possible future projects at their meeting. That discussion centered around development of detention basins throughout the County. Additionally the Commission determined there was a need for a database that recorded flow volumes throughout the County so that they could more accurately address problems and assign areas for detention ponds.

Mr. May stated that the next Flood Control Commission meeting will be April 29, 2011 at 10:00 am.

Chairman Ishida added that there are numerous Flood Control projects that need to move forward but lack funding. He indicated that there is significant money in reserve for the Success Dam remediation project. However, the Success Dam project has been delayed several times and there is no start date set for that project and may not start for twenty years or more. Chairman Ishida requested those reserves be put to better use by funding other projects and attaining other flood control objectives.

Commissioner Boyer asked about the basin near Seville in the Stone Coral Irrigation District. He questioned whether or not water had been diverted to that basin during the recent flood events. Mr. May responded that the basin was not specifically addressed during the Flood Control Commission meeting, but when he last traveled to the basin there was no water in it. The Commission did discuss maintaining conveyances during flood events.

Chairman Ishida requested the Flood Control Commission consider ways to remove silt from the storm runoff before depositing the water in irrigation district basins. The silt prevents the basins from percolating correctly and costly work has to be done to rehabilitate the basins.

Commissioner Firestone asked if the Flood Control objectives were part of the Master Plan. Mr. May indicated that the Flood Control Commission had a Master Flood Control Plan for Tulare County that dated back to 1971. Mr. May reported that there had been plans to update the Flood Control Master Plan, but the update has not occurred. He indicated a priority is to get the Flood Control Master Plan updated and the topic will be discussed at the next Flood Control Commission

meeting.

6. SUBCOMMITTEE REPORT

Commissioner Firestone reported that the State is finalizing the Disadvantaged Community Study Agreement with the DWR.

Commissioner Boyer reported that the Upper Kings Basin Integrated Water Management Authority is performing a Disadvantaged Community Study as well. Their study is more focused and detailed than the Tulare Lake Basin Study. They are still in the planning stages for that study.

Chairman Ishida commented that Tulare County will work with other counties to share information to make sure stakeholders are reached. He stated that there is a Pacific Institute Study that has been done and some of the work detailed in the Tulare Lake Basin Disadvantaged Community Study could be gleaned from the Pacific Institute data.

Commissioner Firestone reported that the Interagency Task Force will hold a meeting May 3, 2011 at UC Davis from 10:00 am- 3:00 pm that will include preliminary results from the Nitrate Study. Commissioner Firestone will be attending the meeting and will provide a brief report back to the Tulare County Water Commission.

Mike Bairstow, Tulare County Environmental Health, provided a handout on the upcoming EPA Nitrate and groundwater webcast scheduled for March 29, 2011.

7. COMMISSIONERS COMMENTS

Commissioner Firestone commented that package of bills, six different bills, has been introduced in the state legislature on the Human Right to Water. There are six different bills in the Assembly and Senate. One of the bills restates that everyone is entitled to a basic amount of affordable and safe drinking water. The other five bills are focused on implementing that concept at a practical level.

Chairman Ishida commented that the grant application process is too expensive and the state must be made aware of the problem.

Commissioner Boyer commented that the State Regional Water Quality Control Board is reviewing their final use plan for Waste Water Treatment funding. The deadline for comments will be in April.

8. NEXT MEETING – MONDAY, MAY 9, 2011 3:00 P.M. – BOARD OF SUPERVISORS CHAMBERS

9. ADJOURN

Respectfully submitted,

Richard L. Schafer, Secretary
Tulare County Water Commission

domestic wells tested in Eastern San Joaquin Valley during 1993-95 had nitrate concentrations above the legal limit of 10 mg/L nitrate-nitrogen (nitrate-N) (Dubrovsky et al. 1998). In 2006, the State Water Resources Control Board sampled 181 domestic wells in Tulare County and found that 40% of those tested had nitrate levels above the legal limit (State Water Resources Control Board 2010).

The legal limit or Maximum Contaminant Level (MCL) for nitrate-nitrogen in drinking water, 10 milligrams per liter (equivalent to 45 mg/L, nitrate as NO3 ion), is based on protection of infants from methemoglobinemia, or "blue baby syndrome."[4] Studies have also found that exposure to high concentrations of nitrates can result in serious illness and death for infants and pregnant women, including significant increased risk of neural tube defects, premature birth, intrauterine growth restriction, and anencephaly; and increased methemoglobin levels causing pregnancy complications, central nervous system birth defects, and congenital malformations (Manassaram et al. 2006). Additional known or suspected health effects to children and adults include respiratory tract infections in children, thyroid disruption, pancreatitis, sudden infant death syndrome (SIDS), and cancers of the digestive system, bladder, and thyroid (Gupta et al. 2000; Weyer et al. 2001; Ward et al. 2005; Manassaram et al. 2006; Ward 2010).

No systematic epidemiological study of the health effects of nitrate contamination in the San Joaquin Valley has been conducted. However, a recent compilation of the rates of health conditions potentially caused by nitrate exposure in Tulare County reveals various recent years when these rates were above the rates for California as a whole (CWC 2011). Rates of Sudden Infant Death Syndrome have been high in the region, with seven-out-of-eight San Joaquin Valley counties reporting SIDS death rates above the state average for at least one three-year period during 1999-2008 (CDPH 2010). These seven counties comprise only 12% of the counties in the state, but they are 50% of the counties with above-average SIDS death rates. Understanding any connection between the region's health problems and nitrate contamination merits further research.

[4]Reviews of the nitrate MCL have concluded that the standard is appropriate for the protection of infants (U.S. EPA 1990; NRC 1995; California EPA 1997).

TULARE COUNTY WATER COMMISSION

MEETING MINUTES

March 22, 2010

Members Present:

Paul Boyer, District 1 Appointee
Dale Brogan, District 2 Appointee
Laurel Firestone, At-Large Appointee
Bruce George, District 3 Appointee
Chris Kapheim, District 4 Appointee
Dennis Keller, At-Large Appointee
Rudy Mendoza, TCAG Representative
Richard L. Schafer, District 5 Appointee
Keith Watkins, At-Large Appointee
Mike Ennis, Board Alternate Representative

Members Absent:

Allen Ishida, Board Representative and Chairman

Staff Present:

Arlene Silva, Tulare County Counsel
Jeff Forbes, Tulare County Board of Supervisors staff
Jim May, Tulare County Resource Management Agency
Mark Bairstow, Tulare County Environmental Health
Mike Hickey, Tulare County Resource Management Agency
Larry Dwoskin, Tulare County Environmental Health

Members of the Public Present:

Carole Clum
Pat Pinkham
Kim Loeb
Richard Garcia
Andrew Benelli
Mark Larsen
Michael Tharp
Greg Young
Robert Mijares

1. CALL TO ORDER

2. PUBLIC COMMENT PERIOD

Carole Clum of Three Rivers stated while at the annual Planning and Conservation League conference in January, she attended the Water Justice workshop. Ten policy recommendations were created for a resilient water system in California. By the end of January there were 120 signatories, including the Community Water Center. Some of the ten principles from the water

Attachment 11

summit are that every Californian has a right to safe, affordable, and accessible drinking water, California must maximize environmentally sustainable local water self sufficiency, groundwater and surface water management must be integrated and water health and protection must be addressed on a watershed basis.

She also stated the Obama administration has created a new agency under the Department of Agriculture called the Office of Ecosystems and Markets. The idea is to charge urban and industrial emitters of carbon dioxide a fee for the emissions. New plants and forests would be planted to soak up the carbon dioxide.

Commissioner Schafer asked Ms. Clum if the Association of California Water Agencies was a sponsor of the California Water Summit. Commissioner Firestone responded ACWA was not a sponsor. Commissioner Schafer felt the real representatives of California water were not a party to the summit.

3. APPROVAL OF MINUTES FROM JANUARY 25, 2010 MEETING

Commissioner Watkins motioned to accept the minutes as submitted and Commissioner Firestone seconded. The minutes as submitted were approved unanimously.

4. CREATE SUBCOMMITTEE ON A TULARE COUNTY GROUNDWATER ORDINANCE AND APPOINT COMMISSIONERS

Commissioner George stated the ad-hoc subcommittee could consist of four or fewer Commissioners. He suggested that Commissioners Watkins, Brogan, Schafer and Keller be the members of the ad-hoc subcommittee. Commissioner Schafer asked if it is the expectation of the ad-hoc subcommittee to come up with an ordinance, or if the recommendation could be that an ordinance is unnecessary. Commissioner Watkins responded that the first task is to discuss if there is a need for an ordinance, and if there is a need the second task would be to develop an ordinance. Commissioner Brogan motioned to appoint Commissioners Watkins, Brogan, Schafer and Keller to the ad-hoc subcommittee and Commissioner Mendoza seconded. The motioned was approved unanimously.

5. PRESENTATION FROM TULARE COUNTY RESOURCE MANAGEMENT AGENCY ON THE WATER ELEMENT OF THE TULARE COUNTY GENERAL PLAN

Dave Bryant, Special Projects Division Manager for Tulare County Resource Management Agency stated the last version out for public review was in January 2008. Staff is now in the final stages of production and the updated General Plan and Recirculated Environmental Impact Report should be released within the week. Mr. Bryant said the purpose of the presentation is to highlight the updated water related policies in the General Plan and to provide an overview of potential water supply demands.

The General Plan document has many updated sections, and the corresponding implementation and work programs. Availability and sufficiency of long term water supplies, consideration of appropriate geographical areas to assess availability of long term water supplies, and encouraged

water conservation measures have all been updated. The water element also encourages using multipurpose design of storm water retention facilities to aid groundwater recharge.

Greg Young, the engineer who prepared the water supply evaluation, stated the purpose of the water supply assessment was to get a sense of the supply and demand picture of water today and evaluate how that affects possible land use changes. Most of the information is from California Department of Water Resources. The year 2003 provided the most "normal" data, which is dominantly agriculture at 2.5 million acre feet, urban demands at 150,000 acre feet and wetland demands at 3,000 acre feet. The General Plan assumed approximately 60,000 acres that would change from agricultural to urban uses.

Mr. Young stated agricultural uses about 3.3 acre feet per acre, and the replacement urban dwellings use about 3.1 acre feet per acre. This results in a reduction of about 13,000 acre feet of water use. With the projected changes in land use in the General Plan, total demand of water is within average use. Some factors that will affect water use are groundwater overdraft, San Joaquin River Settlement, population growth, joint management of shared aquifers, and water transfers and exchanges.

Commissioner Kapheim stated with the change, urban water doesn't have surface water available and there is additional strain on ground water, which will have an impact. It is not total amount of water used, but how it is used. Senate Bill x7, which demands 20% reduction by 2020, will reduce urban water use. The model landscape ordinance, climate change variability, and what is actually built will affect the total water demand. He stated groundwater made up over 50% of the local demand in 2003 and surface water is under 50%.

Some of the conclusions in the water element are that groundwater extraction will continue to exacerbate overdraft. Conservation and recharge are important factors to helping mitigate overdraft in the future. Urban uses predominantly served by groundwater will likely lead to an increase in overall groundwater extraction. Using groundwater to meet future demands will expand the water supply entitlements for urban purveyors.

Commissioner Kapheim stated in Northern Tulare County there are heavy clays, which make recharge difficult. The rapid growth rate has made this problem worse. Commissioner George stated that because urban uses less surface water and more pumping, a cone of depression develops and someone else within the boundary gets the benefit of additional water.

Commissioner Schafer asked Mr. Young where he obtained the figure of 3.3 acre feet per acre for agricultural use. He believes the average in Tulare County today is less than 3 acre feet per acre. Mr. Young responded that they used 2003 data that had total number of acres across five field crop categories. They also calculated evapotransporation and irrigation efficiency. Recent evidence has shown using more efficient irrigation systems use more applied water than flood irrigation. Mr. Young indicated the projection of water use is assuming 60,000 acres change from agricultural to urban use in the next 20 years.

Commissioner Schafer asked how climate change was identified as an issue in the water use projections. Mr. Young responded that more days of higher temperatures could result in more

evapotransporation. This would require additional water on the same piece of land. There are no conclusions about climate change, just that it is an issue.

Commissioner Boyer asked if there is anything in the General Plan that identifies land that is best suited for recharge. Commissioner Kapheim responded there is a bill in the State legislature that would mandate land for recharge be identified.

Commissioner Firestone asked if the overdraft problem will continue to be a problem, or if it simply won't get much worse. Mr. Young responded the problem should not get much worse, and under the general plan policies could get better. Commissioner Kapheim stated the capacity to pump allows water to be pumped at greater levels, in a wet or dry year. Commissioner George stated that while a wet year may lessen the overdraft problem in the short term, over the last 40-50 years there is a continuous downward progression in groundwater levels.

Commissioner Kapheim stated the land use agencies need to use information available through the IRWMP process. The IRWMP groups have developed large amounts of data that could be utilized by land use agencies. Commissioner Firestone asked if there are any policies in the General Plan that would require conservation in urban areas. Mr. Young responded there have been many plumbing code changes that result in greater efficiency in plumbing and landscape ordinances that outline water use requirements that results in lower use.

Commissioner Schafer stated that in March 2008 Water Commissioners submitted comments about the water element and asked what was done with the comments. Dave Bryant responded that RMA evaluated each response. One of the significant responses was the request for an evaluation of future water supply, which was prepared for the updated General Plan. He also stated he can come back to the Commission and answer any questions after the Commission has reviewed the documents. After the public comment period is closed, RMA will prepare a response to comments and will have a joint meeting with the Planning Commission and the Board of Supervisors.

Commissioner Keller stated he would like to discuss the defendability of the environmental documents. He felt that could be the most useful purpose of the Water Commission in evaluating the EIR.

6. SUBCOMMITTEE REPORT

Commissioner Firestone stated the Nitrate Subcommittee is in the process of reviewing a study that looks at salts and a study the state board contracted with UC Davis to look at sources of nitrates in the Tulare Lake Basin and the Salinas Valley. The nitrate subcommittee is looking at how they can coordinate with those other efforts.

7. COMMISSIONERS COMMENTS

Commissioner Kapheim mentioned an issue that the County has been dealing with is diverting storm water away from county roads and into the canals of irrigation districts. His district is looking at tighter standards on this and the practice won't be tolerated in the future. The County

needs to work with irrigation districts to address storm water diversion.

8. NEXT MEETING – MONDAY, APRIL 26, 2010, 4:00 P.M. – BOARD OF SUPERVISORS CHAMBERS

9. ADJOURN

Respectfully submitted,

Richard L. Schafer, Secretary
Tulare County Water Commission

People at Risk In 25 U.S. Cities Most Polluted by Short-term Particle Pollution (24-hour $PM_{2.5}$)

2011 Rank[1]	Metropolitan Statistical Areas	Total Population[2]	Under 18[3]	65 and Over[3]	Pediatric Asthma[4,8]	Adult Asthma[5,8]	Chronic Bronchitis[6,8]	Emphysema[7,8]	CV Disease[9]	Diabetes[10]	Poverty[11]
1	Bakersfield-Delano, CA	807,407	250,561	72,666	16,621	43,747	23,012	10,309	184,959	48,102	170,614
2	Fresno-Madera, CA	1,063,899	319,551	104,947	21,198	58,379	30,977	14,213	251,405	65,433	221,348
3	Pittsburgh-New Castle, PA	2,445,117	495,068	422,943	51,002	174,497	89,288	48,733	783,055	183,922	280,876
4	Los Angeles-Long Beach-Riverside, CA	17,820,893	4,682,410	1,902,902	310,610	1,030,481	552,457	257,170	4,512,759	1,179,719	2,579,016
5	Salt Lake City-Ogden-Clearfield, UT	1,743,364	528,004	154,359	38,413	96,430	49,678	21,913	396,577	75,234	172,338
6	Provo-Orem, UT	555,551	193,164	36,244	14,053	28,686	13,744	5,338	104,030	18,731	77,177
7	Visalia-Porterville, CA	429,668	141,279	40,393	9,372	22,622	11,998	5,494	97,299	25,326	97,542
8	Birmingham-Hoover-Cullman, AL	1,212,848	291,846	160,168	25,030	70,273	40,311	20,201	340,136	107,132	177,638
9	Hanford-Corcoran, CA	148,764	41,081	11,466	2,725	8,468	4,221	1,721	32,615	8,286	24,546
9	Logan, UT-ID	127,945	39,861	10,455	2,783	7,009	3,438	1,431	26,746	5,015	20,081
9	Sacramento--Arden-Arcade--Yuba City, CA-NV	2,436,109	607,251	300,098	40,307	143,692	79,445	39,034	664,653	175,011	320,925
12	Modesto, CA	510,385	149,225	53,538	9,899	28,322	15,287	7,192	125,454	32,878	85,583
13	Merced, CA	245,321	78,461	24,167	5,205	13,076	6,948	3,210	56,540	14,704	59,349
14	Eugene-Springfield, OR	351,109	70,025	50,780	3,931	31,083	12,379	6,290	105,086	23,292	58,935
15	San Diego-Carlsbad-San Marcos, CA	3,053,793	739,625	347,859	49,063	181,385	97,908	46,204	804,440	210,648	372,782
16	Stockton, CA	674,860	202,135	68,180	13,409	37,098	19,982	9,330	163,489	42,864	103,777
17	Chicago-Naperville-Michigan City, IL-IN-WI	9,804,845	2,491,070	1,104,442	231,348	660,705	312,722	148,887	2,580,626	586,411	1,231,739
18	Seattle-Tacoma-Olympia, WA	4,158,293	944,478	468,853	64,582	281,862	137,891	65,277	1,135,710	241,202	421,614
19	Fairbanks, AK	98,660	25,640	6,170	1,775	6,482	2,900	1,146	22,185	3,823	7,420
20	Philadelphia-Camden-Vineland, PA-NJ-DE-MD	6,533,122	1,535,672	869,965	158,452	438,946	219,155	109,986	1,850,540	428,512	760,156
21	Macon-Warner Robins-Fort Valley, GA	394,538	102,473	47,839	10,108	20,164	12,685	6,229	106,099	29,946	67,875
22	Louisville-Jefferson County-Elizabethtown-Scottsburg, KY-IN	1,395,634	335,150	177,354	31,918	105,477	46,544	23,133	391,515	118,443	193,601
23	Green Bay, WI	304,783	72,441	37,275	5,016	22,809	10,116	4,951	84,521	18,546	31,142
24	Davenport-Moline-Rock Island, IA-IL	379,066	89,246	55,929	6,420	23,219	12,981	6,779	111,579	23,842	42,634
24	Madison-Baraboo, WI	628,947	134,274	68,877	9,298	49,319	20,807	9,598	169,365	36,341	74,105
24	Phoenix-Mesa-Glendale, AZ	4,364,094	1,187,246	496,355	96,895	347,250	133,817	63,556	1,101,803	255,571	643,772
24	Portland-Vancouver-Hillsboro, OR-WA	2,241,841	533,526	244,548	31,367	183,150	72,947	34,260	598,721	132,377	265,996
24	San Jose-San Francisco-Oakland, CA	7,427,757	1,679,302	898,351	111,397	450,647	247,427	119,351	2,053,445	541,562	721,023
24	Wheeling, WV-OH	144,637	28,817	25,881	2,564	10,687	5,359	2,965	47,308	13,923	22,162

Notes:

1. Cities are ranked using the highest weighted average for any county within that Combined or Metropolitan Statistical Area.
2. **Total Population** represents the at-risk populations for all counties within the respective Combined or Metropolitan Statistical Area.
3. Those **18 and under** and **65 and over** are vulnerable to $PM_{2.5}$ and are, therefore, included. They should not be used as population denominators for disease estimates.
4. **Pediatric asthma** estimates are for those under 18 years of age and represent the estimated number of people who had asthma in 2009 based on state rates (BRFSS) applied to population estimates (U.S. Census).
5. **Adult asthma** estimates are for those 18 years and older and represent the **estimated** number of people who had asthma during 2009 based on state rates (BRFSS) applied to population estimates (U.S. Census).
6. **Chronic bronchitis** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on national rates (NHIS) applied to population estimates (U.S. Census).
7. **Emphysema** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on national rates (NHIS) applied to population estimates (U.S. Census).
8. Adding across rows does not produce valid estimates, e.g., summing pediatric and adult asthma and/or emphysema and chronic bronchitis.
9. **CV disease** estimates are based on National Heart Lung and Blood Institute (NHLBI) estimates of cardiovascular disease applied to population estimates (U.S. Census).
10. **Diabetes** estimates are for adults 18 and over, who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
11. **Poverty** estimates come from the U.S. Census Bureau and are for all ages.

Attachment 12

People at Risk In 25 U.S. Cities Most Polluted by Year-Round Particle Pollution (Annual $PM_{2.5}$)

2011 Rank[1]	Metropolitan Statistical Areas	Total Population[2]	Under 18[3]	65 and Over[3]	Pediatric Asthma[4,5]	Adult Asthma[5,6]	Chronic Bronchitis[6,8]	Emphysema[7,8]	CV Disease[9]	Diabetes[10]	Poverty[11]
1	Bakersfield-Delano, CA	807,407	250,561	72,666	16,621	43,747	23,012	10,309	184,959	48,102	170,614
2	Los Angeles-Long Beach-Riverside, CA	17,820,893	4,682,410	1,902,902	310,610	1,030,481	552,457	257,170	4,512,759	1,179,719	2,579,016
2	Phoenix-Mesa-Glendale, AZ	4,364,094	1,187,246	496,355	96,895	347,250	133,817	63,556	1,101,803	255,571	643,772
2	Visalia-Porterville, CA	429,668	141,279	40,393	9,372	22,622	11,998	5,494	97,299	25,326	97,542
5	Hanford-Corcoran, CA	148,764	41,081	11,466	2,725	8,468	4,221	1,721	32,615	8,286	24,546
6	Fresno-Madera, CA	1,063,899	319,551	104,947	21,198	58,379	30,977	14,213	251,405	65,433	221,348
7	Pittsburgh-New Castle, PA	2,445,117	495,068	422,943	51,002	174,497	89,288	48,733	783,055	183,922	290,676
8	Birmingham-Hoover-Cullman, AL	1,212,848	291,846	160,168	25,030	70,273	40,311	20,201	340,136	107,132	177,638
9	Cincinnati-Middletown-Wilmington, OH-KY-IN	2,214,954	543,893	270,380	51,168	166,495	72,691	35,624	607,603	168,199	272,692
10	Louisville-Jefferson County-Elizabethtown-Scottsburg, KY-IN	1,395,634	335,150	177,354	31,918	105,477	46,544	23,133	391,515	118,443	193,601
10	Modesto, CA	510,385	149,225	53,538	9,899	28,322	15,287	7,192	125,454	32,878	85,583
12	Charleston, WV	304,214	66,646	47,487	5,652	20,945	10,797	5,739	93,597	29,594	46,041
12	Cleveland-Akron-Elyria, OH	2,891,988	667,656	424,508	62,599	218,655	100,087	52,255	860,578	231,353	433,633
12	Steubenville-Weirton, OH-WV	120,929	24,249	22,891	2,179	8,953	4,536	2,568	40,483	11,745	18,861
15	Huntington-Ashland, WV-KY-OH	285,624	60,932	46,146	5,479	21,189	10,055	5,339	87,025	26,468	55,531
15	Indianapolis-Anderson-Columbus, IN	2,064,870	529,363	238,784	51,705	139,825	66,093	31,843	548,249	139,402	276,696
17	Detroit-Warren-Flint, MI	5,327,764	1,280,345	673,872	104,036	404,526	178,165	88,632	1,499,596	378,182	851,246
17	Houston-Baytown-Huntsville, TX	5,968,586	1,693,708	507,966	138,409	275,407	177,262	78,010	1,415,731	385,690	897,732
17	St. Louis-St. Charles-Farmington, MO-IL	2,916,789	696,764	383,974	69,317	208,250	97,816	49,155	826,708	178,048	360,713
20	Hagerstown-Martinsburg, MD-WV	266,149	62,604	35,621	6,461	18,296	8,917	4,479	75,308	21,340	30,121
21	New York-Newark-Bridgeport, NY-NJ-CT-PA	22,232,494	5,171,357	2,905,795	513,309	1,559,643	744,517	370,377	6,262,030	1,456,452	2,721,910
22	Dayton-Springfield-Greenville, OH	1,066,261	244,969	160,192	22,968	80,775	36,765	19,252	316,371	85,080	150,147
22	Lancaster, PA	507,766	125,939	75,950	12,974	34,593	17,080	8,988	147,264	34,405	46,401
24	Knoxville-Sevierville-La Follette, TN	1,053,627	231,414	158,809	19,847	66,813	36,686	19,121	315,000	87,170	162,410
24	Parkersburg-Marietta, WV-OH	160,905	34,240	27,442	3,018	11,589	5,818	3,179	51,054	15,220	24,379
24	Philadelphia-Camden-Vineland, PA-NJ-DE-MD	6,533,122	1,535,672	869,965	158,452	438,946	219,155	109,986	1,850,540	428,512	760,156
24	York-Hanover-Gettysburg, PA	531,260	122,145	75,887	12,583	37,060	18,316	9,464	156,758	36,557	44,431

Notes:

1. Cities are ranked using the highest weighted average for any county within that Combined or Metropolitan Statistical Area.
2. **Total Population** represents the at-risk populations for all counties within the respective Combined or Metropolitan Statistical Area.
3. Those **18 and under** and **65 and over** are vulnerable to $PM_{2.5}$ and are, therefore, included. They should not be used as population denominators for disease estimates.
4. **Pediatric asthma** estimates are for those under 18 years of age and represent the estimated number of people who had asthma in 2009 based on state rates (BRFSS) applied to population estimates (U.S. Census).
5. **Adult asthma** estimates are for those 18 years and older and represent the estimated number of people who had asthma during 2009 based on state rates (BRFSS) applied to population estimates (U.S. Census).
6. **Chronic bronchitis** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on national rates (NHIS) applied to population estimates (U.S. Census).
7. **Emphysema** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on national rates (NHIS) applied to population estimates (U.S. Census).
8. Adding across rows does not produce valid estimates, e.g., summing pediatric and adult asthma and/or emphysema and chronic bronchitis.
9. **CV disease** estimates are based on National Heart, Lung and Blood Institute (NHLBI) estimates of cardiovascular disease applied to population estimates (U.S. Census).
10. **Diabetes** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
11. **Poverty** estimates come from the U.S. Census Bureau and are for all ages.

People at Risk In 25 Most Ozone-Polluted Cities

2011 Rank[1]	Metropolitan Statistical Areas	Total Population[2]	Under 18[3]	65 and Over[3]	Pediatric Asthma[4,9]	Adult Asthma[5,9]	Chronic Bronchitis[6,9]	Emphysema[7,9]	Poverty[9]
1	Los Angeles-Long Beach-Riverside, CA	17,820,893	4,682,410	1,902,902	310,610	1,030,481	552,457	257,170	2,579,016
2	Bakersfield-Delano, CA	807,407	250,561	72,666	16,621	43,747	23,012	10,309	170,614
3	Visalia-Porterville, CA	429,668	141,279	40,393	9,372	22,622	11,998	5,494	97,542
4	Fresno-Madera, CA	1,063,899	319,551	104,947	21,198	58,379	30,977	14,213	221,348
5	Sacramento—Arden-Arcade—Yuba City, CA-NV	2,436,109	607,251	300,098	40,307	143,692	79,445	39,034	320,925
6	Hanford-Corcoran, CA	148,764	41,081	11,466	2,725	8,468	4,221	1,721	24,546
7	San Diego-Carlsbad-San Marcos, CA	3,053,793	739,625	347,859	49,063	181,385	97,908	46,204	372,782
8	Houston-Baytown-Huntsville, TX	5,968,586	1,693,708	507,966	138,409	275,407	177,262	78,010	897,732
9	Merced, CA	245,321	78,461	24,167	5,205	13,076	6,948	3,210	59,349
10	Charlotte-Gastonia-Salisbury, NC-SC	2,389,763	615,854	263,236	52,818	139,028	75,668	35,810	332,654
11	San Luis Obispo-Paso Robles, CA	266,971	49,825	39,636	3,305	16,962	9,572	4,880	33,198
12	Dallas-Fort Worth, TX	6,772,276	1,884,196	607,900	153,975	314,809	202,280	89,746	950,677
13	El Centro, CA	166,874	51,337	17,578	3,405	9,042	4,822	2,259	35,368
14	Modesto, CA	510,385	149,225	53,538	9,899	28,322	15,287	7,192	85,583
14	Washington-Baltimore-Northern Virginia, DC-MD-VA-WV	8,394,115	2,017,092	913,919	217,649	558,279	272,776	128,313	700,129
16	Cincinnati-Middletown-Wilmington, OH-KY-IN	2,214,954	543,893	270,380	51,168	166,495	72,691	35,624	272,692
17	New York-Newark-Bridgeport, NY-NJ-CT-PA	22,232,494	5,171,357	2,905,795	513,309	1,559,643	744,517	370,377	2,721,910
18	Knoxville-Sevierville-La Follette, TN	1,053,627	231,414	158,809	19,847	66,813	36,686	19,121	162,410
19	Phoenix-Mesa-Glendale, AZ	4,364,094	1,187,246	496,355	96,895	347,250	133,817	63,556	643,772
20	Philadelphia-Camden-Vineland, PA-NJ-DE-MD	6,533,122	1,535,672	869,965	158,452	438,946	219,155	109,986	760,156
21	Birmingham-Hoover-Cullman, AL	1,212,848	291,846	160,168	25,030	70,273	40,311	20,201	177,638
22	Chico, CA	220,577	46,201	33,001	3,065	13,594	7,643	3,920	39,717
23	Atlanta-Sandy Springs-Gainesville, GA-AL	5,831,778	1,573,677	513,199	155,122	296,754	177,090	78,367	802,336
24	Pittsburgh-New Castle, PA	2,445,117	495,068	422,943	51,002	174,497	89,288	48,733	290,876
25	Las Vegas-Paradise-Pahrump, NV	1,947,068	510,425	214,427	35,278	127,748	60,786	28,636	240,066

Notes:

1. Cities are ranked using the highest weighted average for any county within that Combined or Metropolitan Statistical Area.
2. **Total Population** represents the at-risk populations for all counties within the respective Combined or Metropolitan Statistical Area.
3. Those **18 and under** and **65 and over** are vulnerable to $PM_{2.5}$ and are, therefore, included. They should not be used as population denominators for disease estimates.
4. **Pediatric asthma** estimates are for those under 18 years of age and represent the estimated number of people who had asthma in 2002 based on state rates (BRFSS) applied to population estimates (U.S. Census).
5. **Adult asthma** estimates are for those 18 years and older and represent the estimated number of people who had asthma during 2009 based on state rates (BRFSS) applied to population estimates (U.S. Census).
6. **Chronic bronchitis** estimates are for adults 18 and over who had been diagnosed in 2009, based on national rates (NHIS) applied to population estimates (U.S. Census).
7. **Emphysema** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on national rates (NHIS) applied to population estimates (U.S. Census).
8. Adding across rows does not produce valid estimates, e.g., summing pediatric and adult asthma and/or emphysema and chronic bronchitis.
9. **Poverty** estimates come from the U.S. Census Bureau and are for all ages.

People at Risk in 25 Counties Most Polluted by Short-term Particle Pollution (24-hour $PM_{2.5}$)

2011 Rank[1]	County	ST	Total Population[2]	At-Risk Groups									High $PM_{2.5}$ Days in Unhealthy Ranges, 2007–2009	
				Under 18[3]	65 and Over[3]	Pediatric Asthma[4,8]	Adult Asthma[5,8]	Chronic Bronchitis[6,8]	Emphysema[7,8]	CV Disease[9]	Diabetes[10]	Poverty[11]	Weighted Avg.[12]	Grade[13]
1	Kern	CA	807,407	250,561	72,666	16,621	43,747	23,012	10,309	184,959	48,102	170,614	60.5	F
2	Fresno	CA	915,267	275,906	89,528	18,302	50,145	26,546	12,137	215,107	55,930	192,638	53.7	F
3	Allegheny	PA	1,218,494	242,202	204,401	24,952	88,010	44,083	23,650	383,427	89,816	153,937	32.5	F
4	Riverside	CA	2,125,440	615,621	245,456	40,837	118,086	64,267	31,066	533,297	139,608	290,003	24.5	F
5	Salt Lake	UT	1,034,989	301,147	89,962	21,909	58,207	29,771	12,941	236,201	44,562	108,994	22.5	F
6	Los Angeles	CA	9,848,011	2,500,804	1,042,989	165,892	576,310	306,992	141,524	2,496,934	651,091	1,552,196	20.0	F
7	San Bernardino	CA	2,017,673	601,101	172,905	39,874	111,493	58,546	25,840	467,948	122,008	335,321	17.7	F
8	Utah	UT	545,307	189,454	35,179	13,783	28,166	13,467	5,204	101,731	18,281	75,993	14.8	F
9	Tulare	CA	429,668	141,279	40,393	9,372	22,622	11,998	5,494	97,299	25,326	97,542	14.7	F
10	Jefferson	AL	665,027	158,005	90,242	13,551	38,702	22,191	11,187	187,691	59,012	107,081	14.0	F
11	Sacramento	CA	1,400,949	361,552	157,628	23,984	81,493	44,281	21,049	365,071	95,904	210,786	13.2	F
11	Kings	CA	148,764	41,081	11,466	2,725	8,468	4,221	1,721	32,615	8,286	24,546	13.2	F
11	Cache	UT	115,269	35,491	8,905	2,582	6,320	3,075	1,246	23,661	4,328	18,744	13.2	F
14	Stanislaus	CA	510,385	149,225	53,538	9,899	28,322	15,287	7,192	125,454	32,878	85,583	12.8	F
15	Merced	CA	245,321	78,461	24,167	5,205	13,076	6,948	3,210	56,540	14,704	59,349	11.5	F
16	Orange	CA	3,026,786	755,550	346,897	50,120	178,032	96,766	46,079	798,336	209,664	318,173	11.0	F
16	Lane	OR	351,109	70,025	50,780	3,931	31,083	12,379	6,290	105,086	23,292	58,935	11.0	F
18	San Diego	CA	3,053,793	739,625	347,859	49,063	181,385	97,908	46,204	804,440	210,648	372,782	9.2	F
19	San Joaquin	CA	674,860	202,135	68,180	13,409	37,098	19,982	9,330	163,489	42,864	103,777	8.8	F
19	Plumas	CA	20,122	3,615	4,290	240	1,281	814	483	7,441	2,032	2,453	8.8	F
21	Cook	IL	5,287,037	1,283,145	621,214	119,167	360,936	169,759	80,867	1,400,158	314,356	828,626	8.7	F
22	Snohomish	WA	694,571	171,462	68,364	11,724	45,931	22,398	10,328	182,585	38,690	66,458	8.5	F
23	Fairbanks North Star Borough	AK	98,660	25,640	6,170	1,775	6,482	2,900	1,146	22,185	3,823	7,420	8.3	F
24	Muscatine	IA	42,934	11,301	5,457	538	2,133	1,406	710	11,916	2,352	5,074	7.2	F
25	Philadelphia	PA	1,547,297	362,879	192,683	37,384	110,439	50,004	24,037	413,743	95,348	366,125	7.0	F
25	Sutter	CA	92,614	25,610	11,969	1,699	5,231	2,910	1,462	24,562	6,468	13,511	7.0	F

Notes:

1. Counties are ranked by weighted average. See note 12 below.
2. **Total Population** represents the at-risk populations in counties with $PM_{2.5}$ monitors.
3. Those **18 and under** and **65 and over** are vulnerable to $PM_{2.5}$ and are, therefore, included. They should not be used as population denominators for disease estimates.
4. **Pediatric asthma** estimates are for those under 18 years of age and represent the estimated number of people who had asthma in 2009 based on state rates (BRFSS) applied to population estimates (U.S. Census).
5. **Adult asthma** estimates are for those 18 years and older and represent the estimated number of people who had asthma during 2009 based on state rates (BRFSS) applied to population estimates (U.S. Census).
6. **Chronic bronchitis** estimates are for adults 18 and over who had been diagnosed in 2009, based on national rates (NHIS) applied to population estimates (U.S. Census).
7. **Emphysema** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on national rates (NHIS) applied to population estimates (U.S. Census).
8. Adding across rows does not produce valid estimates (e.g., summing pediatric and adult asthma and/or emphysema and chronic bronchitis).
9. **CV disease** estimates are based on National Heart Lung and Blood Institute (NHLBI) estimates of cardiovascular disease applied to population estimates (U.S. Census).
10. **Diabetes** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
11. **Poverty** estimates come from the U.S. Census Bureau and are for all ages.
12. The **Weighted Average** was derived by counting the number of days in each unhealthful range (orange, red, purple, maroon) in each year (2007-2009), multiplying the total in each range by the assigned standard weights (i.e., 1 for orange, 1.5 for red, 2.0 for purple, 2.5 for maroon), and calculating the average.
13. **Grade** is assigned by weighted average as follows: A=0.0, B=0.3-0.9, C=1.0-2.0, D=2.1-3.2, F=3.3+.

People at Risk in 25 Counties Most Polluted by Year-round Particle Pollution (Annual $PM_{2.5}$)

2011 Rank[1]	County	ST	Total Population[2]	At-Risk Groups									$PM_{2.5}$ Annual, 2007–2009	
				Under 18[3]	65 and Over[3]	Pediatric Asthma[4,5]	Adult Asthma[5,6]	Chronic Bronchitis[6,8]	Emphysema[7,8]	CV Disease[9]	Diabetes[10]	Poverty[11]	Design Value[12]	Grade[13]
1	Kern	CA	807,407	250,561	72,666	16,621	43,747	23,012	10,309	184,959	48,102	170,614	22.6	FAIL
2	Pinal	AZ	340,962	90,261	47,067	7,366	27,072	10,833	5,497	91,770	21,269	44,379	18.8	FAIL
2	Riverside	CA	2,125,440	615,621	245,456	40,837	118,086	64,267	31,066	533,297	139,608	290,003	18.8	FAIL
2	Tulare	CA	429,668	141,279	40,393	9,372	22,622	11,998	5,494	97,299	25,326	97,542	18.8	FAIL
5	Kings	CA	148,764	41,081	11,466	2,725	8,468	4,221	1,721	32,615	8,286	24,546	17.3	FAIL
6	Fresno	CA	915,267	275,906	89,528	18,302	50,145	26,546	12,137	215,107	55,930	192,638	17.1	FAIL
7	Allegheny	PA	1,218,494	242,202	204,401	24,952	88,010	44,083	23,650	383,427	89,816	153,937	17.0	FAIL
8	San Bernardino	CA	2,017,673	601,101	172,905	39,874	111,493	58,546	25,840	467,948	122,008	335,321	16.2	FAIL
9	Los Angeles	CA	9,848,011	2,500,804	1,042,989	165,892	576,310	306,992	141,524	2,496,934	651,091	1,552,196	15.8	FAIL
10	Jefferson	AL	665,027	158,005	90,242	13,551	38,702	22,191	11,187	187,691	59,012	107,081	15.1	FAIL
11	Hamilton	OH	855,062	200,406	115,705	18,790	64,933	28,687	14,447	242,554	65,213	126,872	15.0	PASS
12	Stanislaus	CA	510,385	149,225	53,538	9,899	28,322	15,287	7,192	125,454	32,878	85,583	14.7	PASS
12	Clark	IN	108,634	25,544	14,060	2,495	7,544	3,636	1,809	30,586	7,852	12,743	14.7	PASS
14	Cuyahoga	OH	1,275,709	292,883	194,879	27,461	96,471	44,247	23,347	382,121	102,760	235,014	14.4	PASS
14	Brooke	WV	23,509	4,577	4,557	388	1,659	885	503	7,912	2,504	3,075	14.4	PASS
14	Kanawha	WV	191,663	40,727	31,882	3,454	13,286	6,903	3,738	60,336	19,080	27,060	14.4	PASS
17	Marion	IN	890,879	227,659	96,665	22,236	60,465	27,928	13,035	228,393	57,284	171,860	14.3	PASS
17	Cabell	WV	95,214	19,062	15,496	1,617	6,717	3,341	1,750	28,712	9,053	19,182	14.3	PASS
19	Jefferson	OH	67,691	13,678	12,743	1,282	5,213	2,530	1,430	22,561	6,070	11,524	14.2	PASS
19	Beaver	PA	171,673	34,909	31,392	3,596	12,106	6,388	3,578	56,723	13,375	19,285	14.2	PASS
21	Madison	IL	268,457	61,590	38,074	5,720	18,600	9,147	4,681	77,902	17,531	34,532	14.1	PASS
21	Wayne	MI	1,925,848	487,257	234,767	39,593	143,904	62,834	30,943	526,404	132,430	458,811	14.1	PASS
21	Harris	TX	4,070,989	1,174,860	328,354	96,009	186,211	118,470	51,005	937,343	254,761	686,928	14.1	PASS
24	Butler	OH	363,184	89,746	41,603	8,415	27,375	11,732	5,610	97,011	26,067	46,350	14.0	PASS
24	Berkeley	WV	103,854	25,871	11,828	2,194	6,925	3,363	1,613	27,848	8,781	10,866	14.0	PASS

Notes:

1. Counties are ranked by Design Value. See note 12 below.
2. **Total Population** represents the number of individuals in counties with PM$_{2.5}$ monitors.
3. Those **18 and under** and **65 and over** are vulnerable to PM$_{2.5}$ and are, therefore, included. They should not be used as populations denominators for disease estimates.
4. **Pediatric asthma** estimates are for those under 18 years of age and represent the estimated number of people who had asthma in 2009 based on state rates (BRFSS) applied to population estimates (U.S. Census).
5. **Adult asthma** estimates are for those 18 years and older and represent the estimated number of people who had asthma during 2009 based on state rates (BRFSS) applied to population estimates (U.S. Census).
6. **Chronic bronchitis** estimates are for adults 18 and over who have been diagnosed in 2009, based on state rates (NHIS) applied to population estimates (U.S. Census).
7. **Emphysema** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (NHIS) applied to population estimates (U.S. Census).
8. Adding across rows does not produce valid estimates, e.g., summing pediatric and adult asthma and/or emphysema and chronic bronchitis.
9. **CV disease** estimates are based on National Heart, Lung and Blood Institute (annual) death rates for cardiovascular disease applied to population estimates (U.S. Census).
10. **Diabetes** estimates are for adults 18 and over who have been diagnosed with diabetes, based on state rates (BRFSS) applied to population estimates (U.S. Census).
11. **Poverty** estimates come from the U.S. Census Bureau and are for all ages.
12. The **Design Value** is the calculated concentration of a pollutant based on the form of the National Ambient Air Quality Standard, and is used by EPA to determine whether the air quality meets the standard. The source for the Design Values is EPA communication from the Office of Air Quality Planning & Standards, March 25, 2011.
13. **Grades** are based on EPA's interpretation of monitoring data to determine the NAAQS for annual PM$_{2.5}$ during 2007–2009. Counties meeting the NAAQS received grades of Pass; counties not meeting the NAAQS were given grades of Fail.

People at Risk in 25 Most Ozone-Polluted Counties

2011 Rank[1]	County	ST	Total Population[2]	At-Risk Groups							High Ozone Days in Unhealthy Ranges, 2007–2009	
				Under 18[3]	65 and Over[3]	Pediatric Asthma[4,8]	Adult Asthma[5,8]	Chronic Bronchitis[6,8]	Emphysema[7,8]	Poverty[9]	Weighted Avg.[10]	Grade[11]
1	San Bernardino	CA	2,017,673	601,101	172,905	39,874	111,493	58,546	25,840	335,321	136.8	F
2	Riverside	CA	2,125,440	615,621	245,456	40,837	118,086	64,267	31,066	290,003	126.2	F
3	Kern	CA	807,407	250,561	72,666	16,621	43,747	23,012	10,309	170,614	102.8	F
4	Tulare	CA	429,668	141,279	40,393	9,372	22,622	11,998	5,494	97,542	101.3	F
5	Los Angeles	CA	9,848,011	2,500,804	1,042,989	165,892	576,310	306,992	141,524	1,552,196	91.5	F
6	Fresno	CA	915,267	275,906	89,528	18,302	50,145	26,546	12,137	192,638	58.8	F
7	Sacramento	CA	1,400,949	361,552	157,628	23,984	81,493	44,281	21,049	210,786	42.3	F
8	Kings	CA	148,764	41,081	11,466	2,725	8,468	4,221	1,721	24,546	36.8	F
9	El Dorado	CA	178,447	41,818	21,717	2,774	10,768	6,281	3,177	13,492	35.0	F
10	Nevada	CA	97,751	18,601	18,170	1,234	6,170	3,810	2,163	9,819	30.5	F
11	San Diego	CA	3,053,793	739,625	347,859	49,063	181,385	97,908	46,204	372,782	29.5	F
12	Harris	TX	4,070,989	1,174,860	328,354	96,009	186,211	118,470	51,005	686,928	27.0	F
13	Ventura	CA	802,983	209,334	94,655	13,886	46,559	25,886	12,661	83,323	26.0	F
14	Mariposa	CA	17,792	3,187	3,496	211	1,135	700	401	2,364	24.7	F
15	Placer	CA	348,552	83,608	54,762	5,546	20,640	12,020	6,442	25,053	24.2	F
16	Merced	CA	245,321	78,461	24,167	5,205	13,076	6,948	3,210	59,349	23.8	F
17	Rowan	NC	140,798	33,135	20,938	2,842	8,364	4,817	2,519	22,778	23.7	F
18	San Luis Obispo	CA	266,971	49,825	39,636	3,305	16,962	9,572	4,880	33,198	23.3	F
19	Tarrant	TX	1,789,900	507,390	155,996	41,464	82,590	53,033	23,400	254,582	22.3	F
20	Imperial	CA	166,874	51,337	17,578	3,405	9,042	4,822	2,259	35,368	19.8	F
21	Stanislaus	CA	510,385	149,225	53,538	9,899	28,322	15,287	7,192	85,583	19.3	F
21	Harford	MD	242,514	59,776	29,902	7,135	16,488	8,095	4,027	14,948	19.3	F
21	Mecklenburg	NC	913,639	237,842	78,551	20,398	53,271	27,572	11,905	126,807	19.3	F
24	Hamilton	OH	855,062	200,406	115,705	18,790	64,933	28,687	14,447	126,872	18.7	F
25	Fairfield	CT	901,208	223,771	119,291	26,823	63,497	30,094	15,271	72,291	17.8	F

Notes:

1. Counties are ranked by weighted average.
2. **Total Population** represents the at-risk populations in counties with ozone monitors.
3. Those **18 and under** and **65 and over** are vulnerable to $PM_{2.5}$ and are, therefore, included. They should not be used as population denominators for disease estimates.
4. **Pediatric asthma** estimates are for those under 18 years of age and represent the estimated number of people who had asthma in 2009 based on state rates (BRFSS) applied to population estimates (U.S. Census).
5. **Adult asthma** estimates are for those 18 years and older and represent the estimated number of people who had asthma during 2009 based on state rates (BRFSS) applied to population estimates (U.S. Census).
6. **Chronic bronchitis** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on national rates (NHIS) applied to population estimates (U.S. Census).
7. **Emphysema** estimates are for adults 18 and over who have been diagnosed in 2009, based on national rates (NHIS) applied to population estimates (U.S. Census).
8. Adding across rows does not produce valid estimates, e.g., summing pediatric and adult asthma and/or emphysema and chronic bronchitis.
9. **Poverty** estimates come from the U.S. Census Bureau and are for all ages.
10. The **Weighted Average** was derived by counting the number of days in each unhealthful range (orange, red, purple) in each year (2007-2009), multiplying the total in each range by the assigned standard weights (i.e., 1 for orange, 1.5 for red, 2 for purple), and calculating the average.
11. **Grade** is assigned by weighted average as follows: A=0.0, B=0.3-0.9, C=1.0-2.0, D=2.1-3.2, F=3.3+.

Fresno Bee
7/15/10

Toxic shower threatens Valley air

Microscopic chemicals could corrode lungs.

By Mark Grossi
The Fresno Bee

A mysterious shower of microscopic chemicals near a Fresno shopping center could be the first evidence of a broad, undetected assault on the lungs of San Joaquin Valley residents.

If confirmed in other Valley cities, it means many thousands of people are daily breathing these cocktails of chemicals — known as ultra-fine particles — that corrode and damage lungs.

The plume in Fresno probably spreads over many square miles, not just the Fashion Fair area where they were discovered, said UC Davis atmospheric scientist Anthony Wexler, who detected the pollution.

Sensitive, expensive equipment is needed to detect and study ultrafine pollution. Science is only now defining the possible problem.

Wexler revealed Fresno's midday rise in microscopic pollution last month at an air-quality conference, saying he and others will continue studying them to determine the source and extent of the plume.

Researchers also must figure out what's in the particles and more clearly define the possible health threat. It may be years before local, state and federal officials can develop a cleanup strategy.

The particles are so small that 1,000 of them would fit across the width of a human hair. For years, science has known that such particles exist, but they are thousands of times smaller than previously studied particles in dust, soot and diesel smoke.

Health problems from such pollution were detailed last month in a study on allergic asthmatics, whose lungs are inflamed to the point that only a small amount of pollen, animal hair or other allergens can trigger a crippling attack.

The findings from Dr. Andre Nel, a UCLA medical researcher, were published by the American Journal of Physiology-Lung Cellular and Molecular Physiology.

"If there is a surge in ultrafine pollution particles, it makes twitchy airways even more twitchy," he said. "It results in a much lower threshold

AIR

Continued from A1

of allergens to create an asthmatic response or an attack."

These specks can come from volcanoes or ocean spray, but they also come from printer toner, vehicle exhaust and chemical reactions in the air. Fresno's particles may come from traffic and other pollution vapors.

The site near Fashion Fair is not far from Highway 41, Shaw Avenue and many businesses and restaurants, so there could be many different contributors to the pollution.

Wexler said he suspects the particles form after pollution gases accumulate in the air each day, though there could be a particular source spewing the particles.

But he said it's a good bet that the problem is not just isolated in the Fashion Fair area. Thousands of Fresno residents may be exposed to the particles.

Is this midday rise in pollution occurring in other Valley cities? It's possible, said Wexler. This kind of pollution also has been detected in other places, such as Pittsburgh, which has problems with particle pollution.

The Valley is known nationally for particle pollution. In the American Lung Association's latest rankings, Bakersfield and Fresno-Madera were the country's two worst places for short-term bouts of particle pollution.

The ranking applied to fine-particle pollution, which includes the smallest specks that Wexler discovered near Fashion Fair.

Researchers in Southern California say the tiny particles contain 1,000 or more different substances. The particles tend to grow larger, accumulating many toxic chemicals from the air.

In the UCLA study, Nel showed the chemical debris corrodes and injures the lungs, and the body responds with inflammation. He said it could possibly cause problems for even those with healthy lungs, but he has only studied asthmatics.

For asthmatics, Nel said conventional treatment does not address the problems created by pollution. He said science would have to alter medications, using the kind of antioxidant chemicals found in broccoli and other natural sources to combat the lung injuries.

Nel said such a treatment needs to be developed soon because there is evidence that ultra-fine pollution is becoming a problem in many places, and asthma is on the rise worldwide.

"The particles are increasing in the industrialized Northern Hemisphere," he said. "They are being spread on the wind from city to city, country to country and even continent to continent."

▶ The reporter can be reached at mgrossi@fresnobee.com or (559) 441-6316.

Sizing up particulate matter

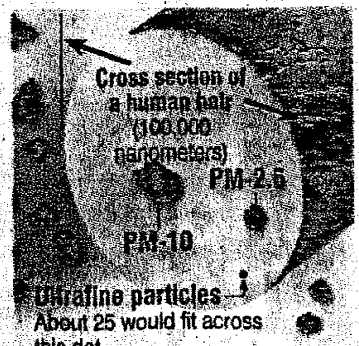
Pollution particles of soot and other specks called PM-10 and PM-2.5 are microscopic, yet they are thousands of times larger than ultrafine particles. Ultrafines are measured in nanometers. Ultrafine particles can be 100 nanometers and smaller. A typical germ measures about 1,000 nanometers.

PM-10
■ About six would fit across the width of a human hair

PM-2.5
■ About 30 would fit across the width of a human hair

Ultrafine particles
■ About 1,000 would fit across the width of a human hair

Source: Wikipedia and PhysOrg.com



THE FRESNO BEE

Attachment 13

SB X2-1
Nitrate in Groundwater
Report to the Legislature

OVERVIEW AND KEY OUTCOMES

Thomas Harter
University of California Davis - SBX2-1 Team
June 9, 2011

Department of Land, Air, and Water Resources
University of California, Davis
Contact: ThHarter@ucdavis.edu

Attachment 14

UCD Project Team Leaders

- Thomas Harter (PI), Subsurface Hydrology
- Jeannie Darby, Water Treatment
- Graham Fogg, Subsurface Hydrology
- Richard Howitt, Agricultural Economics
- Katrina Jessoe, Water Quality Economics
- Jay Lund, Water Resources Management
- Jim Quinn, Spatial Data Mgmt. in Environmental Policy
- Stu Pettygrove, Soils and Nutrient Management
- Tom Tomich, Agricultural Sustainability Institute
- Joshua Viers, Spatial Data Management in Environmental Sciences

FUNDING PROVIDED BY:

- **Proposition 84 / SB X 2-1 => CDPH => SWRCB**

UCD Project Team

- Aaron King
- Allan Hollander
- Alison McNally
- Anna Fryjoff-Hung
- Cathryn Lawrence
- Daniel Liptzin
- Dylan Boyle
- Elena Lopez
- Giorgos Kourakos
- Holly Canada
- Josue Medellin-Azuara
- Kristin Dzurella
- Kristin Honeycutt
- Mimi Jenkins
- Nate Roth
- Todd Rosenstock
- Vivian Jensen

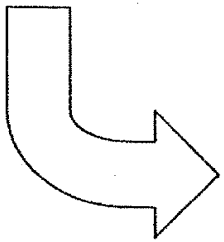
- ...many undergraduate students....

Timeline

- Data collection and analysis – 2nd Quarter 2011
- Economic and policy analysis – 3rd Quarter 2011
  - **2nd ITF Meeting – May 3, 2011**
- Draft report – September 2011
  - **3rd ITF Meeting – October 2011**
- Final report – December 2011
- SWRCB Report to Legislature – April 2012
- Directed follow-up studies – April 2013

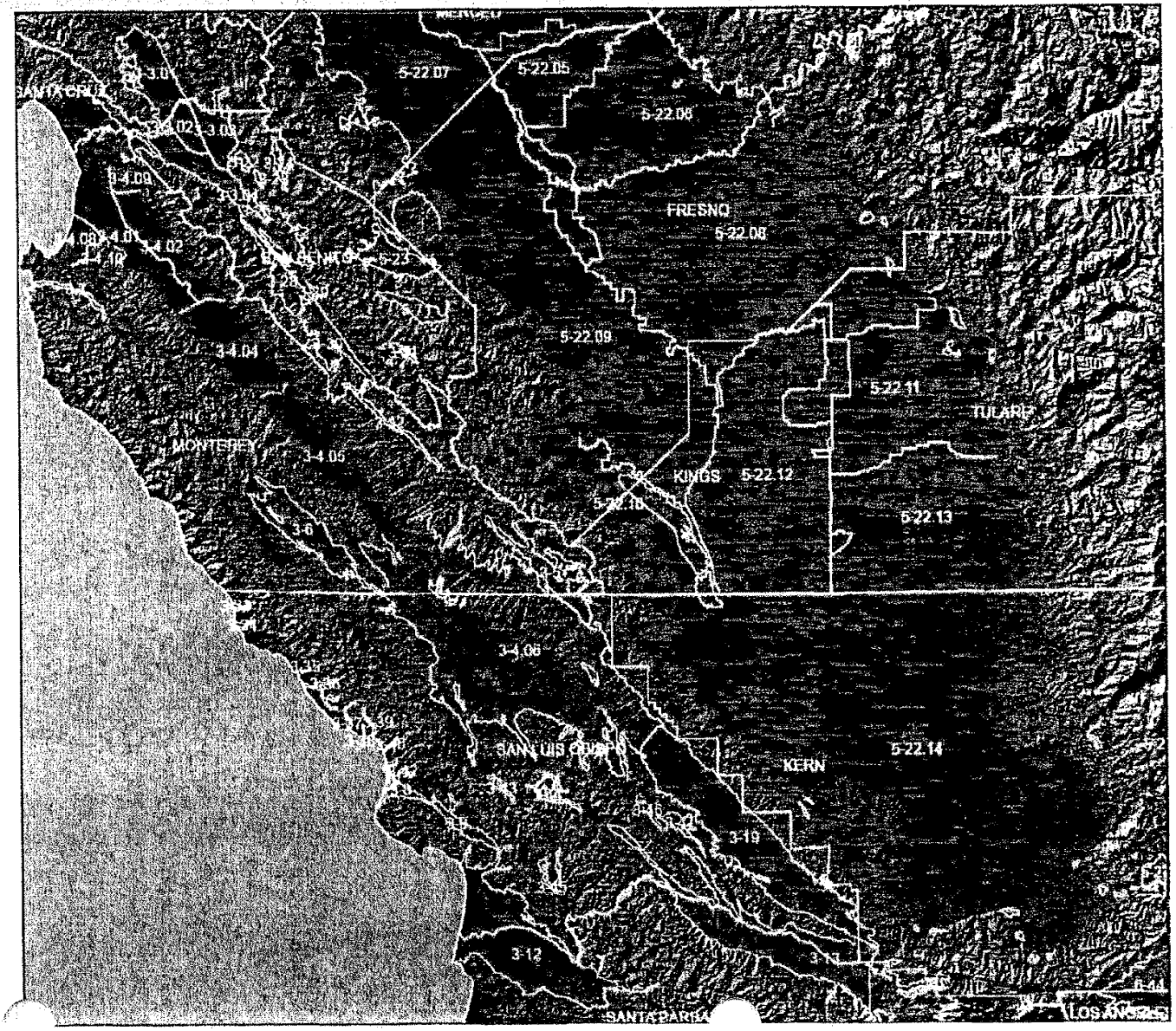
Motivation

- Nitrate most common groundwater pollutant
- Tulare Lake Basin and Salinas Valley among most affected groundwater basins in CA
- Domestic well water typically untreated / unknown quality
- High nitrate costly to treat for small / disadvantaged communities

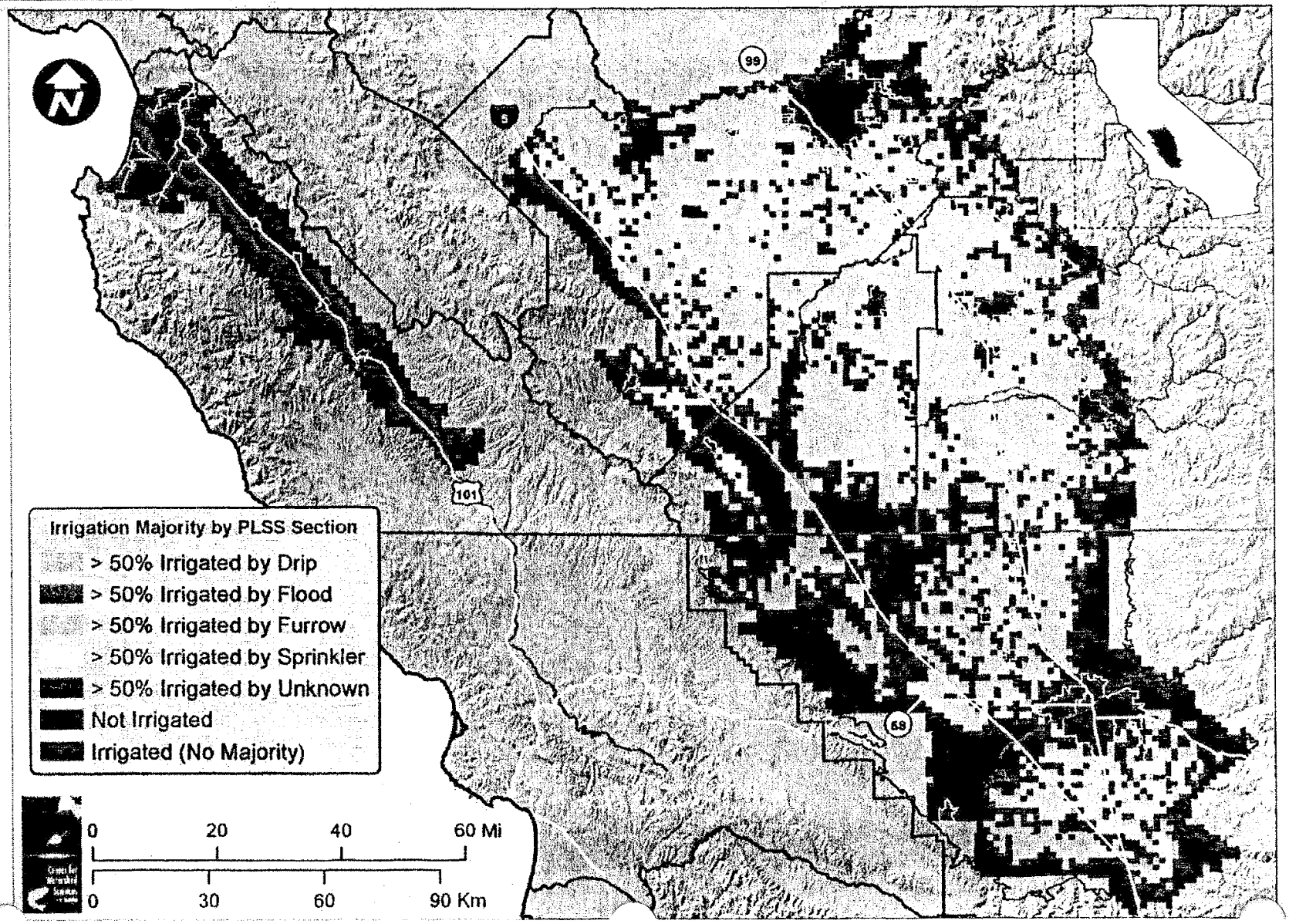


How can this be best fixed?

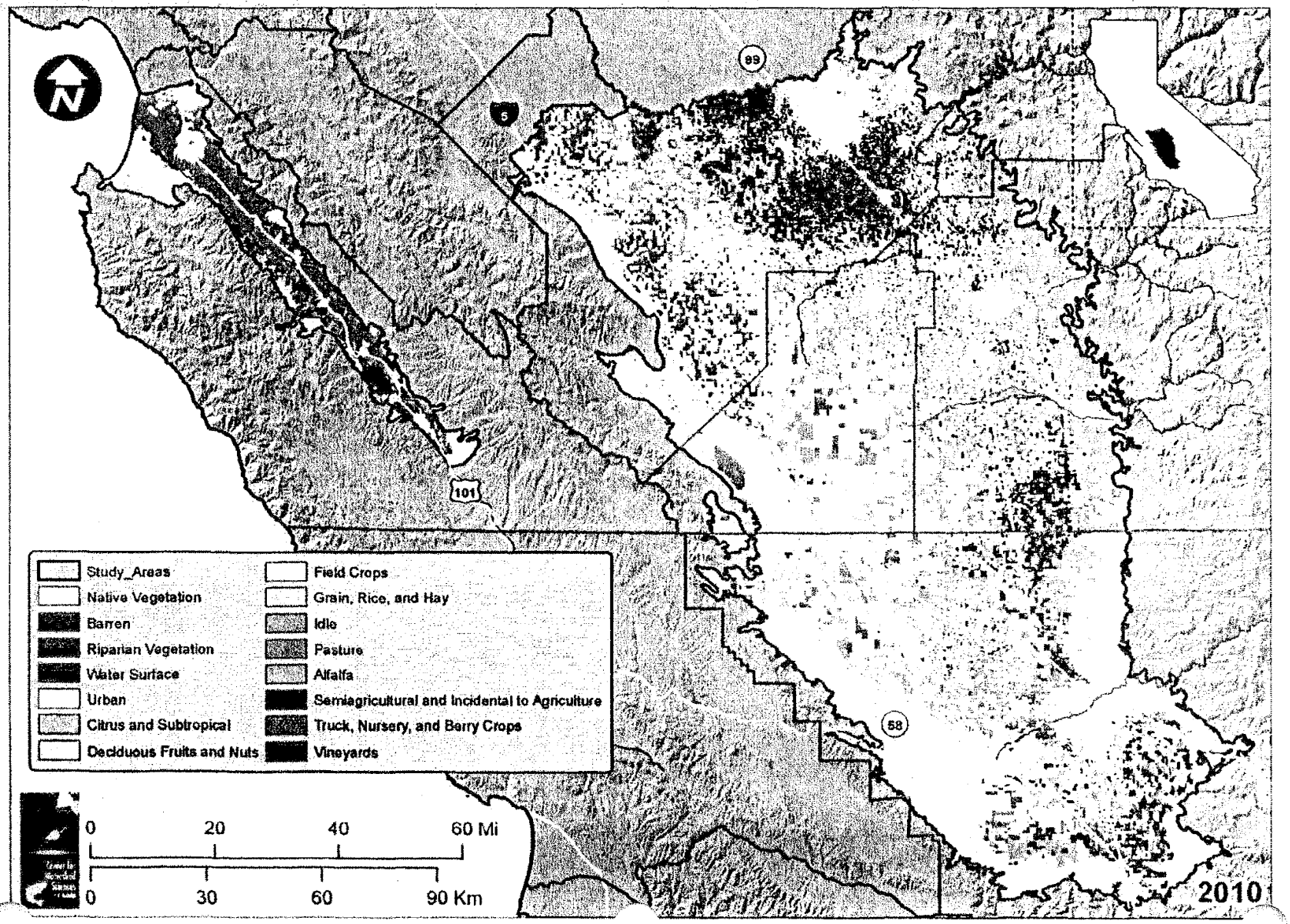
Project Area



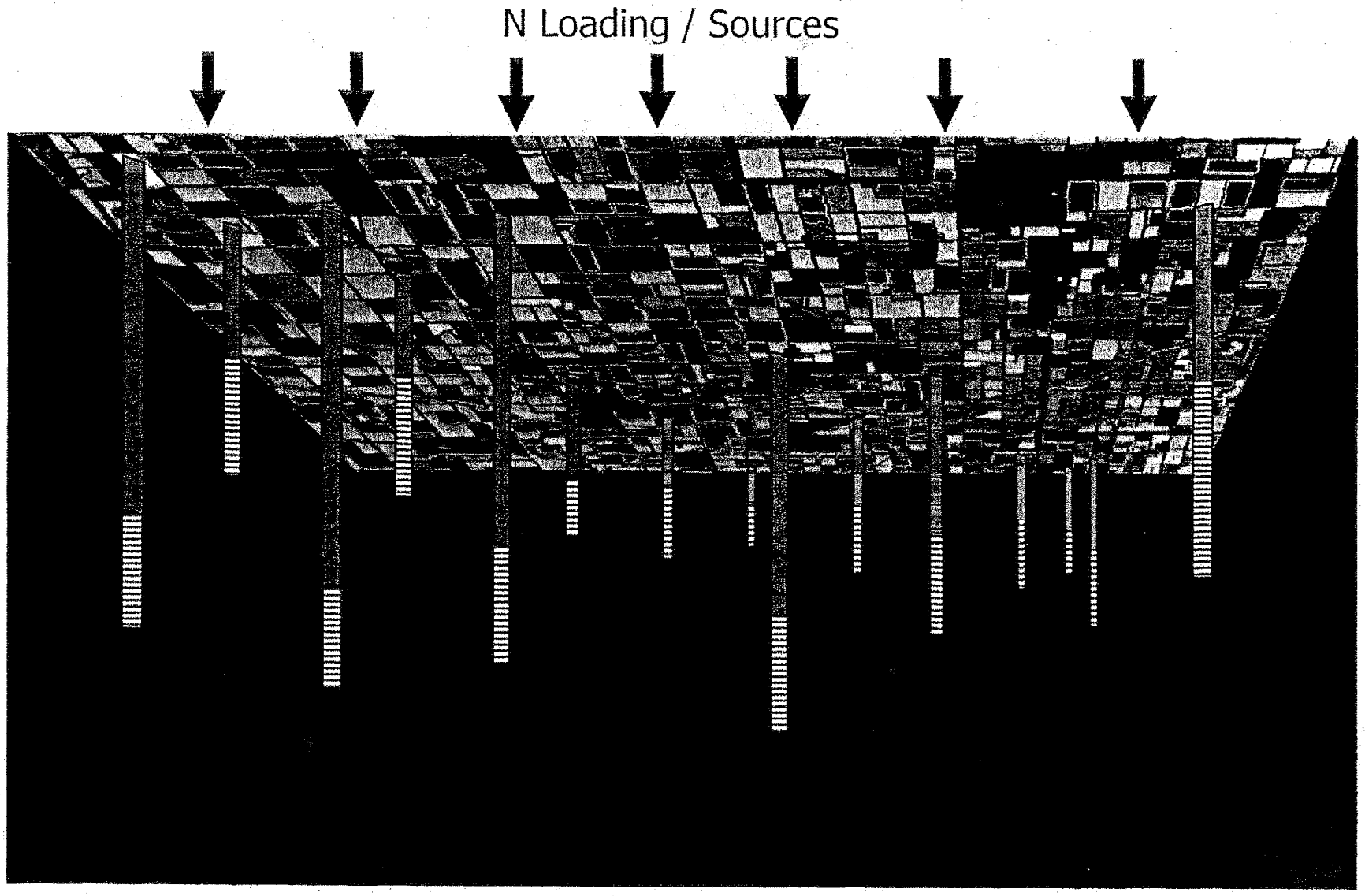
Irrigated Areas



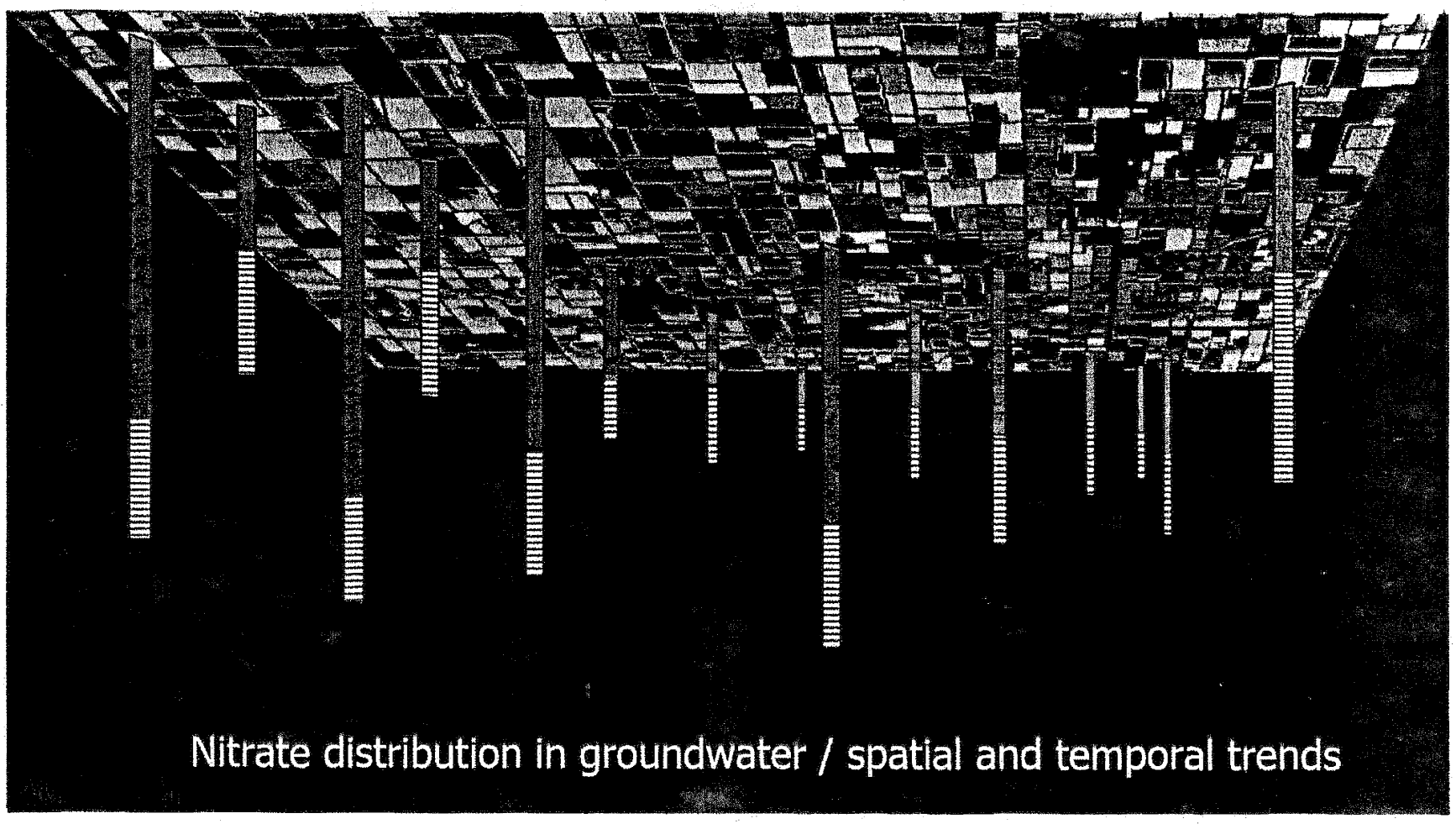
Landuse


N
5
99
101
58
Study_Areas
Native Vegetation
Barren
Riparian Vegetation
Water Surface
Urban
Citrus and Subtropical
Deciduous Fruits and Nuts
Field Crops
Grain, Rice, and Hay
Idle
Pasture
Alfalfa
Semiagricultural and Incidental to Agriculture
Truck, Nursery, and Berry Crops
Vineyards
0 20 40 60 Mi
0 30 60 90 Km
2010

Key Study Outcomes: Assessment

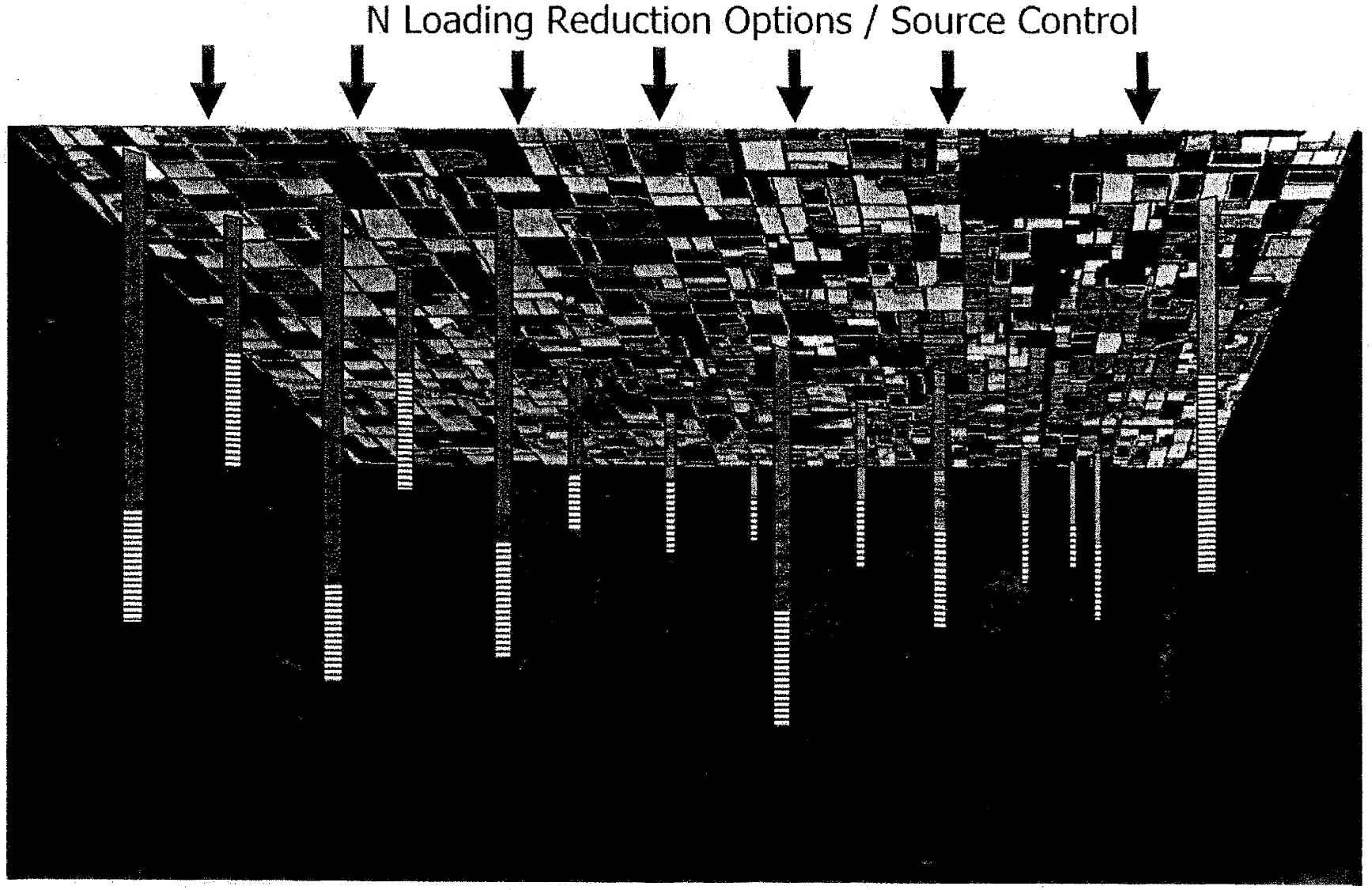


Key Study Outcomes: Assessment

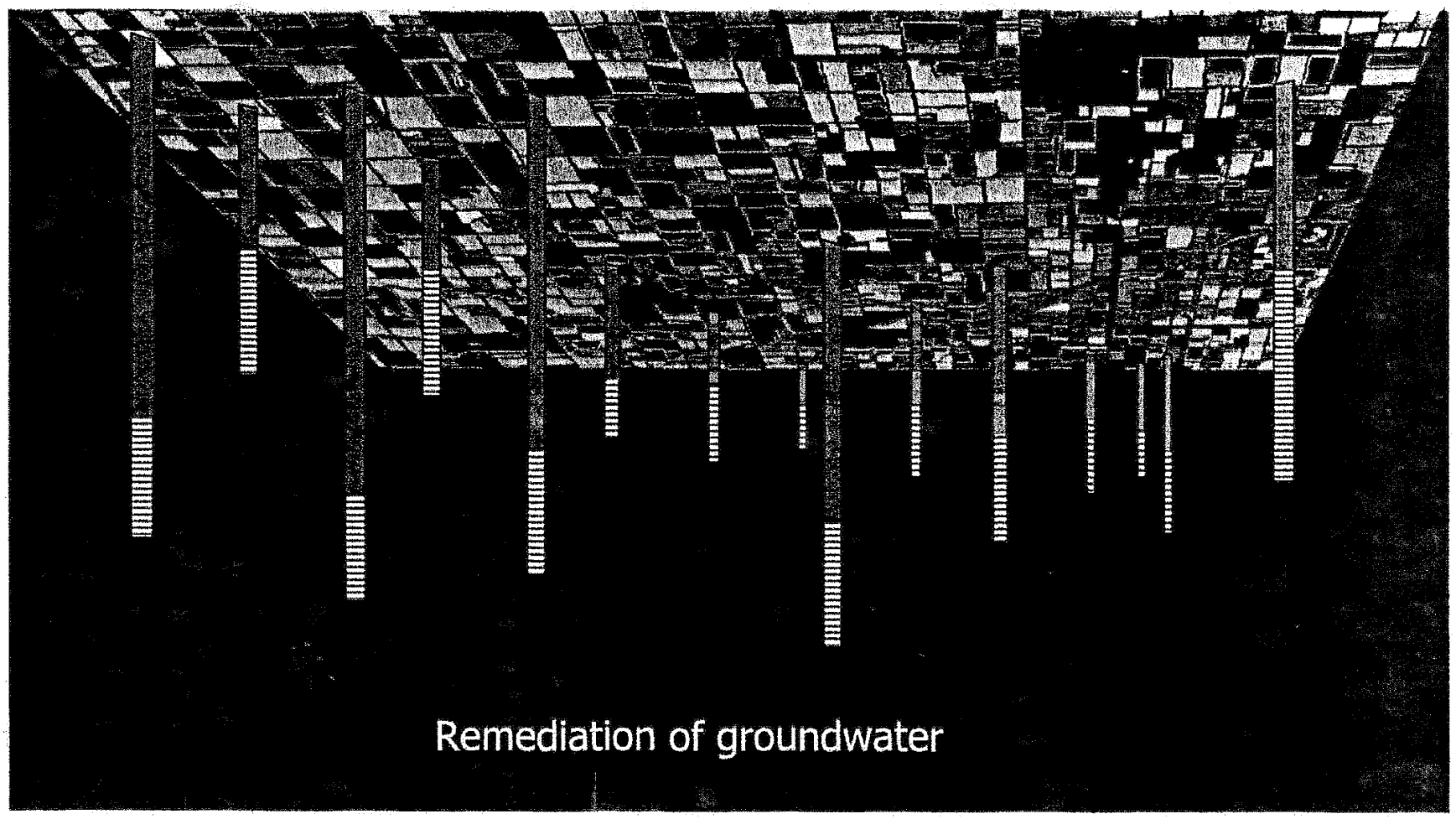


Nitrate distribution in groundwater / spatial and temporal trends

Key Study Outcomes: Actions



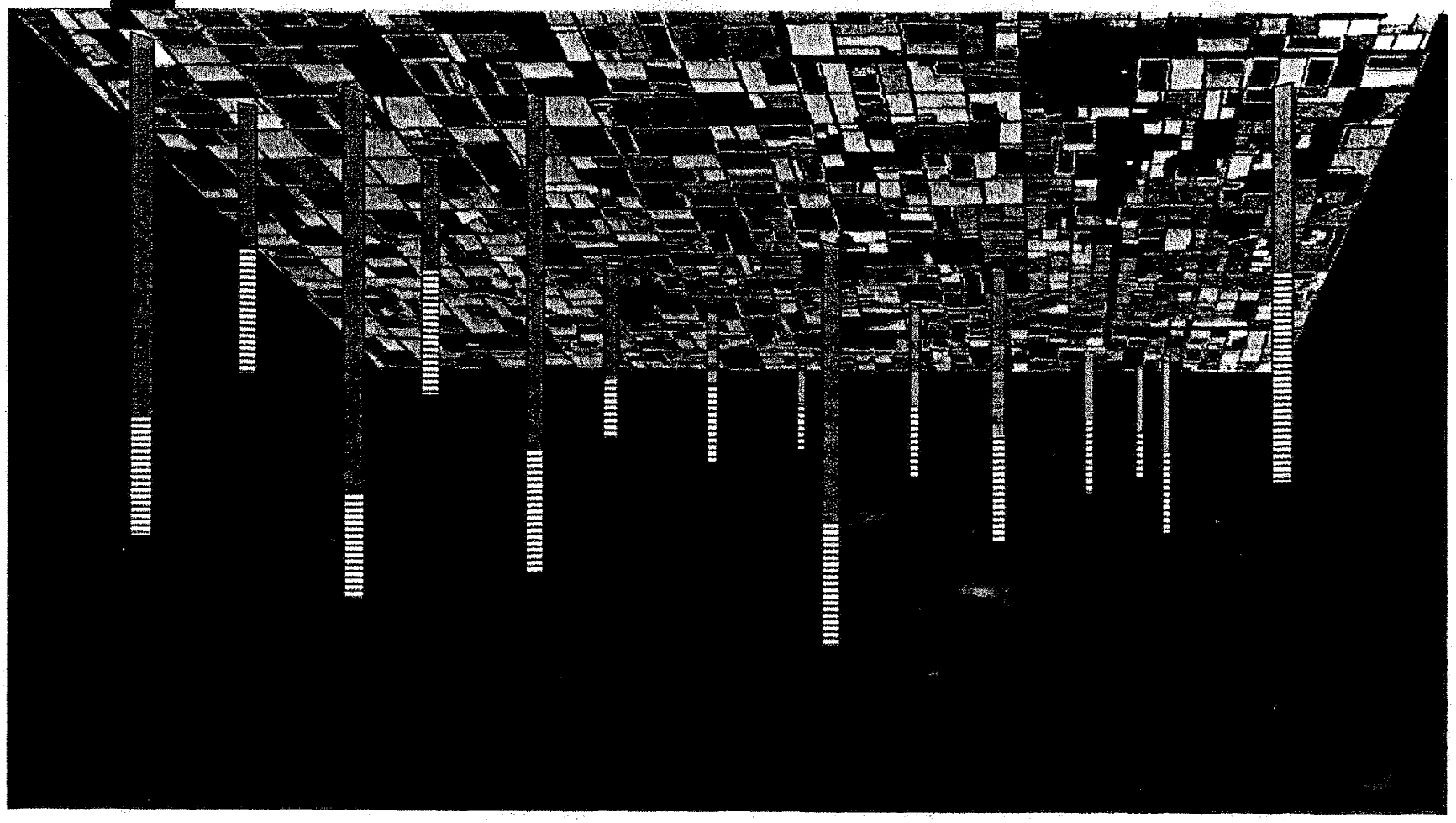
Key Study Outcomes: Actions



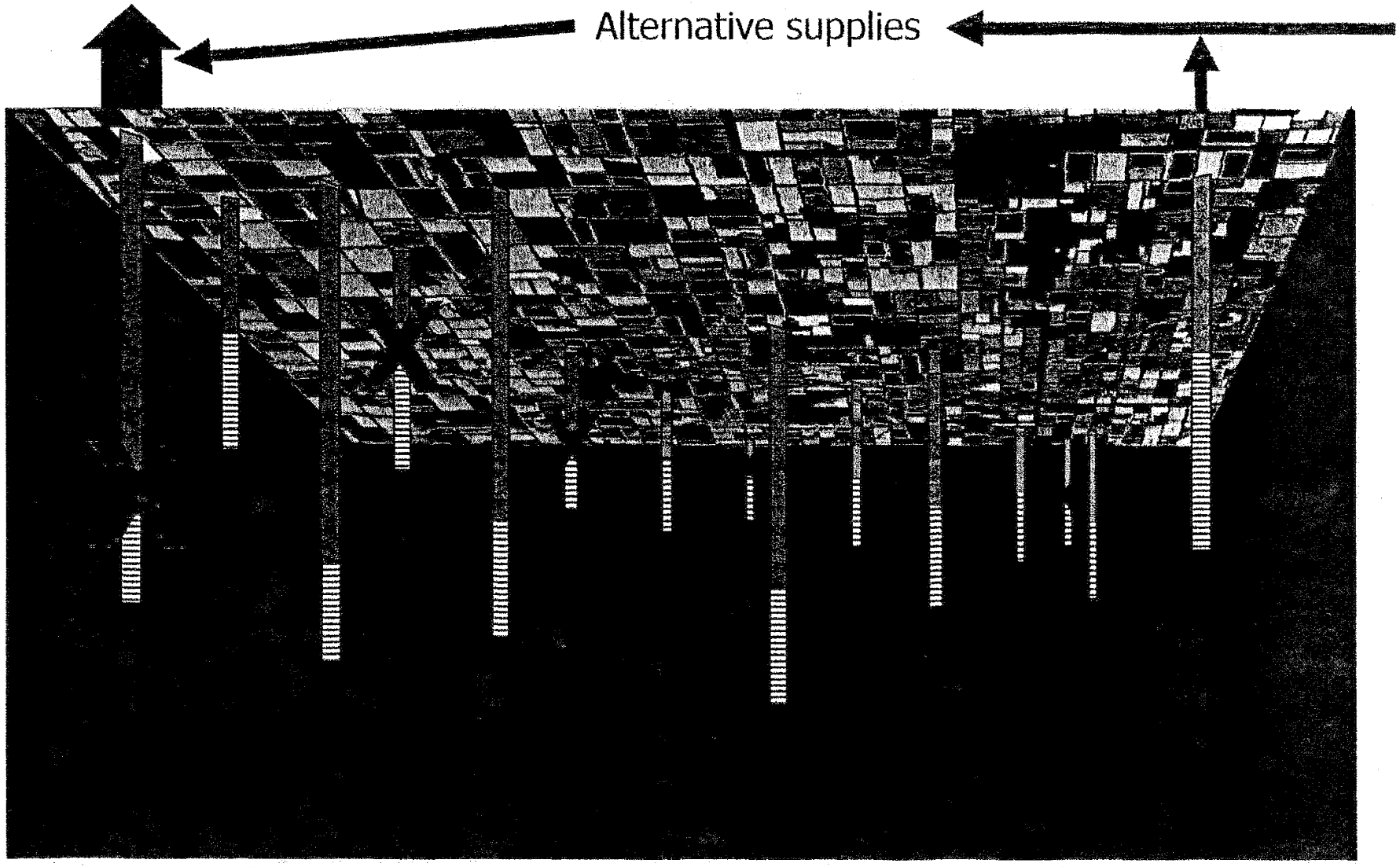
Remediation of groundwater

Key Study Outcomes: Actions

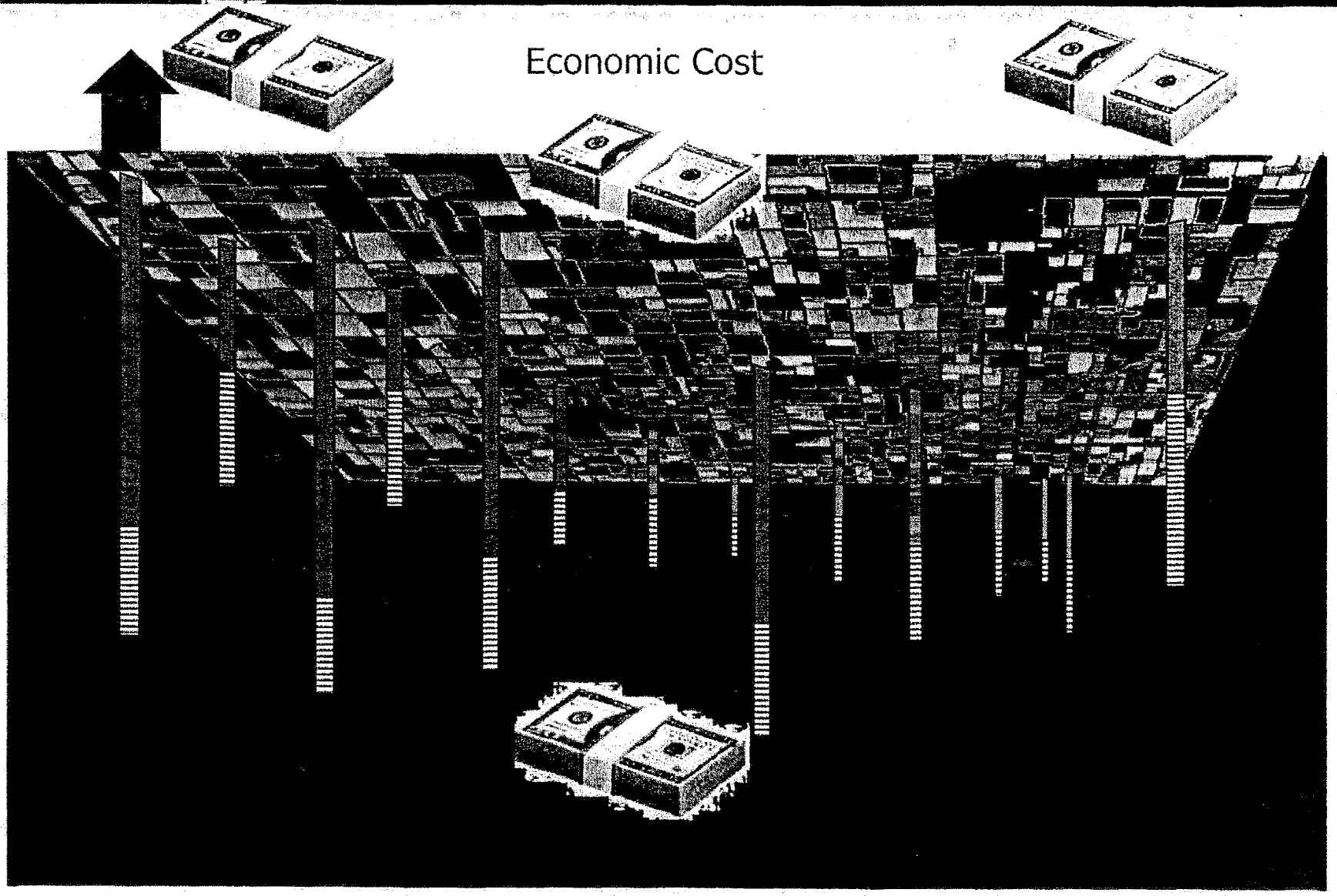
N treatment options



Key Study Outcomes: Actions

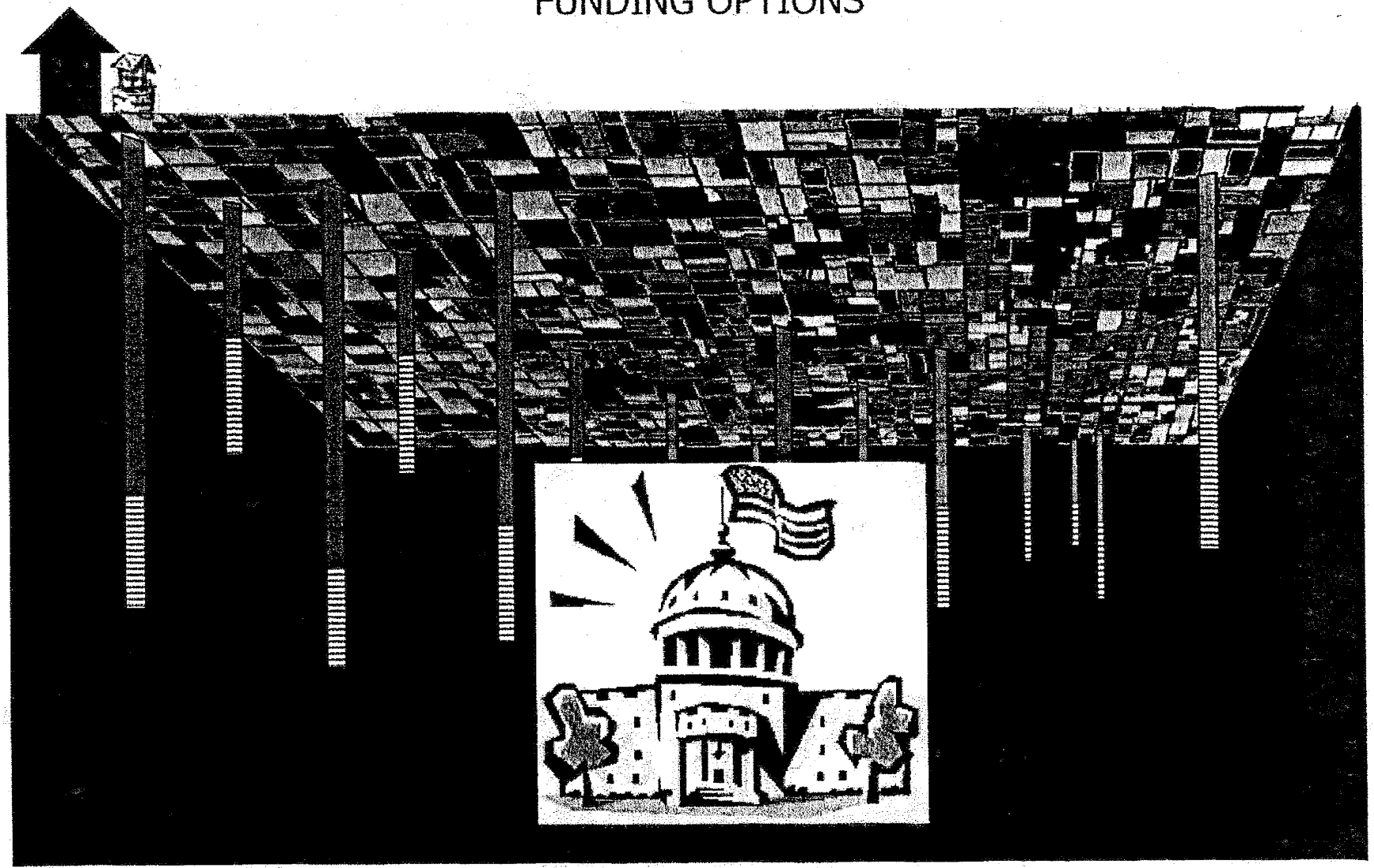


Key Study Outcomes: Costs



Key Study Outcomes: Funding

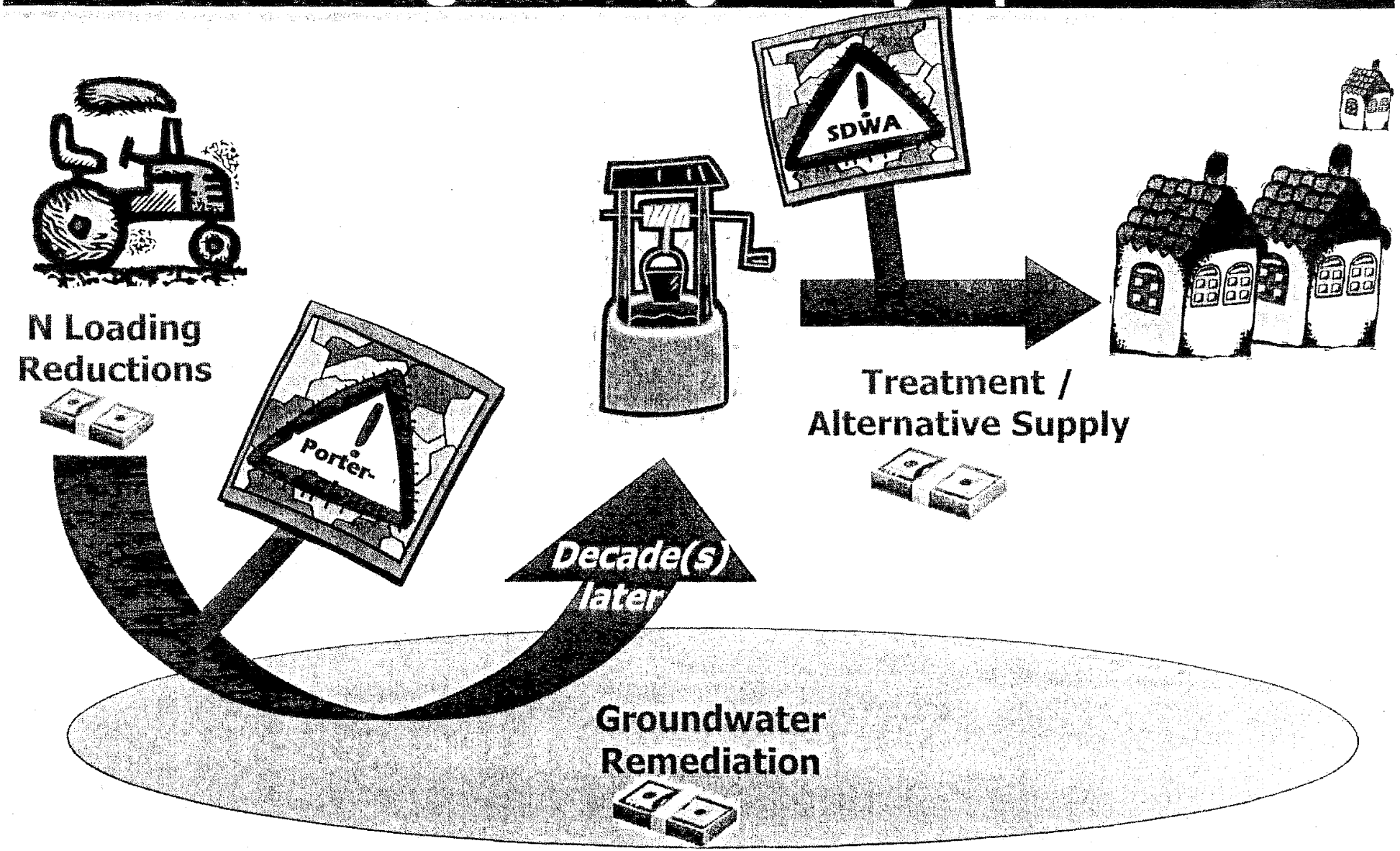
FUNDING OPTIONS



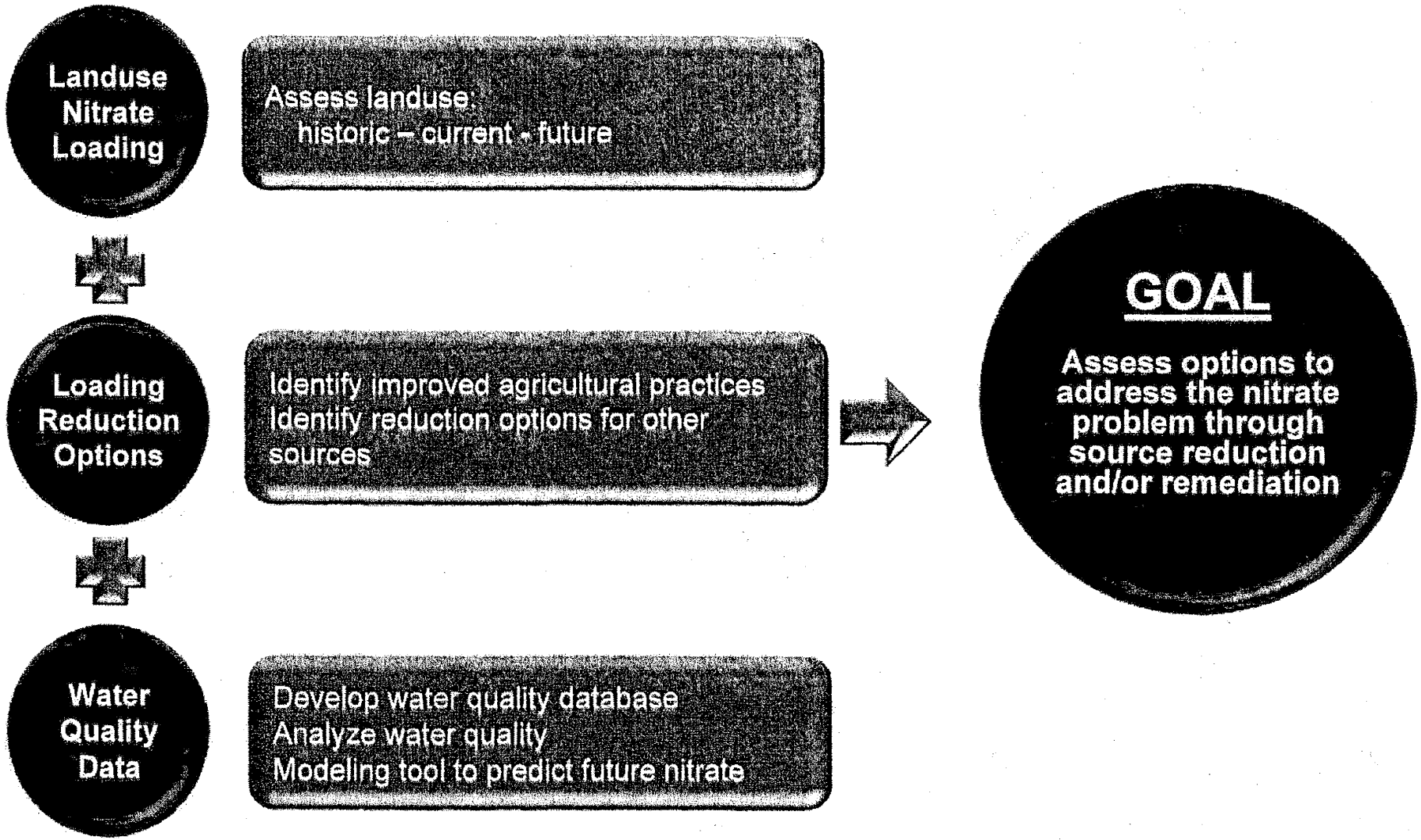
Key Messages

- Nitrate problem will likely worsen and not improve for several decades
- Largest regional sources are agricultural fertilizers and animal wastes; other sources are locally relevant
- Nitrogen loading reductions possible, but will take decades to benefit drinking water sources
- Short-term solutions are blending, treatment, and alternative water supplies
- Treatment is unaffordable for most small communities
- Promising funding options, incentives, and regulatory tools are identified
- Incoherence and inaccessibility of data prohibit better and continuous assessment

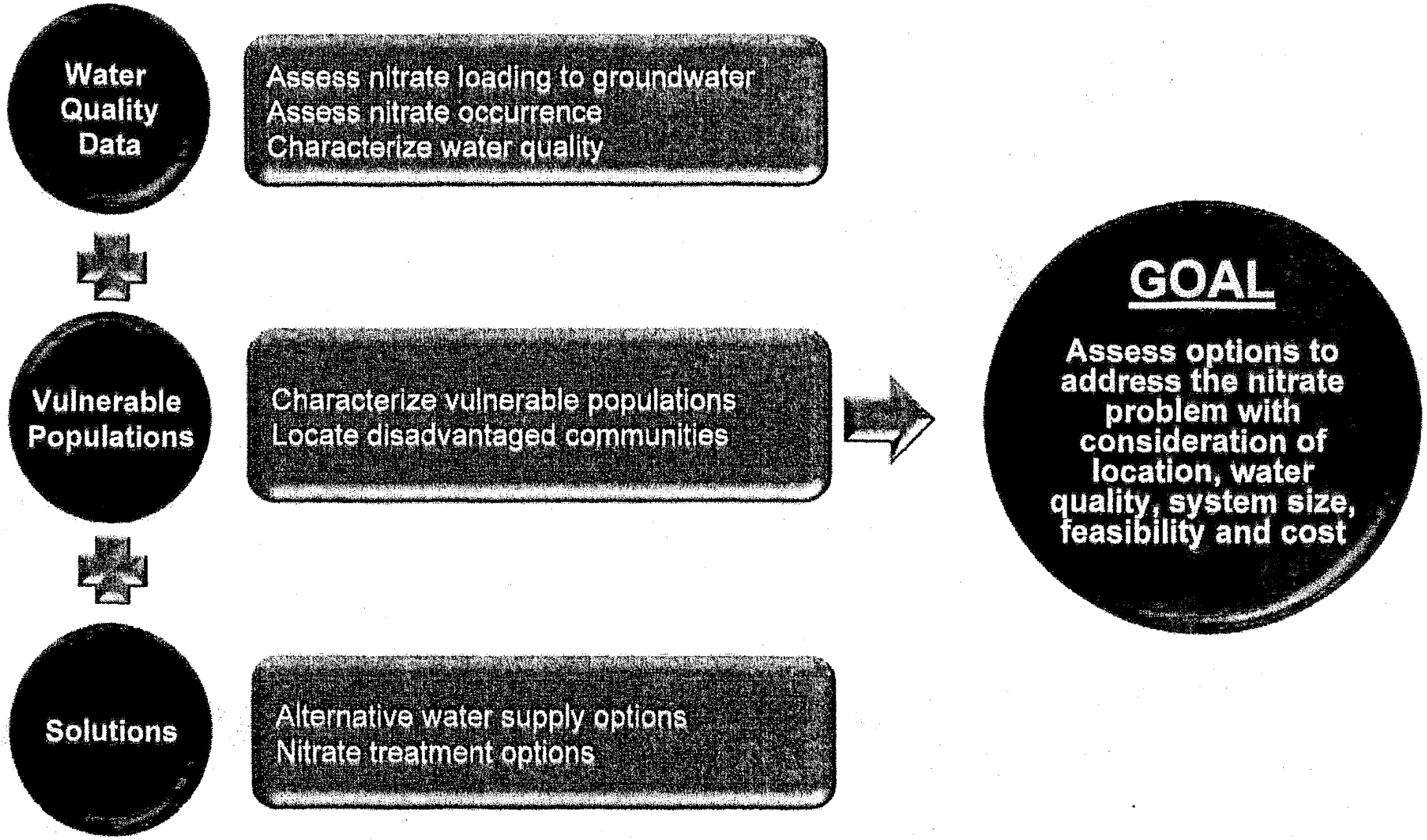
Framework for Funding and Regulatory Options



Overview: Contamination Mgmt.



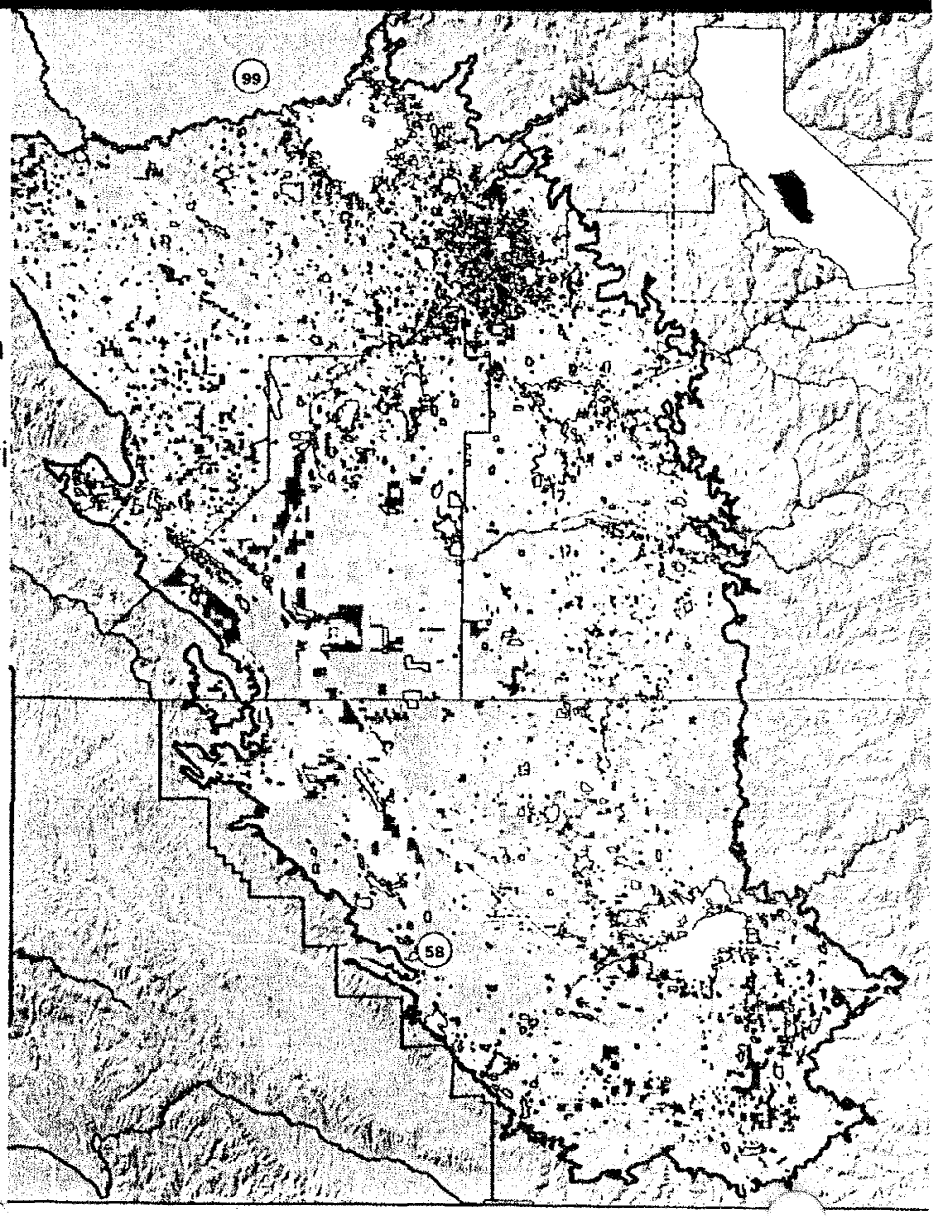
Overview: Drinking Water Mgmt.



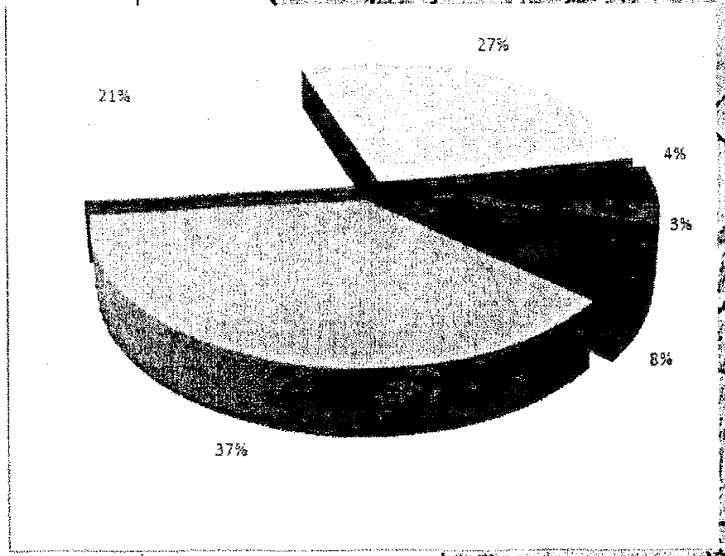
N Loading, Fertilizer

- Time Frame(s):
  - 2000-2010
- Methods:
  - Land Use Estimates (CAML 2.0)
    - Farmland Mapping Monitoring Program
    - DWR by county (date varies)
    - Cropland Data Layer from National Agri
    - CDF Multisource Land Cover (2002)
- Results:

Study Basin	Potential N Load Leached (Mg/yr)
Salinas Valley	9,688
Tulare Lake Basin	84,775



Fertilizer Loading Reduction Necessary to ~ Meet MCL



Major Roads
Study Areas
Urban
35 Kg NO_3^--N/ha/yr with a 0-10% reduction in applied fertilizer
35 Kg NO_3^--N/ha/yr with a 10-20% reduction in applied fertilizer
35 Kg NO_3^--N/ha/yr with a 20-30% reduction in applied fertilizer
35 Kg NO_3^--N/ha/yr with a 30-40% reduction in applied fertilizer
35 Kg NO_3^--N/ha/yr with a 40-50% reduction in applied fertilizer
35 Kg NO_3^--N/ha/yr with a 50%+ reduction in applied fertilizer

0 20 40 60 Mi
0 30 60 90 Km

Surface Discharges

Metric Tons (Mg) of N Applied Annually in facility discharge

	WWTP (90%)	WWTP (est. 100%)	FP (reported)	FP (est. max)
By County				
Fresno	2,344	2,604	303	674
Kern	913	1,014	455	1,010
Kings	121	134	167	372
Tulare	1,583	1,759	91	203
Monterey	313	348	15	33
Basin				
TLB	4,961	5,511	1,016	2,259
SVB	313	348	15	33
Total	5,274	5,859	1,031	2,292

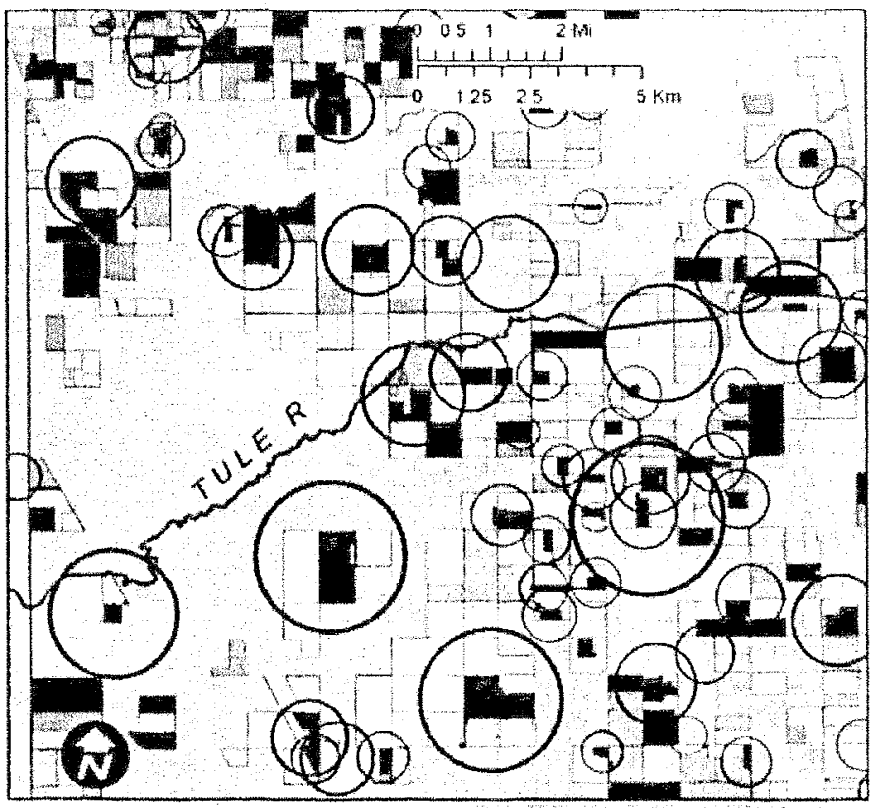
These are preliminary estimates and do NOT include applied solids.

Animal Sources

Preliminary

dairy N loading to land application: 114,000 Mg/yr

dairy N loading directly via corrals and lagoons: 1,000 Mg/yr



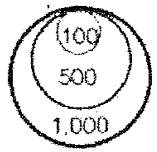
Dairy Sources of N by Amount Produced and Applied with Parcels By Crop Type

Parcels With Dairy N applied

Crop Type (% of total)

Corn	33%
Alfalfa	21%
Cotton	10%
Dairy	8%
Native	8%
Grain	6%
All Other	13%

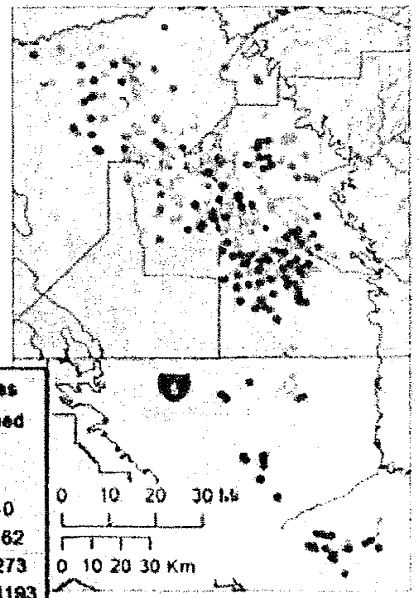
Dairy Sources Mg N per year



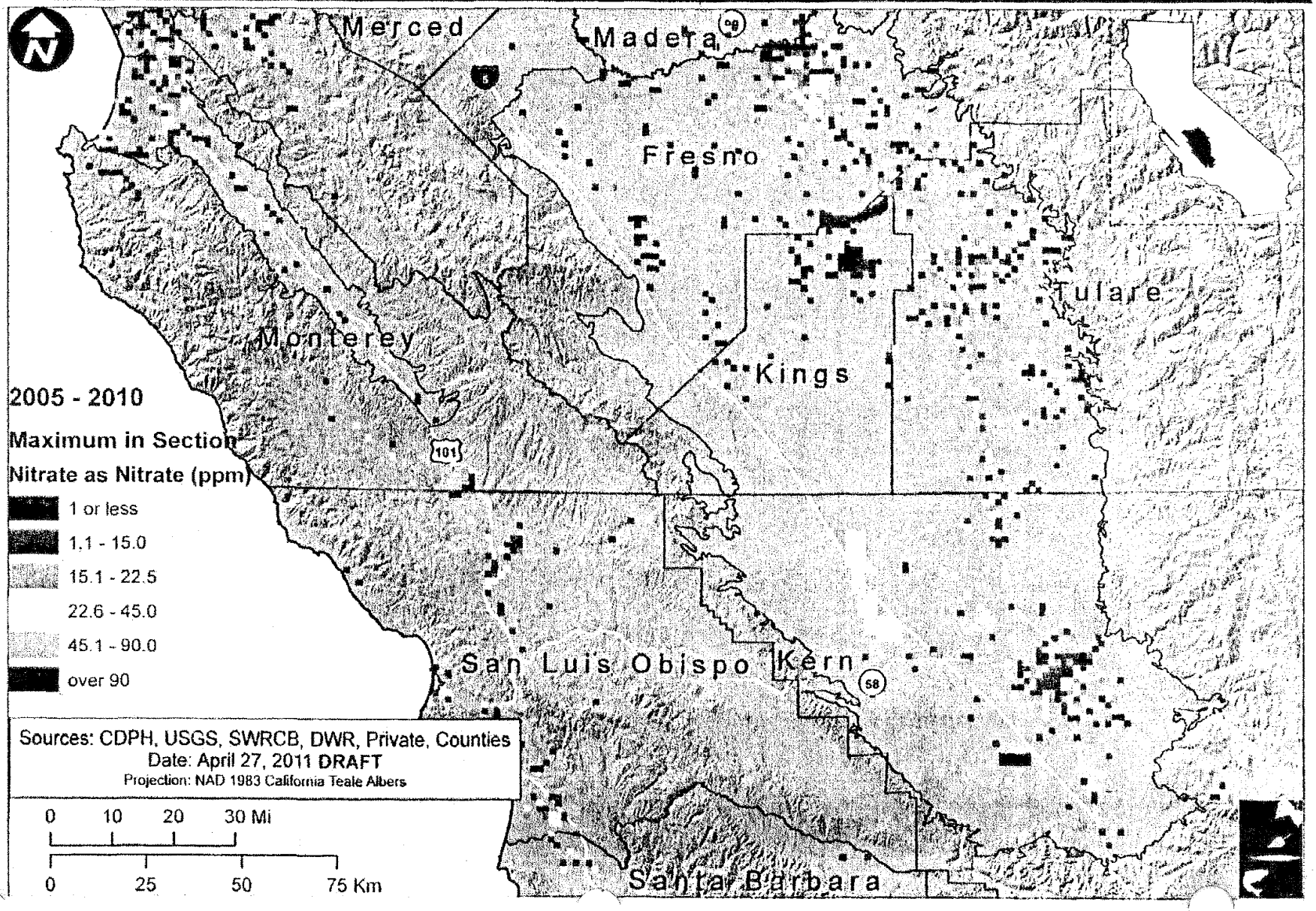
Source
Harter et al unpublished 2010
Date: April 27 2011 DRAFT
Projection: NAD 1983 California Teale Albers

Dairy Sources Total N applied Mg/yr

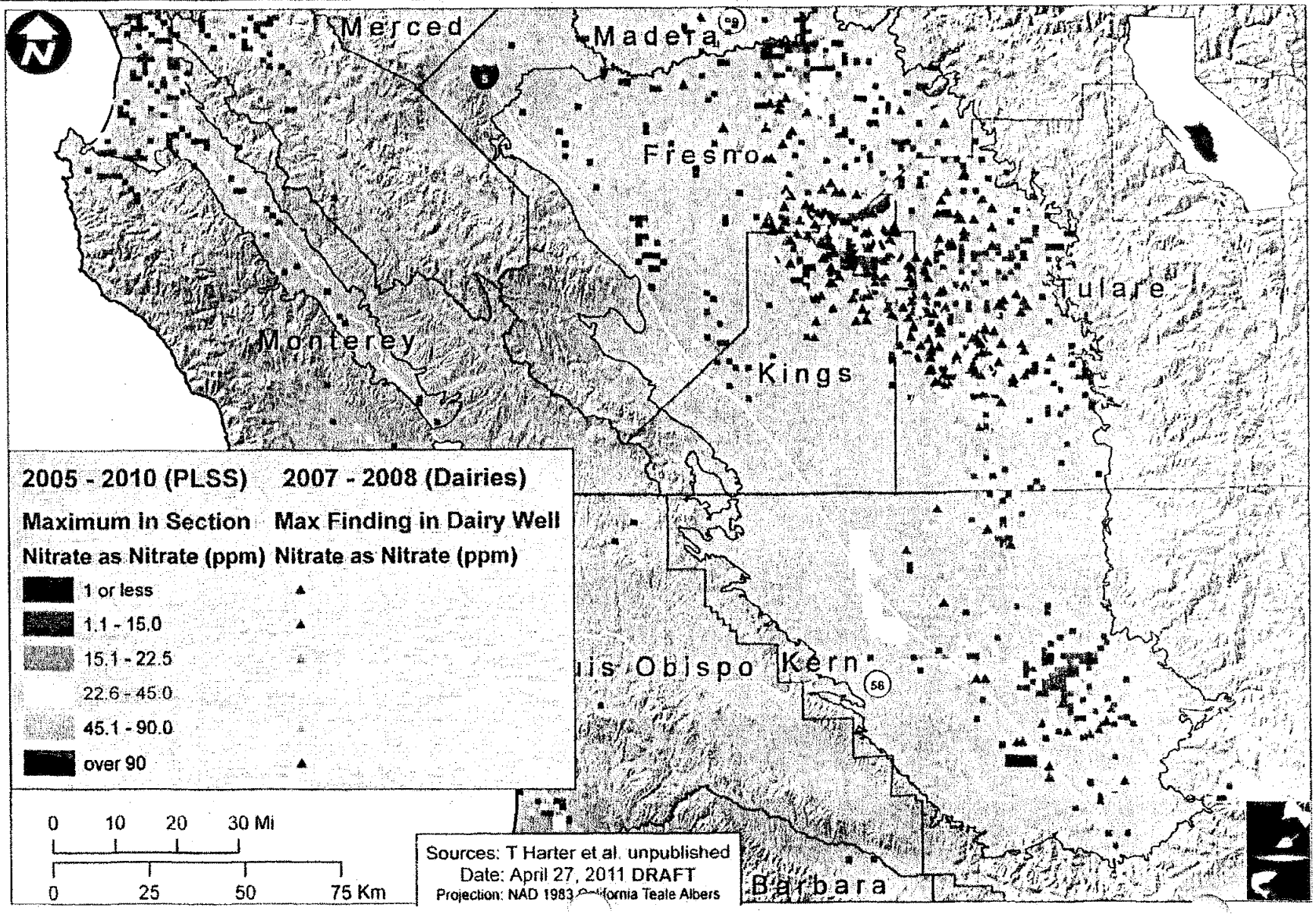
- 6 - 63
- 64 - 110
- 111 - 162
- 163 - 273
- 274 - 1193



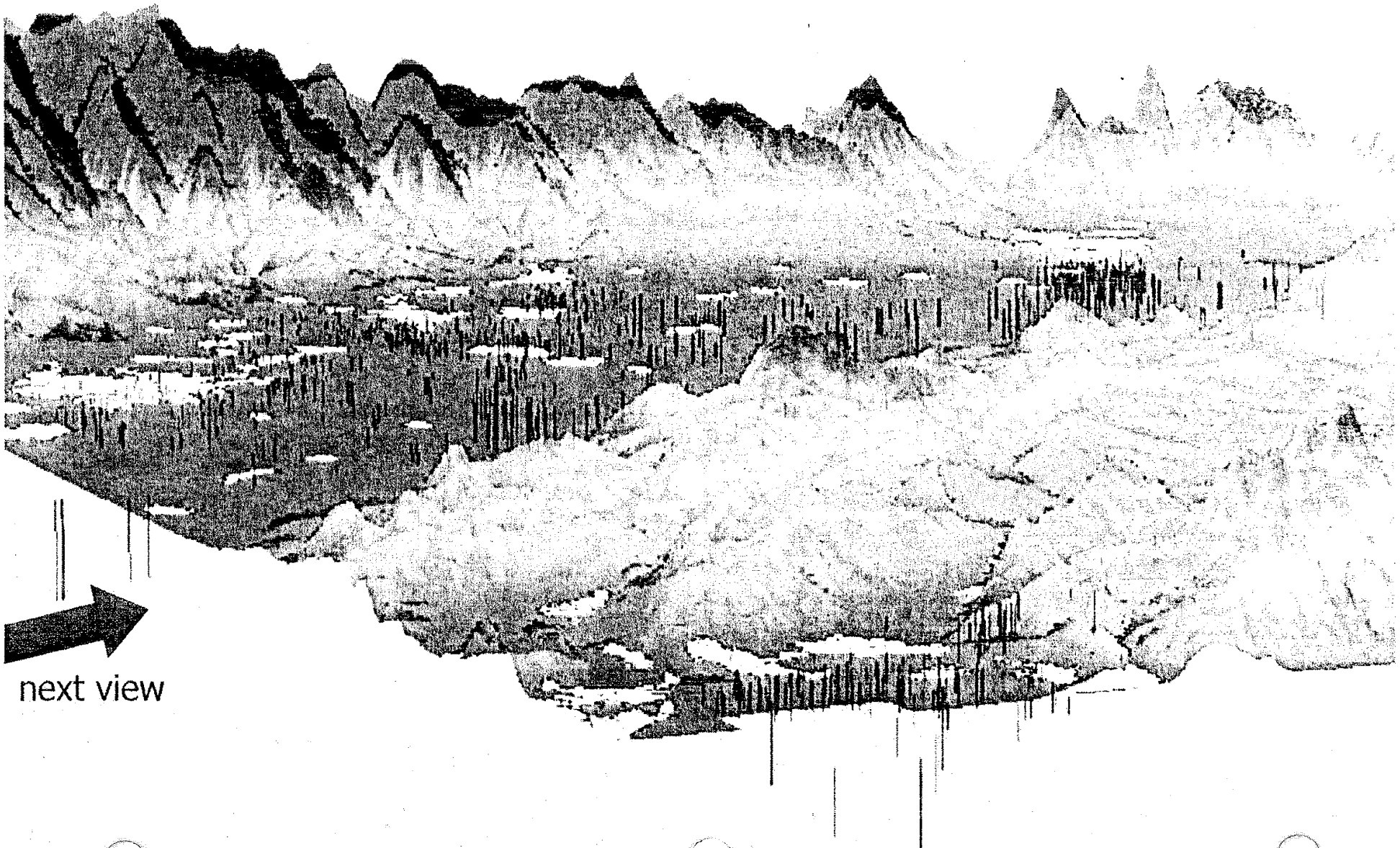
Maximum: Non-Dairy



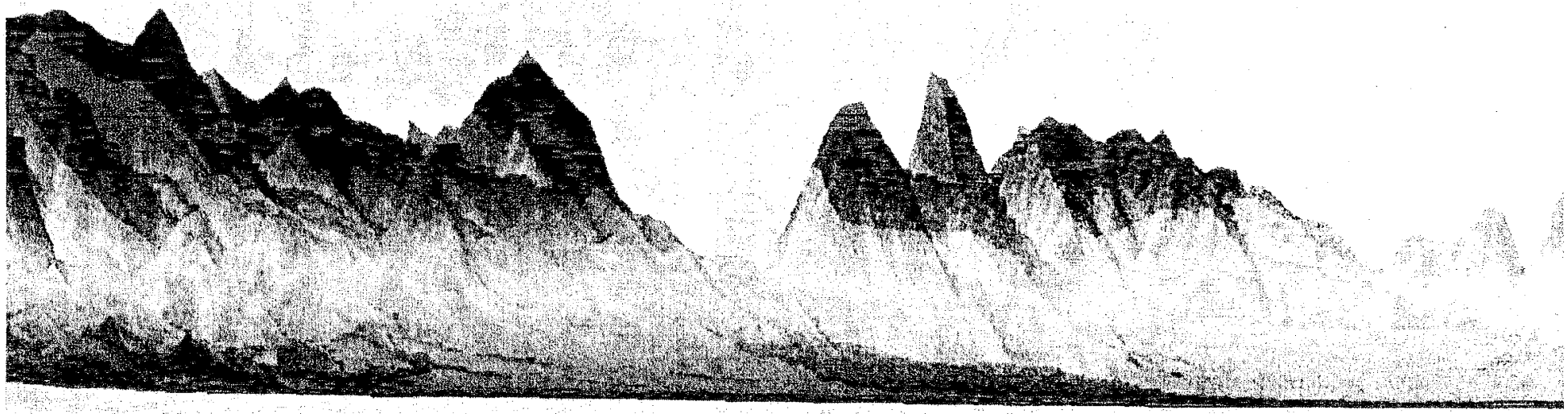
Maximum: Non-Dairy, Dairy



TLB Nitrate View to SE



TLB Nitrate View to SSE

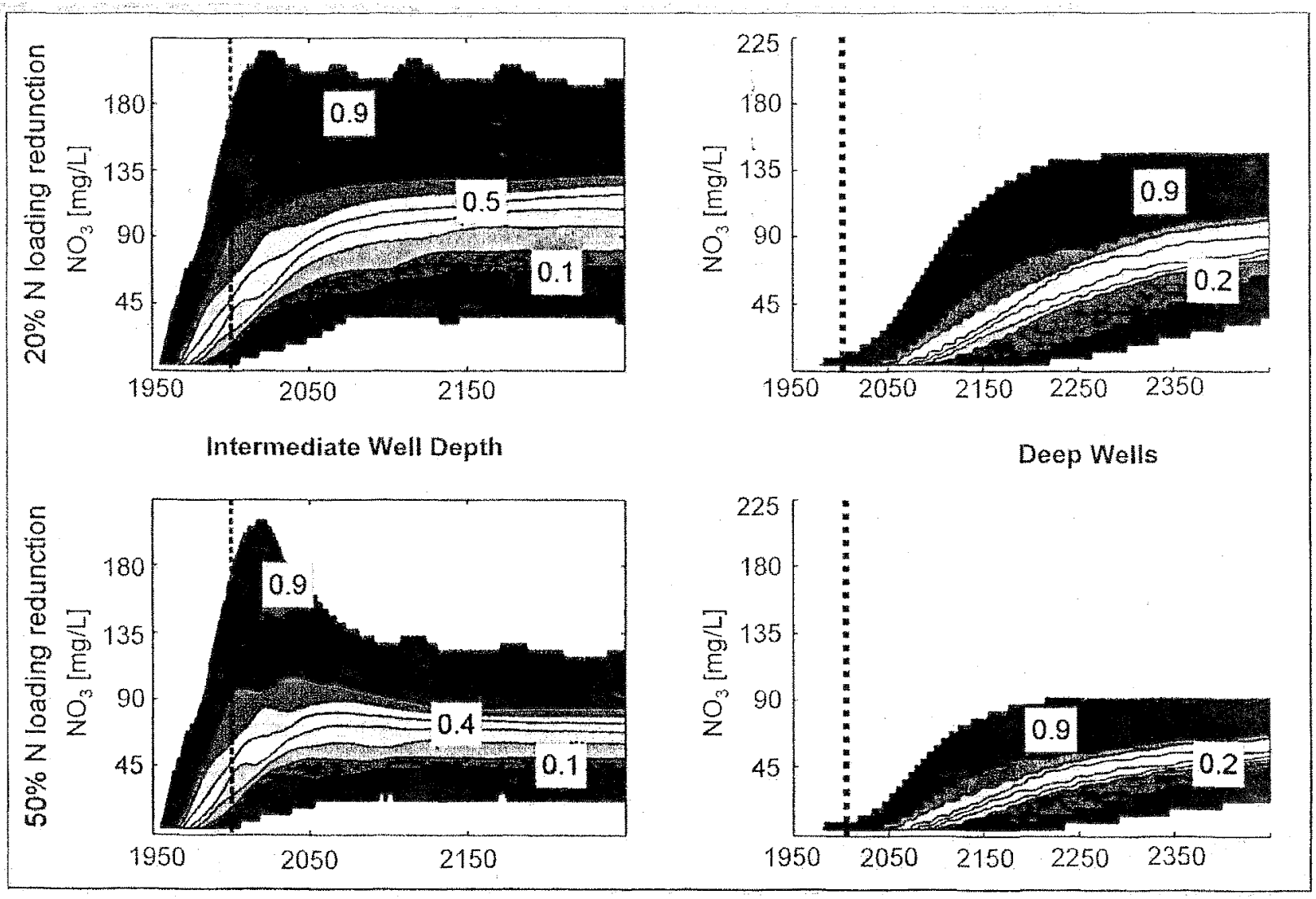


Nitrate in Wells: Long-Term Trends

	Mean Change [mg/L/yr]	Conf. Interval -95%	Conf. interval +95%
Tulare Lake Basin (Tulare County) Public Supply Wells, 1970s-current[1]	0.27 (0.41)	0.17 (0.22)	0.36 (0.59)
Salinas Valley Public Supply Wells, 1970s-current[1]	0.53	0.31	0.77
Salinas Valley Dedicated Monitoring Wells, 1990-current	2.04	1.25	2.82

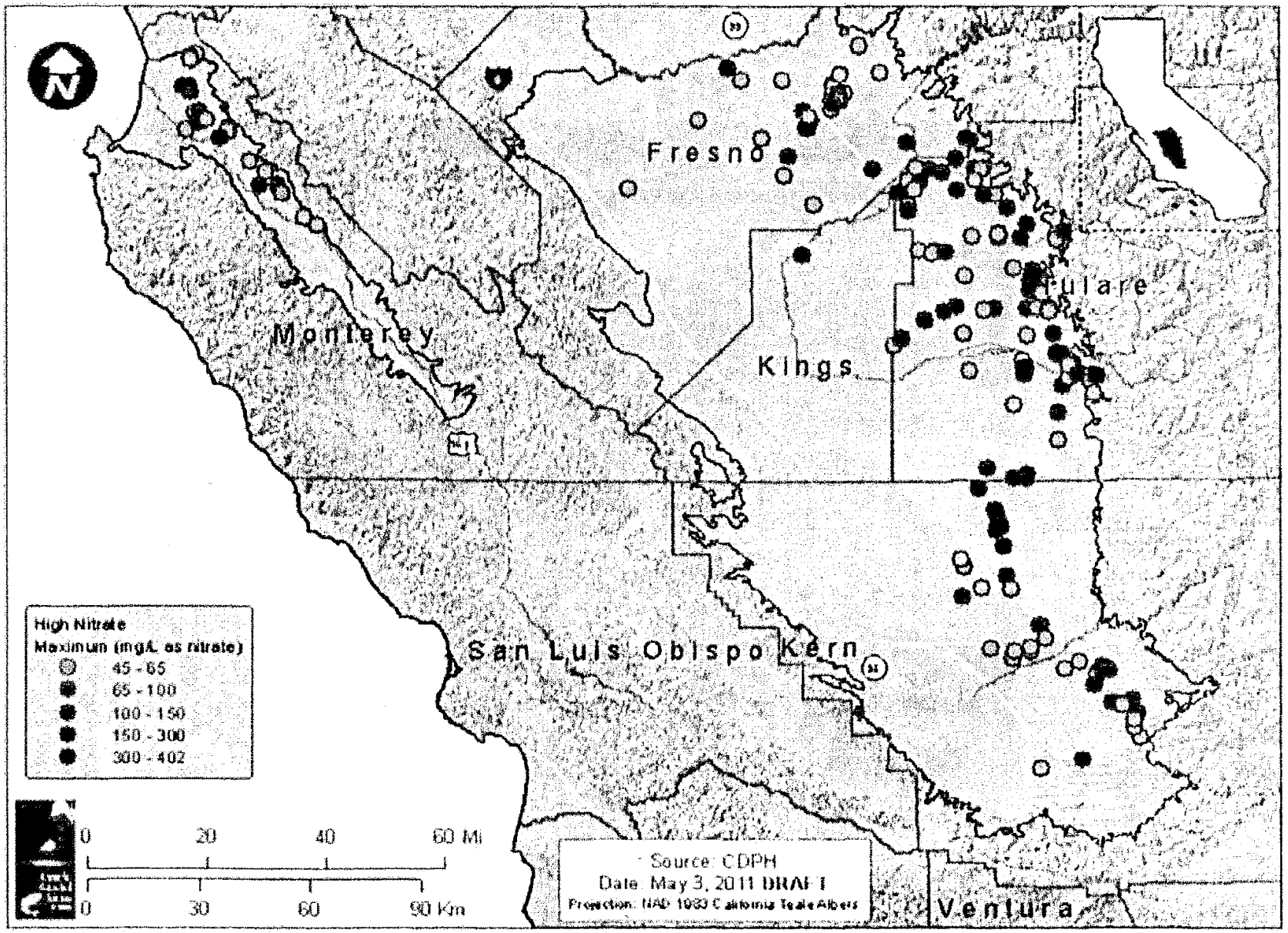
[1]underlying data: all public water supply well data

Future model predictions

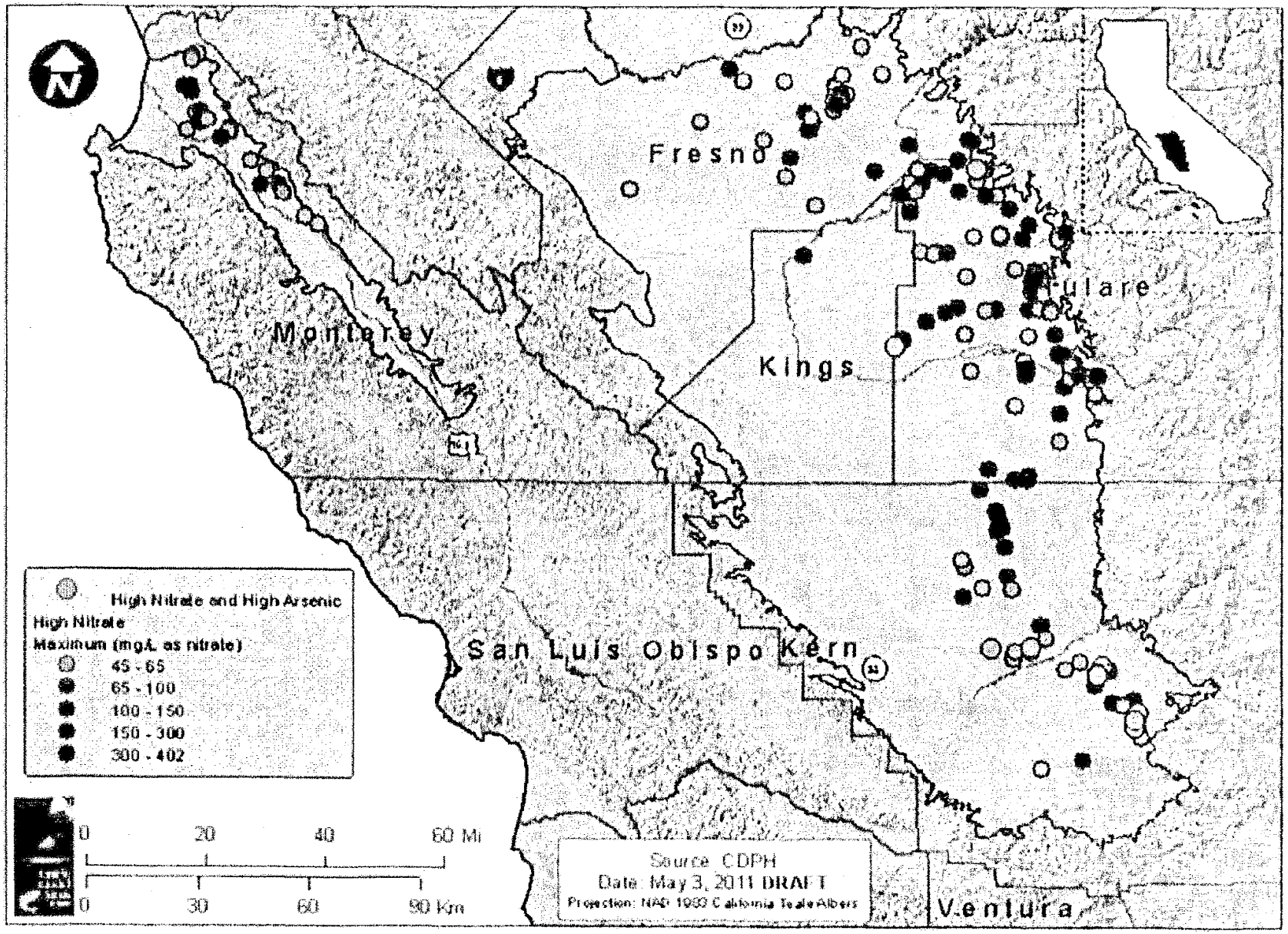


Preliminary modeling results for conceptual illustration only,
subject to further model adjustment and calibration

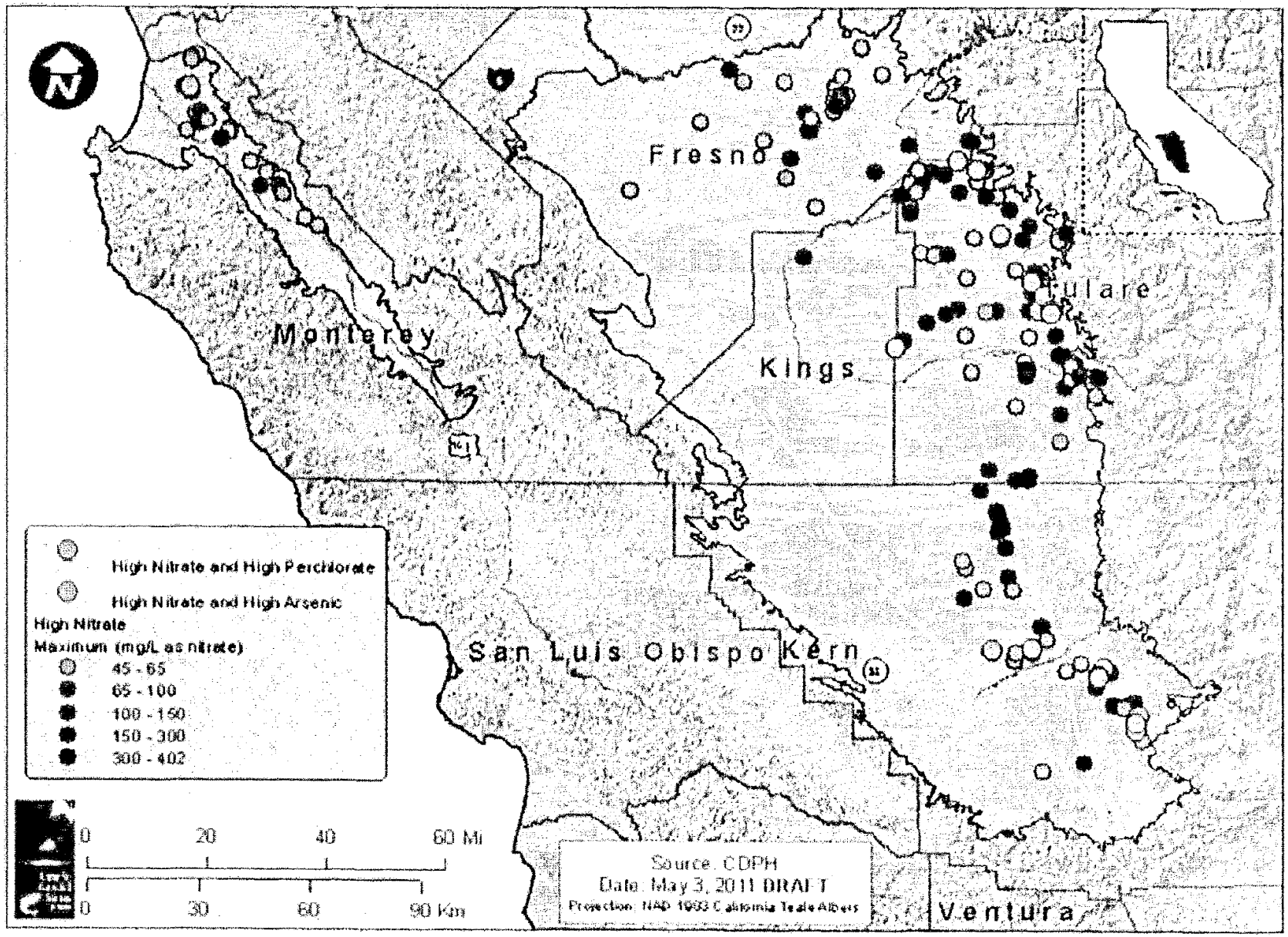
Raw Water Nitrate Levels Exceeding the MCL (45 mg/L as nitrate)
and Consideration of Co-contaminants



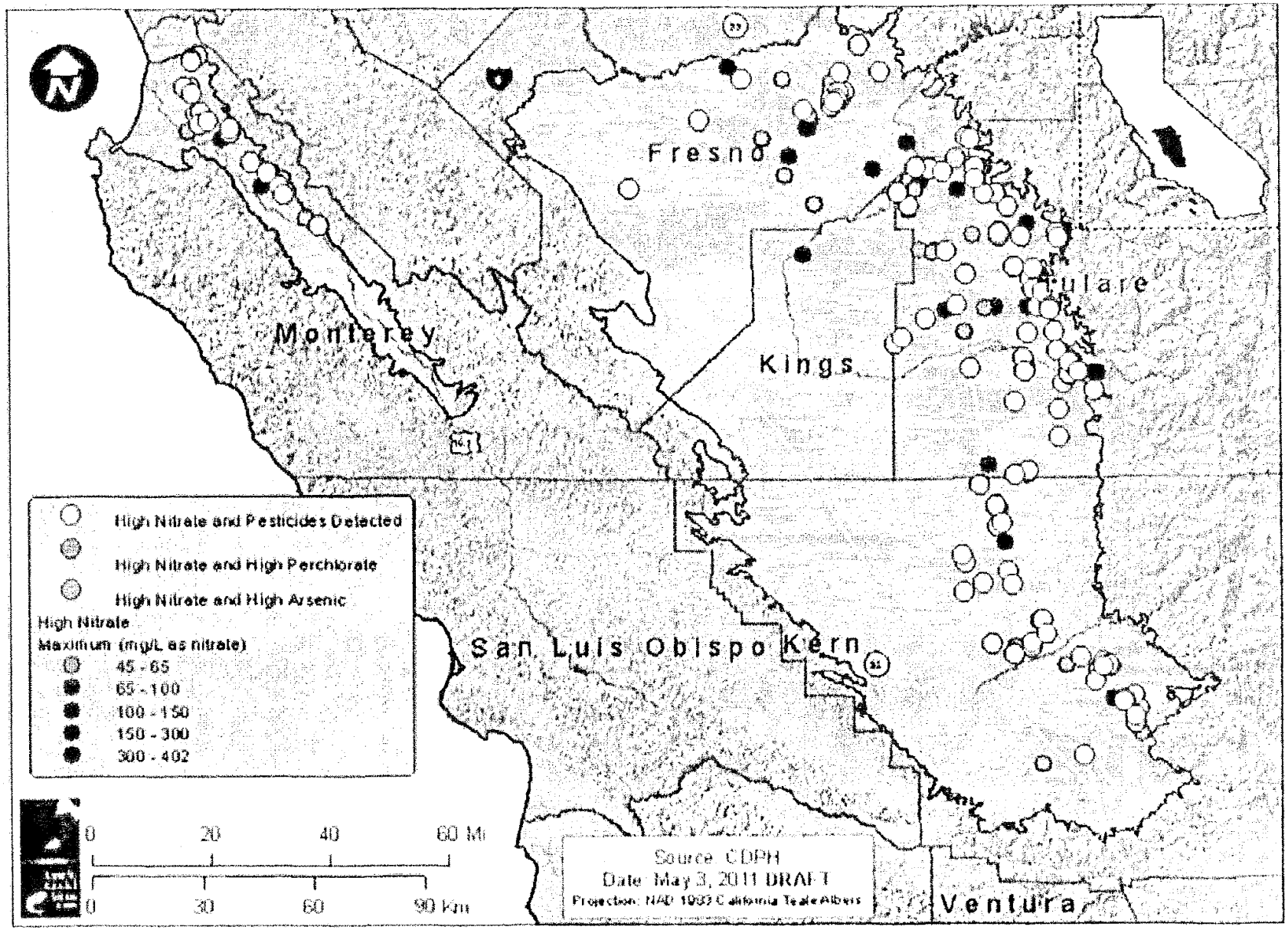
Raw Water Nitrate Levels Exceeding the MCL (45 mg/L as nitrate) and Consideration of Co-contaminants



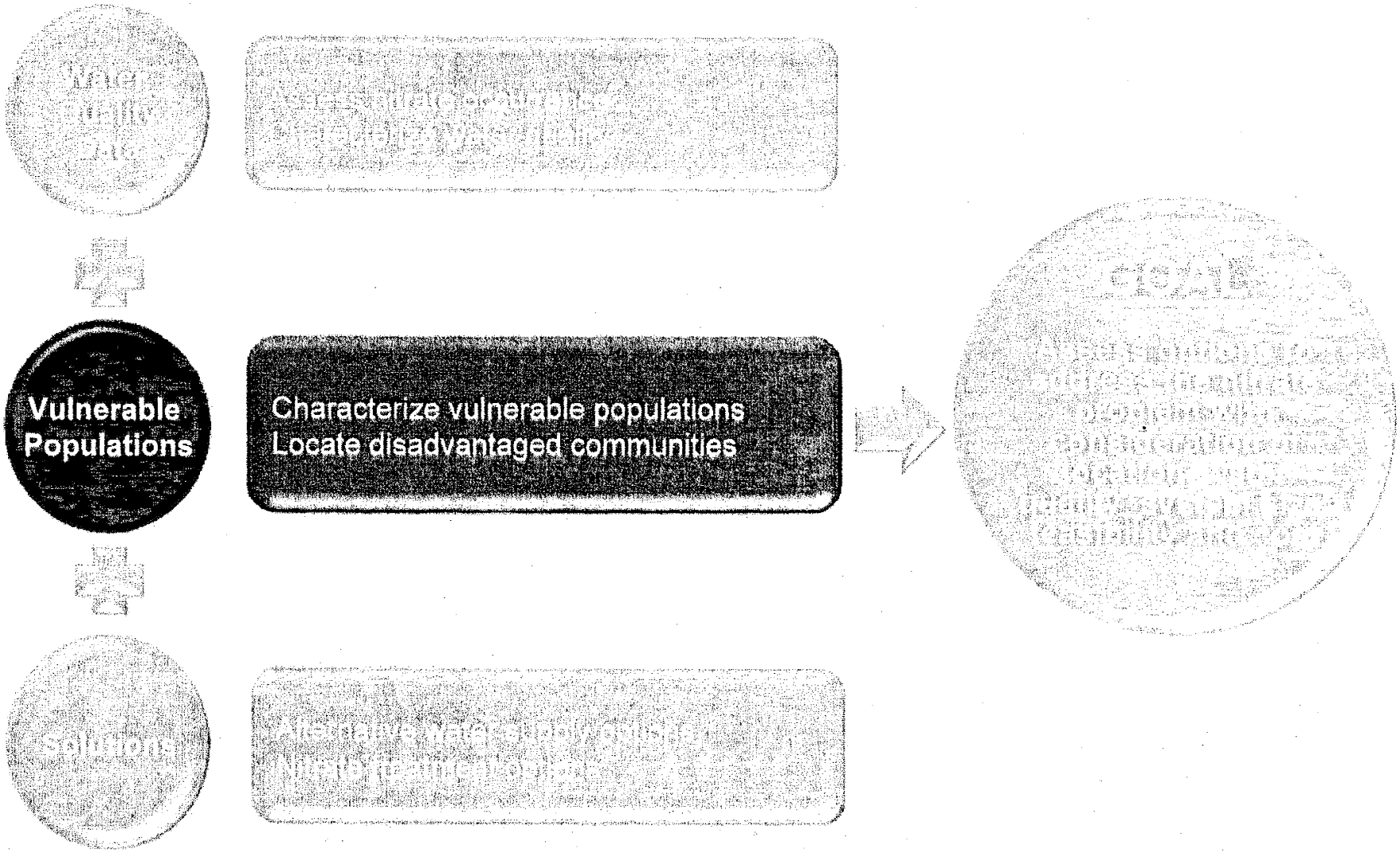
Raw Water Nitrate Levels Exceeding the MCL (45 mg/L as nitrate) and Consideration of Co-contaminants



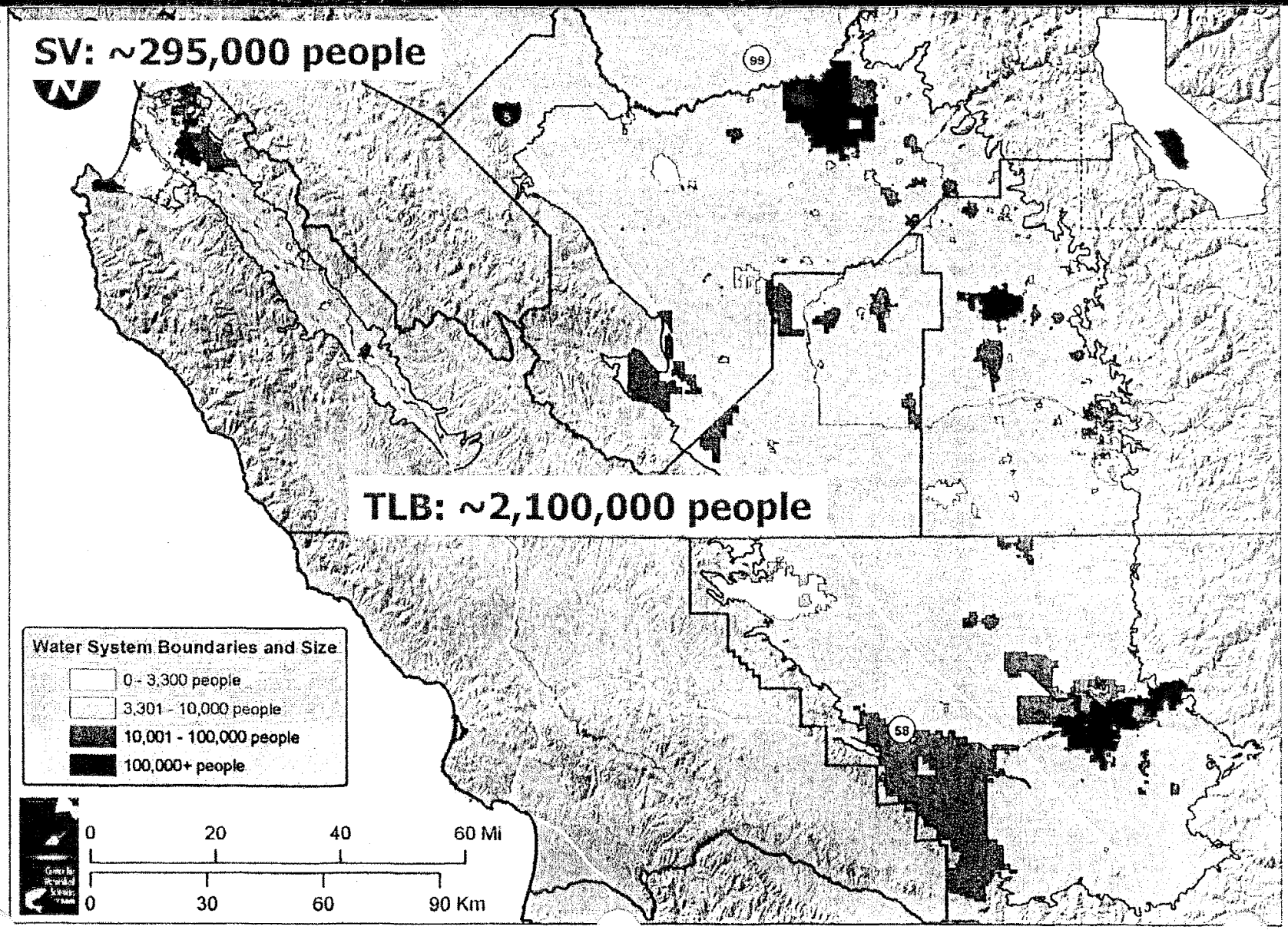
Raw Water Nitrate Levels Exceeding the MCL (45 mg/L as nitrate) and Consideration of Co-contaminants



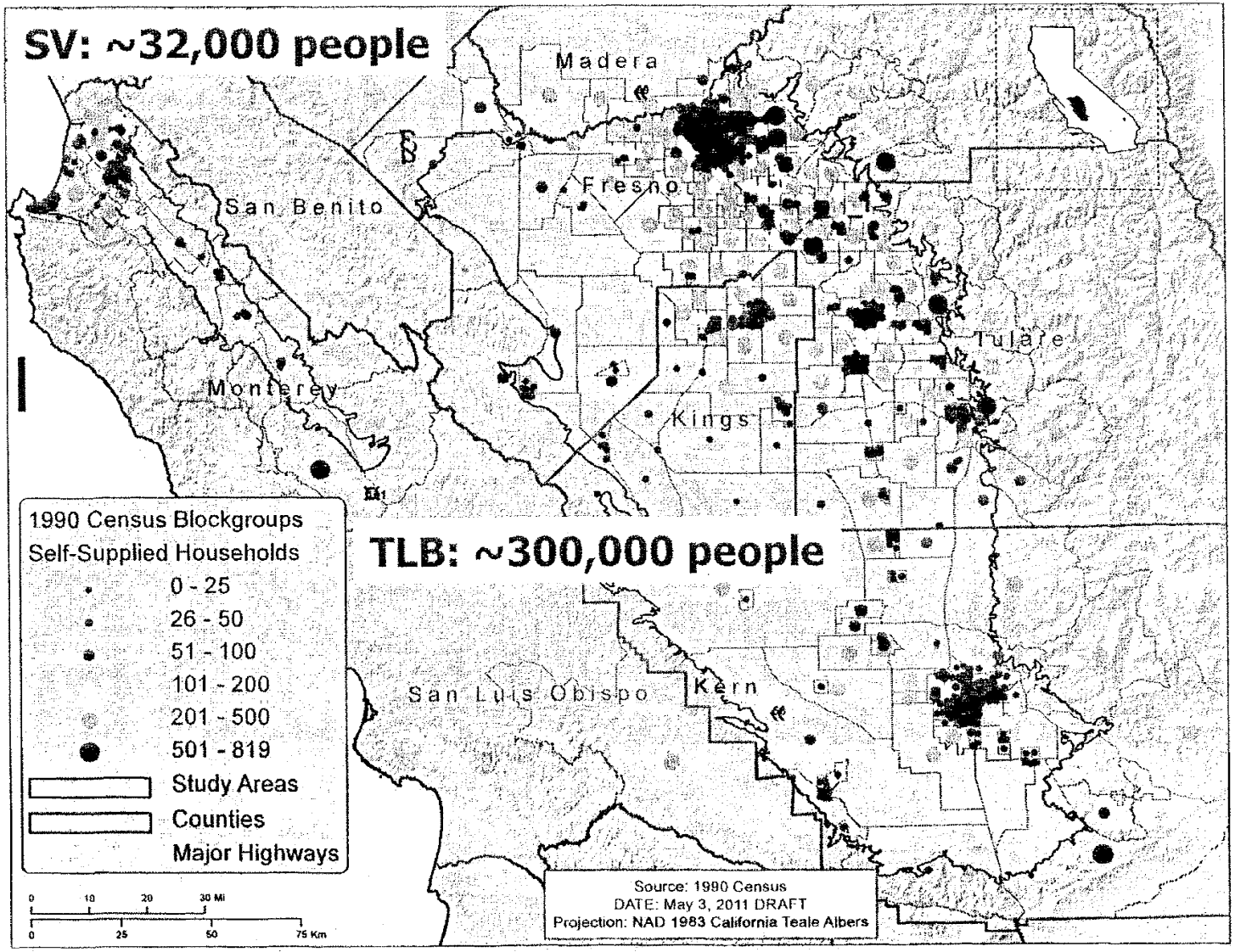
Overview

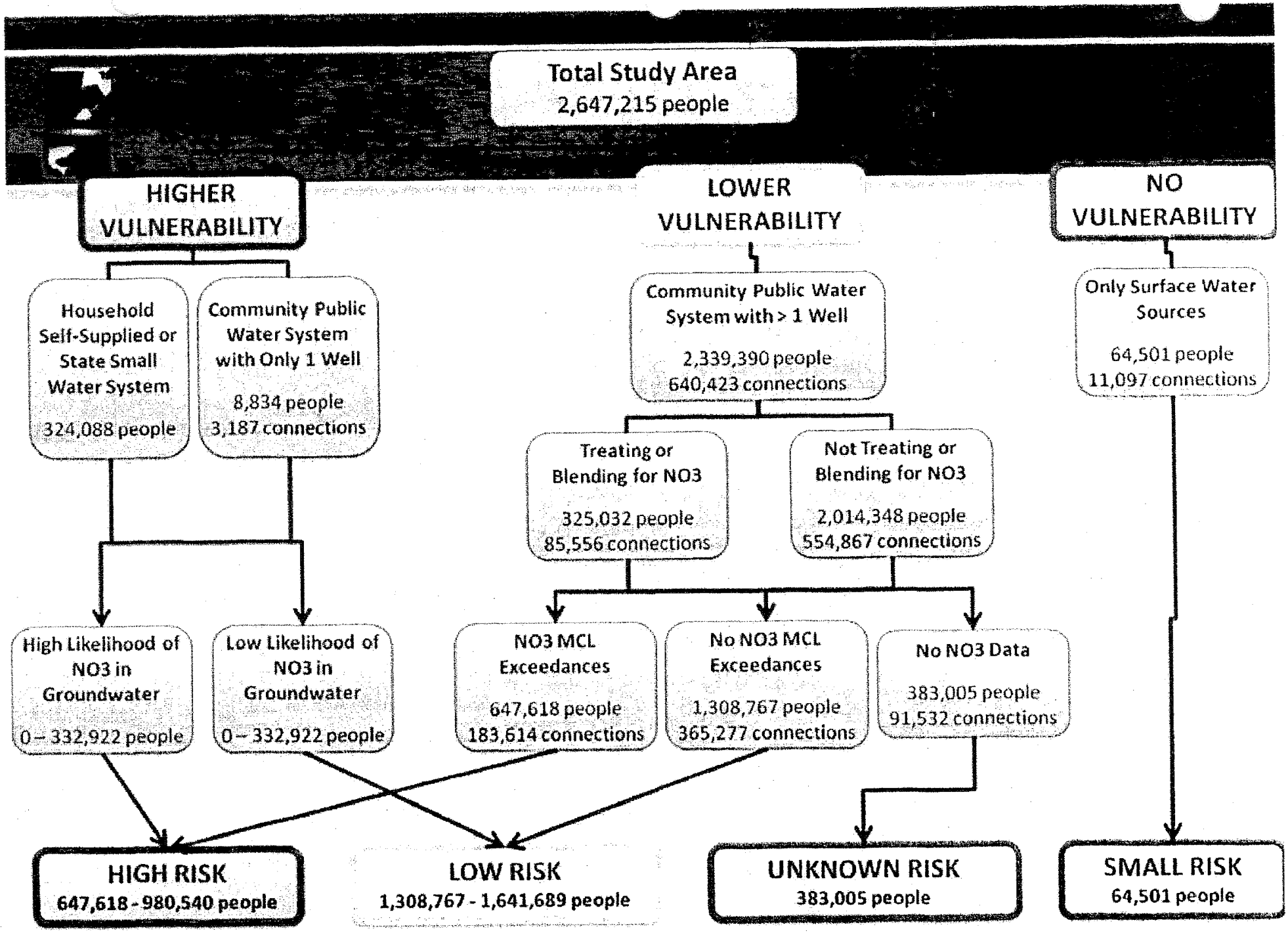

Vulnerable Populations
Characterize vulnerable populations
Locate disadvantaged communities

Community Water Systems

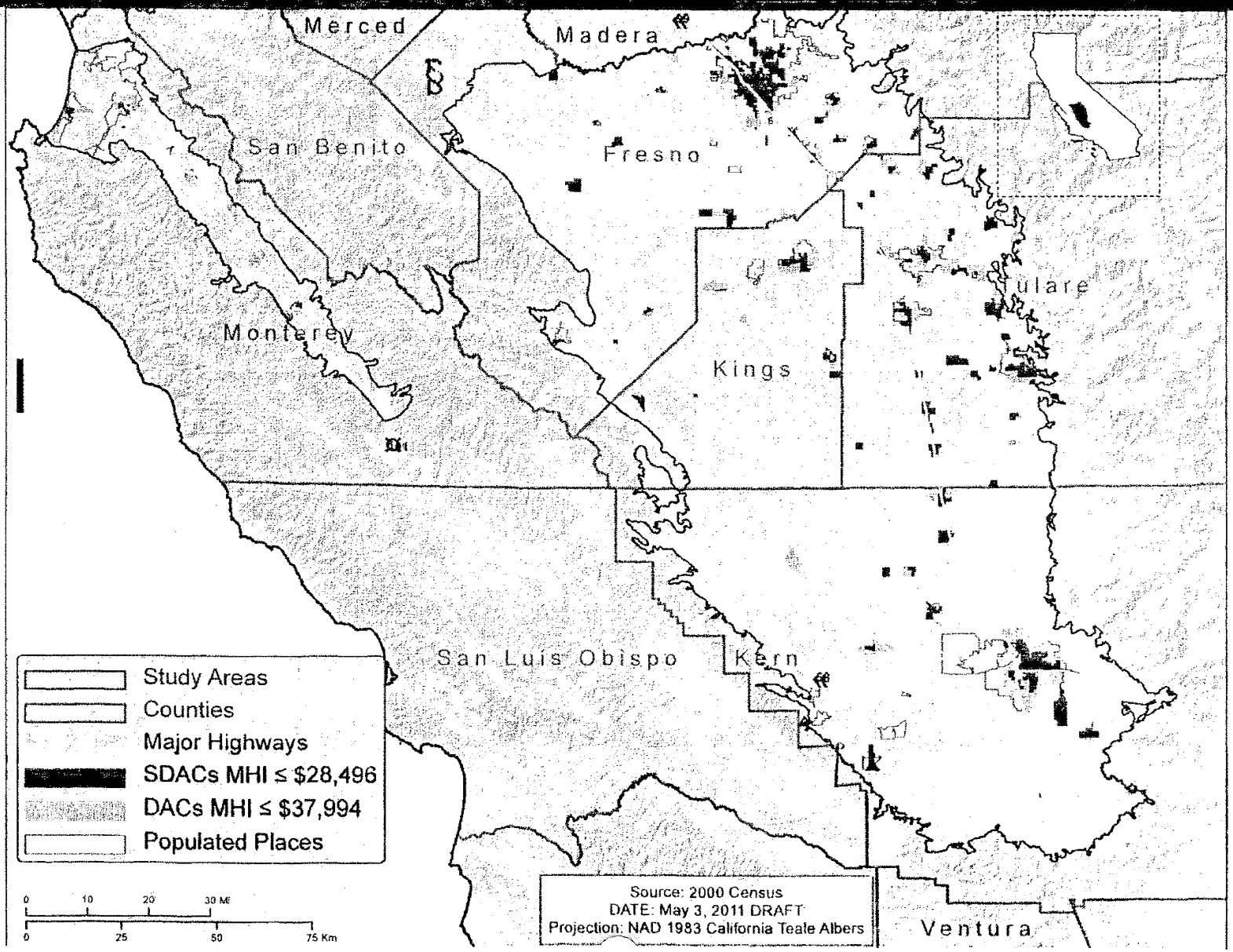


Household Self-Supplied Systems

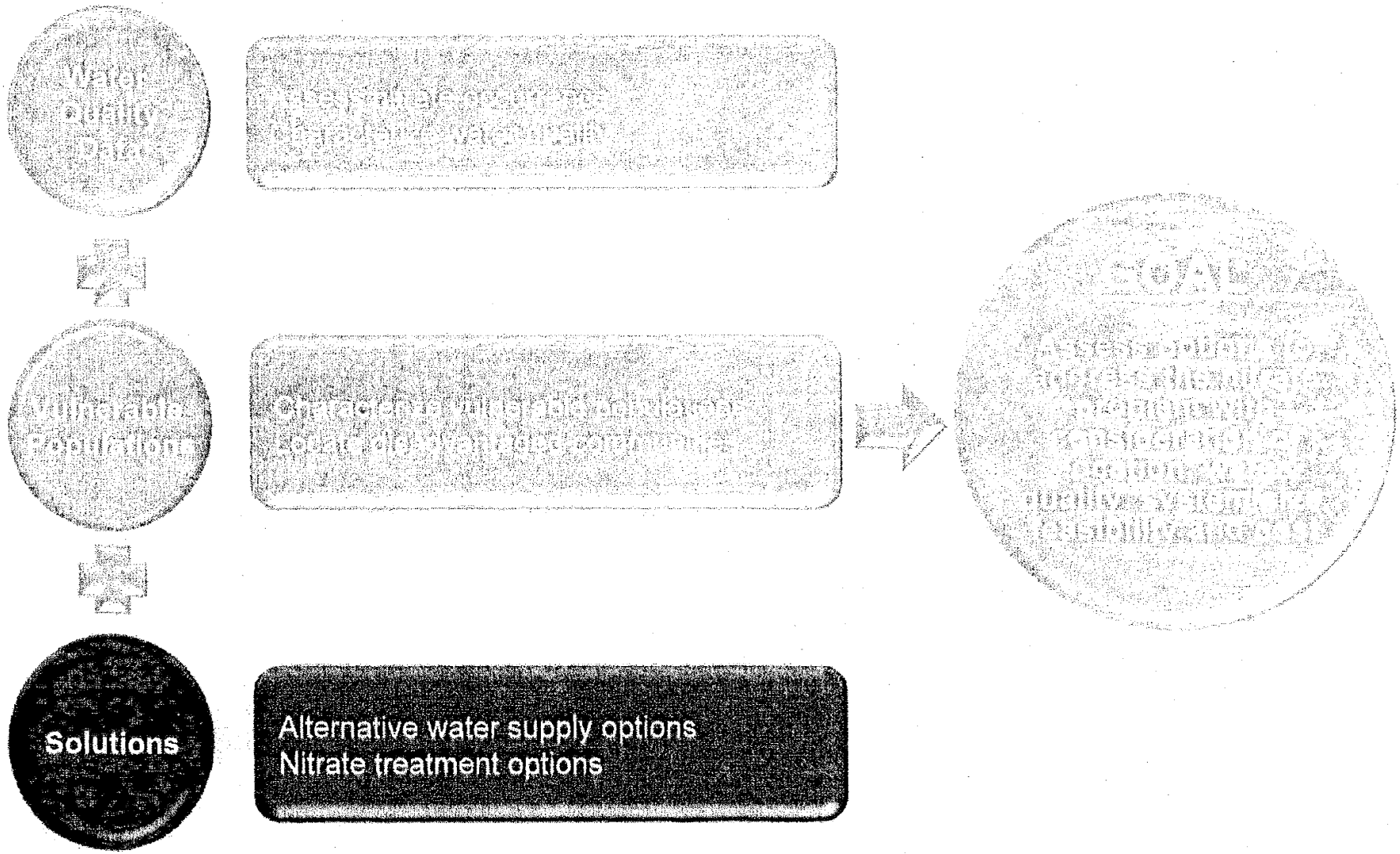



Total Study Area
2,647,215 people
HIGHER VULNERABILITY
LOWER VULNERABILITY
NO VULNERABILITY
Household Self-Supplied or State Small Water System
324,088 people
Community Public Water System with Only 1 Well
8,834 people
3,187 connections
Community Public Water System with > 1 Well
2,339,390 people
640,423 connections
Only Surface Water Sources
64,501 people
11,097 connections
Treating or Blending for NO3
325,032 people
85,556 connections
Not Treating or Blending for NO3
2,014,348 people
554,867 connections
High Likelihood of NO3 in Groundwater
0 – 332,922 people
Low Likelihood of NO3 in Groundwater
0 – 332,922 people
NO3 MCL Exceedances
647,618 people
183,614 connections
No NO3 MCL Exceedances
1,308,767 people
365,277 connections
No NO3 Data
383,005 people
91,532 connections
HIGH RISK
647,618 - 980,540 people
LOW RISK
1,308,767 - 1,641,689 people
UNKNOWN RISK
383,005 people
SMALL RISK
64,501 people

Disadvantaged Communities



Overview


Water quality issues
Solutions
Alternative water supply options
Nitrate treatment options

Alternative Water Supply Options

- **Improve Existing Source**
  - Blending+
  - Drill Deeper or New Well+
  - Community Treatment
  - Household Treatment*
  - Centralized Management of POU/POE
- **Create Alternative Supplies**
  - Switch to Treated Surface Water
  - Consolidation
  - Trucked Water*
  - Bottled Water
- **Relocate Households**

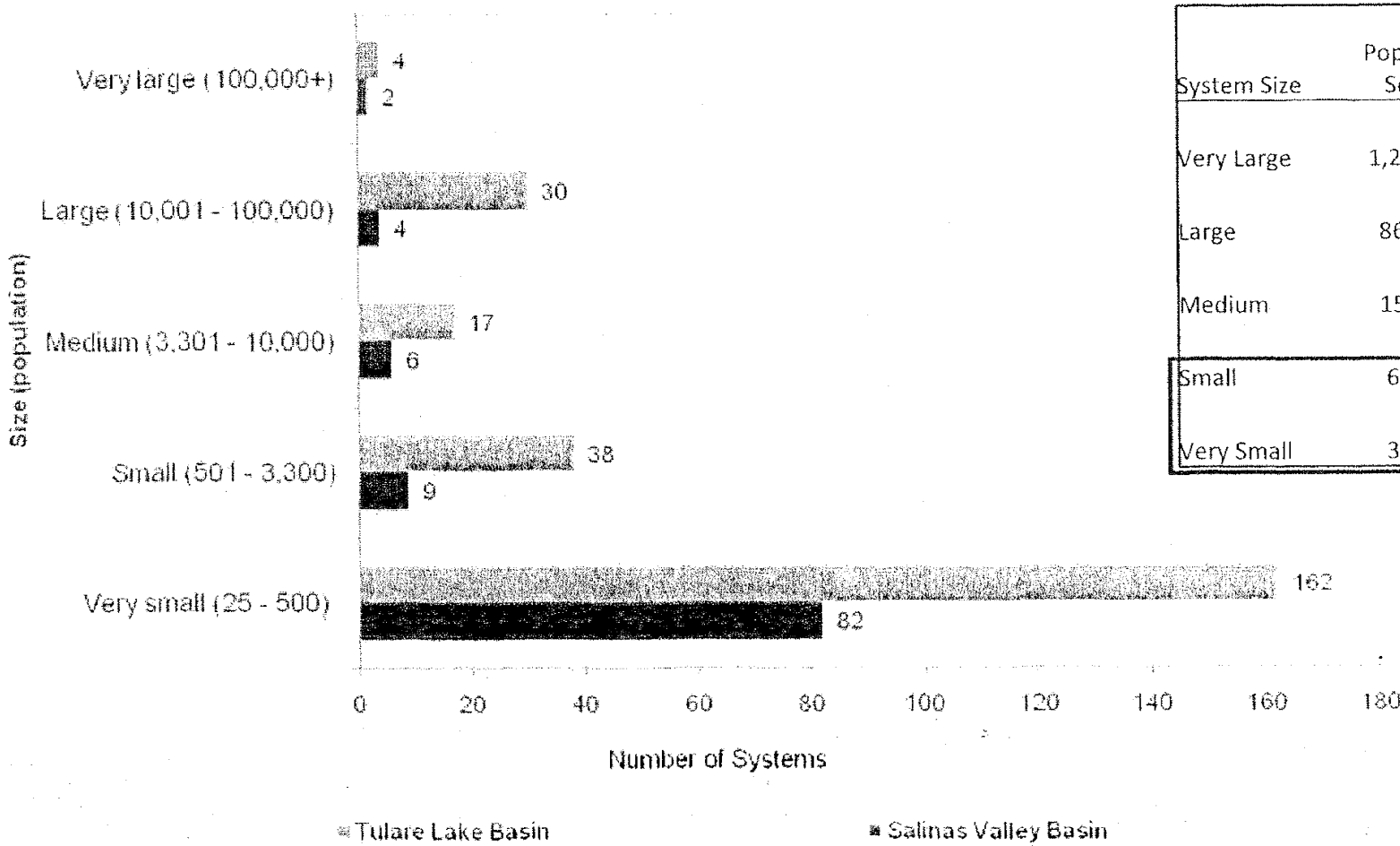
Ancillary Activities:

+Well Water Quality Testing

*Dual System

Regionalization/Consolidation

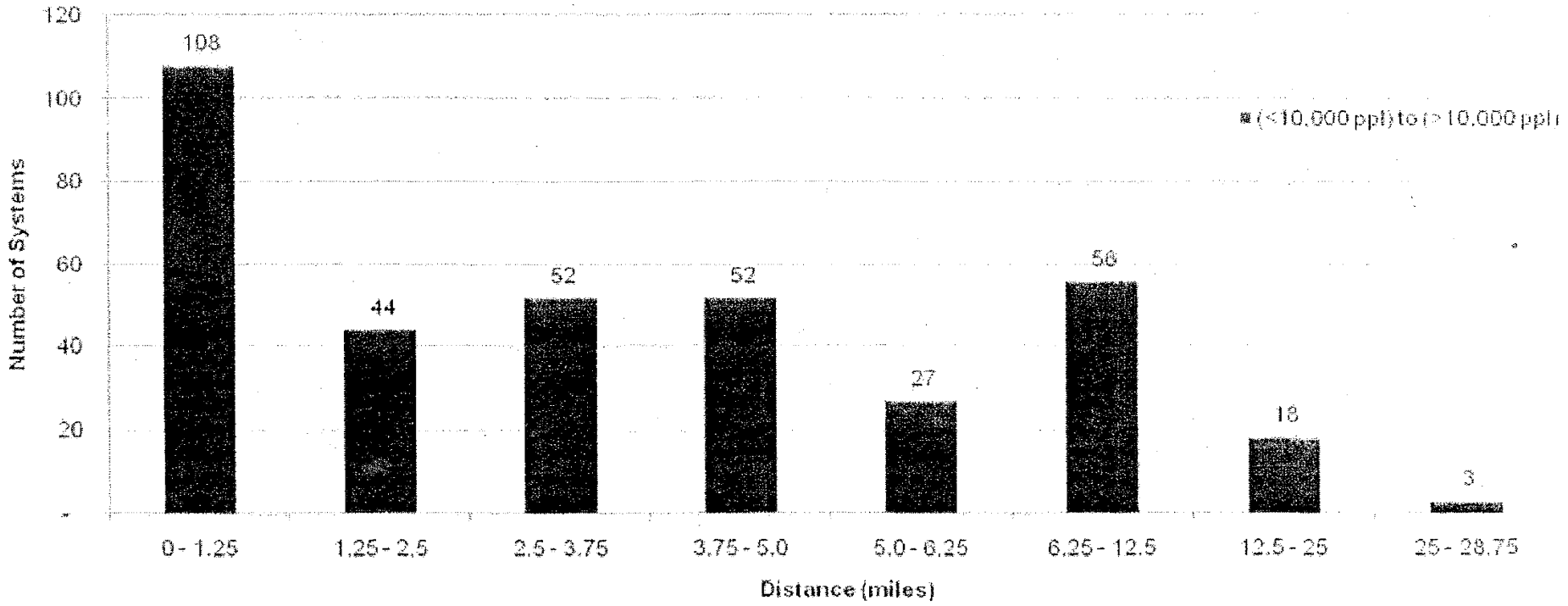
System Distribution by Population Served



System Size	Population Served	% of Total Population on CWS
Very Large	1,230,047	52%
Large	860,892	37%
Medium	155,497	7%
Small	68,246	3%
Very Small	32,852	1%

Piped Connection to an Existing System

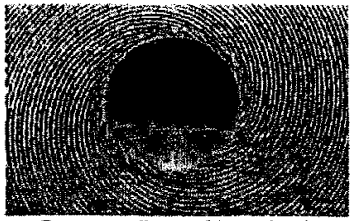
The Minimum Distance from a Small System to a Larger System [Source: PICME 2010]



Removal Technologies


Source: Siemens

- Ion Exchange
  - Nitrate displaces chloride on anion exchange resin
  - Resin recharge with brine solution
  - Limitations: sulfate, resin fouling, disposal


Source: Dow Chemical

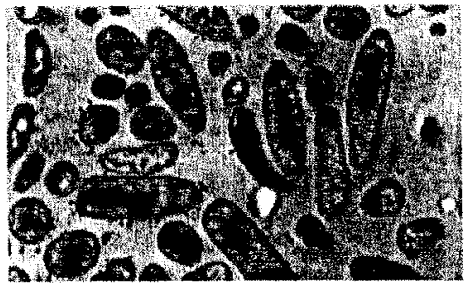
- Reverse Osmosis
  - Water molecules pushed through membrane
  - Contaminants left behind
  - Limitations: membrane fouling, pretreatment, disposal


Source: PC Cell

- Electrodialysis
  - Electric current governs ion movement
  - Anion and cation exchange membranes
  - Limitations: operationally complex, disposal

Reduction Technologies

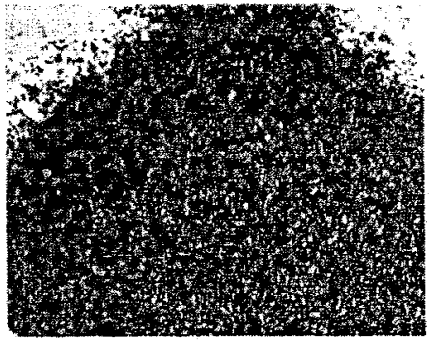
- Biological Denitrification



Source: AnoxKaldnes

  - Bacteria transform nitrate to nitrogen gas
  - Anoxic conditions
  - Requires electron donor (substrate)
  - Limitations: lack of U.S. full scale systems, substrate requirement, post-treatment (filtration, disinfection)

- Chemical Denitrification



Source: Hepure Technologies

  - Metals reduce nitrate to ammonia (typically)
  - Zero-valent iron (ZVI)
  - Catalytic denitrification
  - Limitations: pilot studies only, reduction to ammonia, dependence on temperature and pH

Treatment Options

Table i Comparison of Major Treatment Types[1]

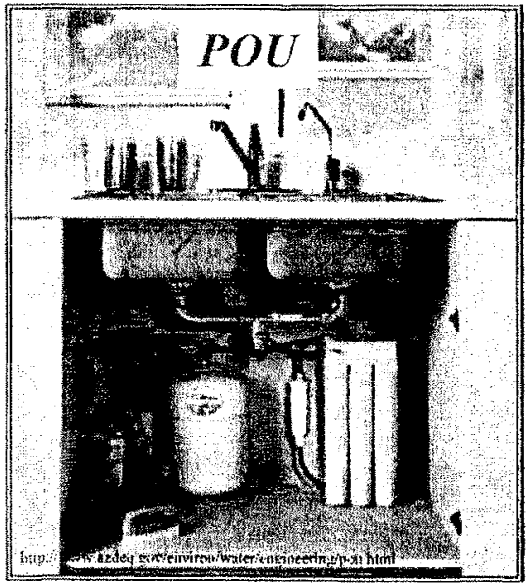
Concerns	IX	RO	EDR	BD	CD
High Nitrate Removal					
High TDS Removal					
Arsenic Removal					
Radium and Uranium Removal					
Chromium Removal					
Perchlorate Removal					

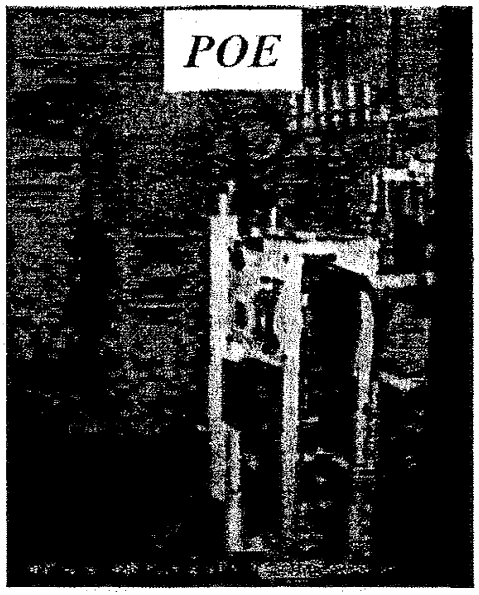
Priorities	IX	RO	EDR	BD	CD
High Hardness Not a Major Concern					
Reliability					
Training/ Ease of operation					
Minimize Capital Cost					
Minimize Ongoing O&M Cost					
Minimize Footprint					
Industry Experience					
Ease of Waste Management					

Good	→	Poor	Unknown (blank)

1 Ion Exchange (IX), Reverse Osmosis (RO), Electrodialysis Reversal (EDR), Biological Denitrification (BD), Chemical Denitrification (CD). This table offers a generalized comparison and is not intended to be definitive; there are notable exceptions to the above classifications.

POU/POE





From CDPH Emergency Regulations, as of December 21, 2010,

"...a public water system may be permitted to use point-of-use treatment devices (POUs) in lieu of centralized treatment for compliance with one or more maximum contaminant levels... if;

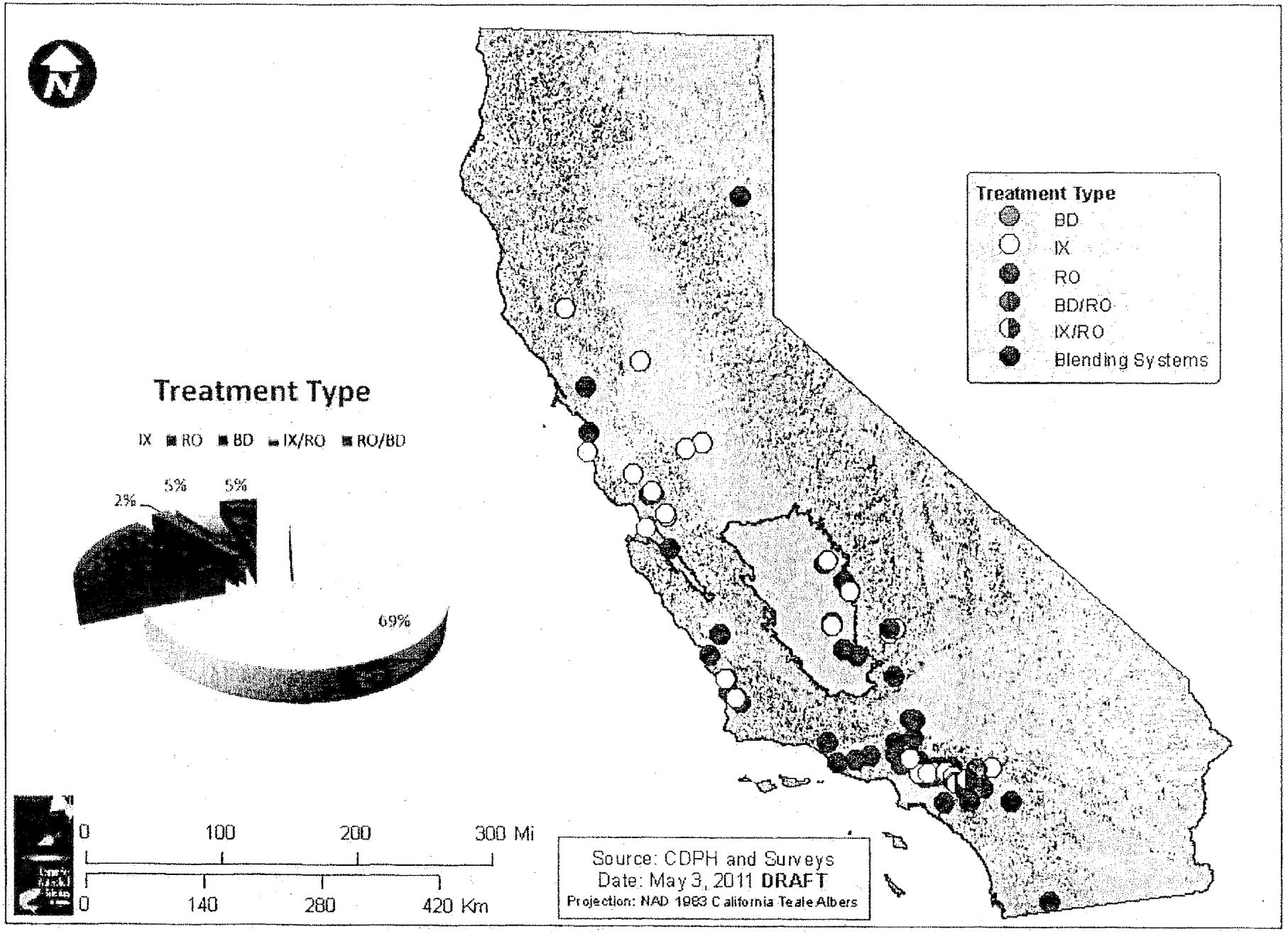
(1) the water system serves fewer than 200 service connections,

(2) the water system meets the requirements of this Article,

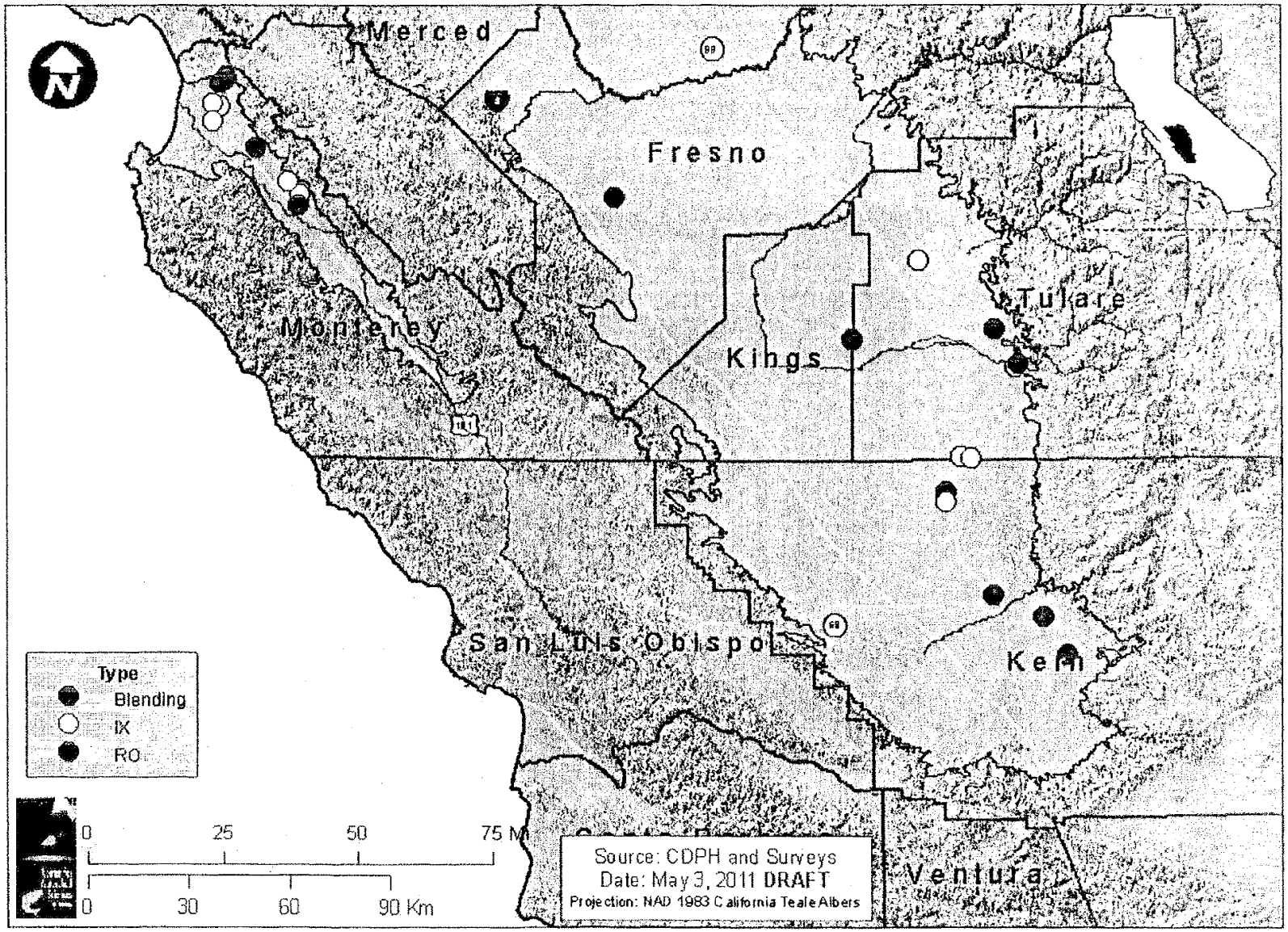
(3) the water system has demonstrated to the Department that centralized treatment, for the contaminants of concern, is not economically feasible within three years of the water system's submittal of its application for a permit amendment to use POUs,

... no longer than three years or until funding for the total cost of constructing a project for centralized treatment or access to an alternative source of water is available, whichever occurs first..."

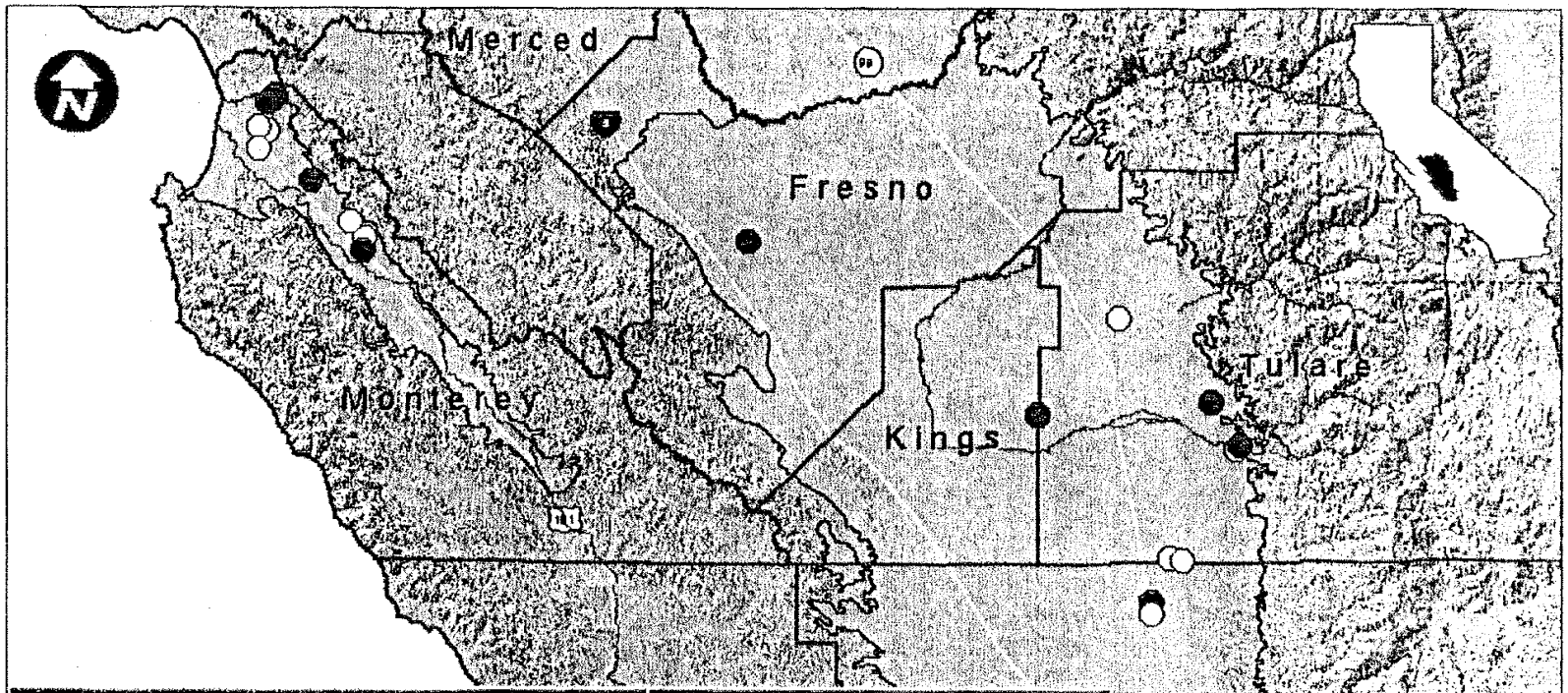
Systems Treating or Blending to Address High Nitrate Levels



Systems Treating or Blending to Address High Nitrate Levels

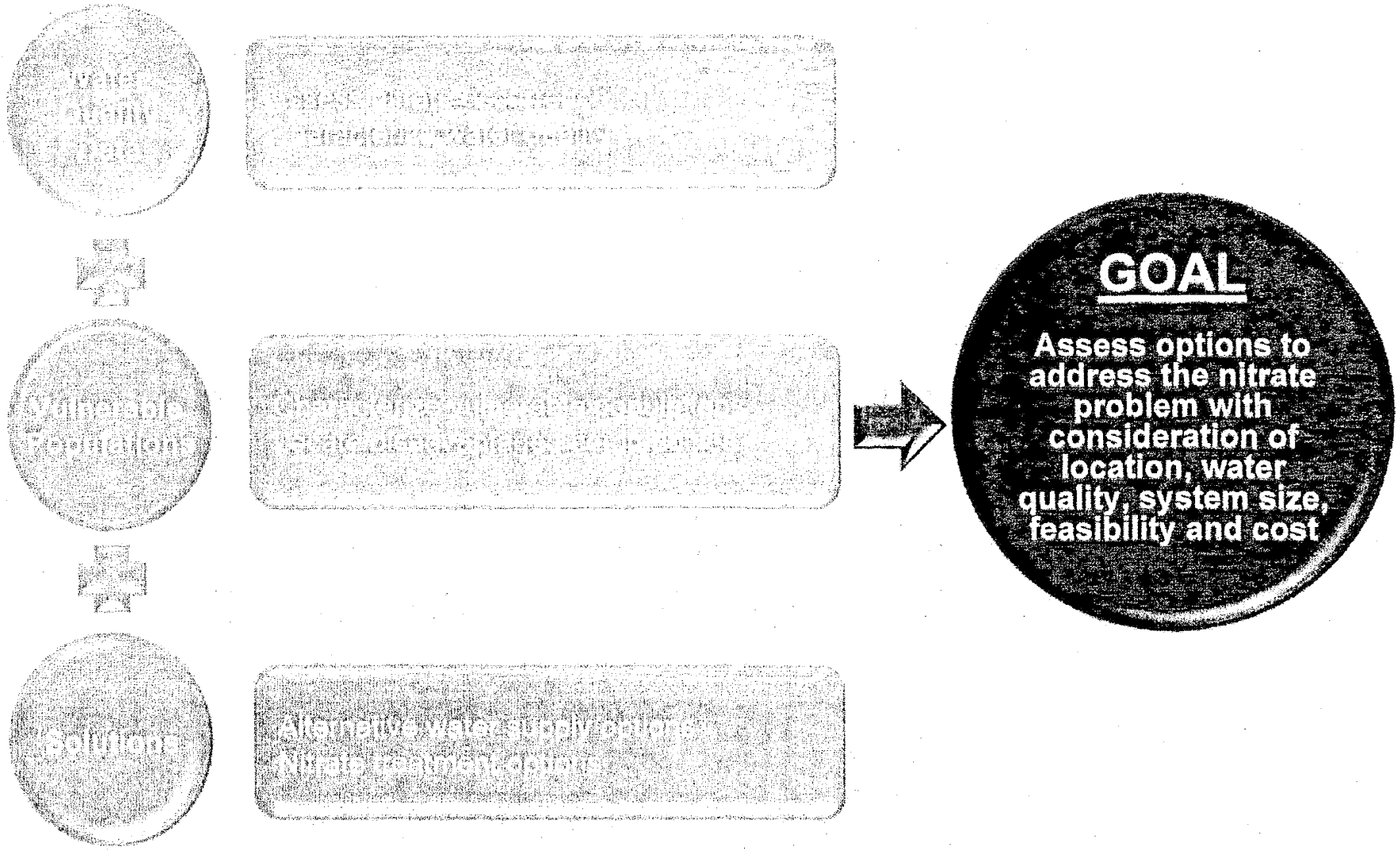


Systems Treating or Blending to Address High Nitrate Levels



		Average Raw Nitrate (mg/L as nitrate)		
Type	Population Range (Total)	Max	Min	Avg
Ion Exchange	25 – 133,750 (261,200)	71	15	40
Reverse Osmosis	45 – 6,585 (6,760)	75	24	41
Blending	45 – 25,500 (83,475)	64	3	32

Overview


GOAL
Assess options to address the nitrate problem with consideration of location, water quality, system size, feasibility and cost

Example Costs for Alternative Supply Options

Option	Example	Est. Cost
Providing POU systems with Maintenance for **Three Years** for Potable Uses Only	A 1,000 person community	$ 200,000
Providing Bottled Water for **One Year** for Potable Uses Only	A 1,000 person community	$ 400,000
New 1,400 ft Well	Ducor Community Services District	$ 700,000
New 700 ft Well + Pump + Tank + Distribution System	Plainview Mutual Water Company	$ 2,500,000
Consolidation	Several Small Communities North of Lamont to the East Niles Community Service District	$ 6,500,000

Costs by Technology

Ion Exchange (IX)

Pro: Generally the least expensive

Con: Brine disposal

Reverse Osmosis (RO)

Pro: Wide treatment capabilities

Con: More expensive

Biological Denitrification (BD)

Pro: Long term sustainability

Con: Limited application

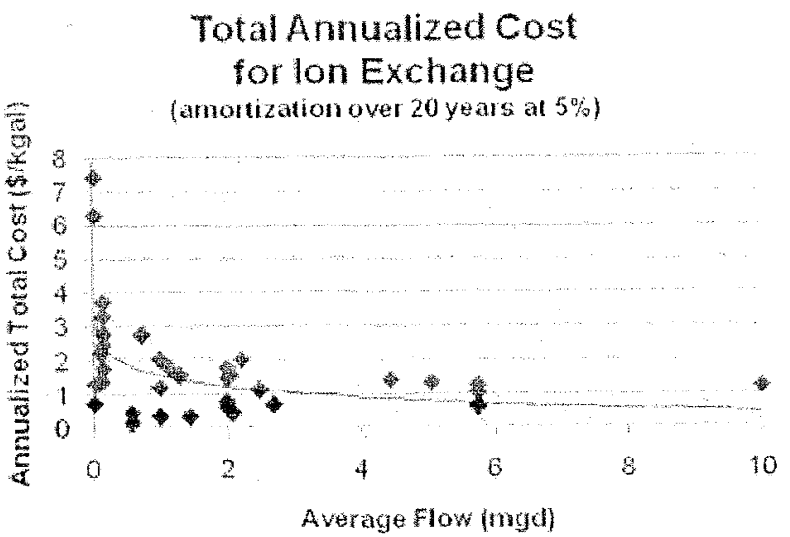
Type	Annualized Capital Cost ($/kgal)	Annual O & M Cost ($/kgal)	Total Annualized Cost ($/kgal)
IX – Literature	0.08 – 0.80	0.15 – 1.25	0.34 – 2.04
IX – Survey	0.06 – 0.94	0.12 – 2.63	0.41 – 2.73
RO – Literature	0.81 – 4.40	1.22 – 2.00	2.32 – 5.86
RO – Survey	0.19 – 3.16	1.15 – 16.16	1.35 – 19.16
BD	0.47 – 0.83	0.30 – 0.94	0.92 – 1.56

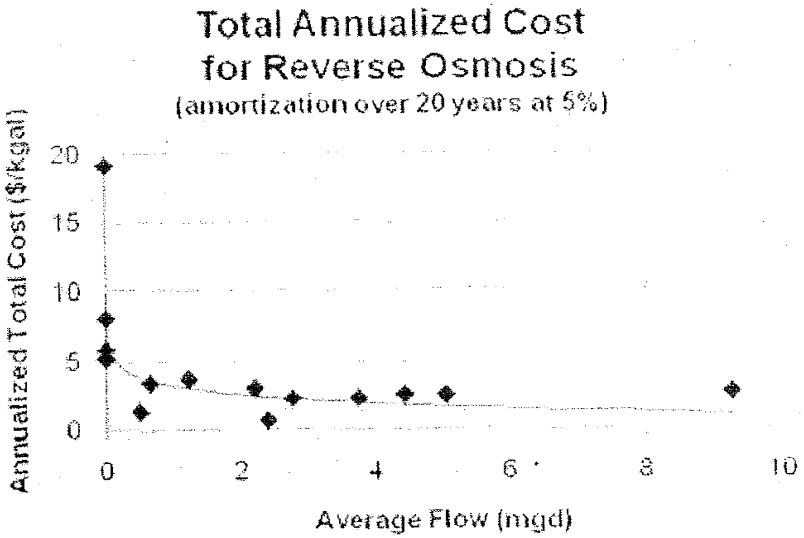
Treatment costs are unique to individual systems based on:

- *system size
- *co-contaminants
- *location
- *treatment type
- *blending options
- *disposal options
- *nitrate level
- *seasonal variation
- *others…

Costs by System Size

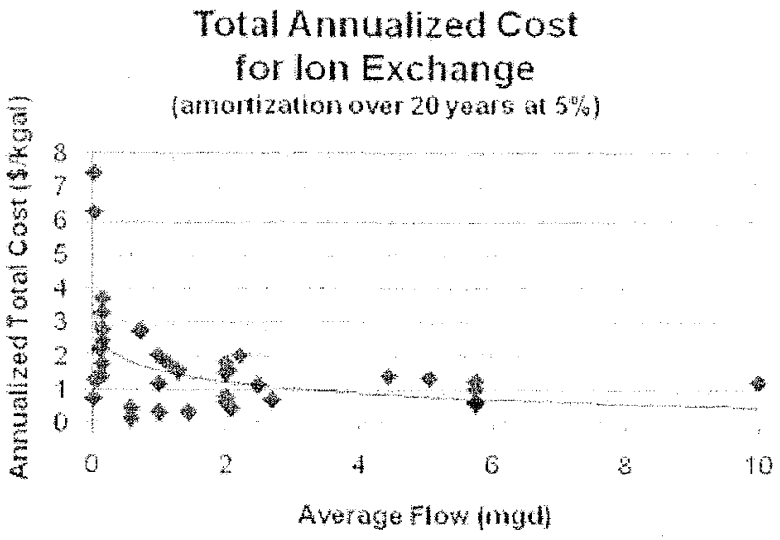
Centralized Treatment

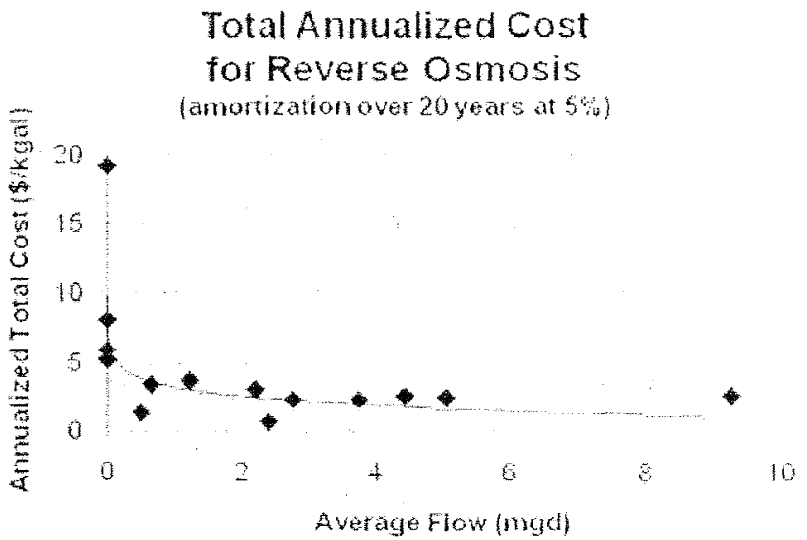




Costs by System Size

Centralized Treatment





Point-of-Use

	Upfront Investment	Annual Costs	Comments
Ion Exchange	$660-$2425	Salt costs ($3.30-$4.40/bag)	Requires disposal of brine waste, high sodium levels
Reverse Osmosis	$330-$1430	$110-$330/yr + electricity	Requires filter replacement, high maintenance, lower water recovery

From (Mahler et al., 2007)

Observations on Current Funding Sources

- Sustainability and sufficiency of main sources unclear
- No funds for Ag investment in nutrient mgt/NO_3 reduction
- Ag water use efficiency funds to fund NO_3 loading reduction?
- Many small pots of $ for drinking/wastewater for small communities and DACs, scattered, difficult to access
- Nitrate drinking water contamination investment needed statewide, based only on 2010-11 fundable list > $4/person for capital costs only
- No funds for community water supply regionalization feasibility studies and planning

Regulatory Instruments (RI): Assumptions and Limitations

- Focus on regulatory instruments to manage nitrate emissions from non-point sources, especially agriculture
  - Instruments could address emissions from both point and non-point sources
- Qualitative analysis
  - Ranking of regulatory instruments along criteria
  - Analysis rooted in previous case studies
  - Future work could quantitatively compare these instruments
- Analytical dimensions
  - Cost-effectiveness, administrative feasibility, information requirement revenue raising
  - Many potential criteria

RI: Analytical Criteria

- Cost-effectiveness
  - Abatement (nitrate reduction) costs to meet a nitrate standard
  - How can a standard be achieved at the least cost?
- Administrative costs
  - Bulk of these costs are monitoring and enforcement
  - Costs vary depending on the unit of regulation – few industries or many individuals
  - Future work could quantitatively compare these instruments
- Information Requirements
  - What information is needed to implement these regulatory tools?
- Revenue Raising
  - Regulatory instruments and funding options overlap
  - Is a regulatory instrument also a source a funding?

Instruments evaluated

- Technology mandate (non-market instrument)
  - Example: Management practices for pesticides
- Performance standard (non-market instrument)
  - Example: The dairy regulatory program nutrient management plan, which requires the ratio of N applied to N harvested to be less than 1.65
- Cap and trade (market-based instrument)
  - Example: Sulfur dioxide markets in the U.S. to address acid rain; AB 32
  - Overall, a 10% reduction in fertilizer use (5% reduction ha A and 15% ha B)
- Fee (market-based instrument)
  - Example: Mill tax; tax on fertilizer that induces a 10% reduction in fertilizer use
  - With C&T choose a quantity (market determines price) and with a fee choose a price (market determines quantity)

Instruments evaluated

- Information disclosure
  - Example: Consumer confidence reports on drinking water quality (SDWA)
- Liability rules
  - Example: Superfund
- Payment for water quality
  - Analogous to payment for ecosystem services
  - Public pays farmers to not release nitrates or farmer pays gov't to release nitrate
  - Example: Drinking water in NYC; Perrier and Evian; REDD
- Redesignation of beneficial use
  - Example: Change beneficial use from drinking to another standard

What can be regulated?

- Fertilizer use
  - Regulation on input
  - Advantages: Low administrative costs; low information requirements
  - Disadvantages: Regulating input rather than "pollutant" (i.e. gasoline tax rather than a tax on emissions)

- Nitrate leachate concentration within recharge area of drinking water source
  - Regulation on actual pollutant flux into groundwater recharge area
  - Advantages: Regulate the pollutant of interest; achieve policy objective
  - Disadvantages: High administrative costs (non-uniform mixing); high information requirements; uncertainty in assessing recharge area for specific source

- Other ideas?
  - Nitrate emissions concentration – concentration of nitrate emissions released into source (not account for non-uniform mixing)
  - Nitrate emissions volume – volume of nitrate emissions released into source

Funding Source: Assumptions and Limitations

- Focus on sources of funding
  - UCD team does not address how the money should be allocated
  - Treatment, remediation, alternative water supplies
- Provide a list (with explanation) of potential options
  - No analytical criteria – any comments?
  - Create different incentives
- Qualitative exercise
  - Provide examples of funding options
- Comments

Funding Options: Water Fees

- Fixed monthly fee on drinking water for CA residents
- Volumetric fee on drinking water for CA residents
  - Option: Fee for "high quantity" consumers
- Tax on irrigated water
- Fixed fee on agricultural water
- Fertilizer or nitrate tax
- Groundwater pumping fee
- Fee on bottled water (similar to recycling fee)

Funding Options: Other Fees

- Fertilizer tax
- Nitrate emissions tax
- N leachate tax
- Food tax
- Agricultural property tax
- Auctioned fertilizer or nitrate permits (cap and trade)
- Septic tank discharge
- Waste water discharge
- State water bonds

Moving forward

- Final comments on regulatory instruments
  - Analytical criteria
  - Instruments evaluated
- Suggestions on funding sources
  - Analytical criteria
  - Other funding sources
  - Alternative approaches
- Contact: kkjessoe@ucdavis.edu

Key Messages

- Nitrate problem will likely worsen and not improve for several decades
- Largest regional sources are agricultural fertilizers and animal wastes; other sources are locally relevant
- Nitrogen loading reductions possible, but will take decades to benefit drinking water sources
- Short-term solutions are blending, treatment, and alternative water supplies
- Treatment is unaffordable for most small communities
- Promising funding options, incentives, and regulatory tools are identified
- Incoherence and inaccessibility of data prohibit better and continuous assessment

Tulare County - Disadvantaged Community Water and Sewer Issues
November 2010

a result of collaboration of
Self Help Enterprises
Community Water Center
Tulare County Environmental Health
Keller and Wegley Engineering

Disadvantaged Communities / Schools	IRWMP	Type of Project	MHI	Entity	Issues	On-going MCL Violation	Solutions Id'd	Estimated Cost	Potential Funding Sources	App / Pre-App Submitted	Date Constructon App Submtd	Feasibility Study Needed	App Amnt Submitted	Date Planning App Submtd	Prelim. Engin. / CEQA Needed
Allensworth	Tule*	Water	$23,750	Allensworth CSD	Arsenic levels in both wells have now exceeded MCL, prblems with control system, inadequate storage	Yes	Sealing off bottom of west well, refinement of power at motor control panels, additional storage		CDPH-DWSRF Prop 84	Yes	Jan-08	Yes			Yes
Alpaugh	Tule*	Water	$23,688	Alpaugh Joint Powers Authority	Water from both new wells exceeds arsenic MCL (16 to 25 ppb)	Yes	Arsenic Treatment Plant	$1,368,000	CDPH- Prop 84	Yes			$389,200		No
Beverly-Grand	Tule	Water	$29,000	Beverly Grand Mutual Water Company	Nitrates exceed MCL	Yes	Consolidate with City of Porterville	$801,000	CDPH-Prop 84	Yes	Feb-09	Yes	$142,600	Feb-10	Yes
Cutler	Upper Kings	Water	$24,330	Cutler PUD	Need to complete metering of customers										
Ducor	Tule	Water	$23,000	Ducor Community Services District	Well collapse, lack of adequate supply of water, H2S		New water supply (well &/or consolidation)	$700,000	USDA DWSRF	Yes					
East Orosi	Upper Kings	Water	$26,071	East Orosi CSD	Both wells at times exceed nitrate MCL		Short Term: Rehabilitate both wells	$137,000	IRWMP CDPH-DWSRF Prop 84	Yes	Yes	Yes	IRWMP $102,600 DWSRF $137,000		Yes
East Orosi	Upper Kings	Sewer	$26,071	East Orosi CSD	Both wells at times exceed nitrate MCL		Long Term: Drill new well/ Investigate connection to Orosi		IRWMP CDPH-DWSRF Prop 84	Yes			IRWMP $152,788		
Fairways Tract	Tule	Water		Fairways Tract MWC	Water from only well exceeds NO3 MCL by almost 3 times	Yes	Consolidate with City of Porterville	$892,886	DPH-DWSRF	Yes		No	$892,886		No
Lemon Cove and Sequoia Union School	Kaweah	Water	$28,333	Lemon Cove Sanitary District/Sequoia Union School District	Nitrates exceed MCL	Yes	Feasibility Study Drill test well(s), new well(s), storage and transmission		CDPH-DWSRF Prop 84	Yes	N/A	Yes	$315,070	Oct-08	Yes
Lemon Cove	Kaweah	Sewer	$28,333	Lemon Cove Sanitary District	Regional Board has requested treatment plant modifications		upgrade treatment plant								
London	Upper Kings	Water	$21,678	London CSD	Inadequate supply, storage, distribution		New well, storage, replace and loop undersized pipelines	$2,800,000	USDA DWSRF IRWMP	Yes	under contract	No	USDA app submited ->	Jul-10	No
Matheny Tract	Kaweah	Water	$27,467	Pratt MWC	1 well shut down due to high NO3, the other 2 wells wells excxeed arsenic MCL. Distribution system needs replacement	Yes	Consolidate with City of Tulare and replace water distribution system.	$6,000,000	CDPH-DWSRF Prop 84	Yes	Dec-05	No	SRF$389,200 P84 $97,300 $486,500	Feb-10	Yes
Matheny Tract	Kaweah	Sewer	$27,468	County-City of Tulare ??	Unsewered community on septic systems		Negotiate, secure funding and connect with City of Tulare system								
Monson	Upper Kings	Water		Sultana CSD ?	Private wells with nitrate levels over MCL		Determine community and County support and that of neighboring Sultana for potential consolidation with Sultana system.		CDPH-DWSRF Prop 84	Yes		Yes	$495,000	Feb-10	Yes
Pixley	Tule	Water	$23,304	Pixley Public Utility District	3 of 4 wells at times exceed arsenic MCL	Yes	Drill new wells and provide storage	$3,000,000	CDPH- Prop 84	Yes	Jan-08	No	$500,000	Feb-10	No
Plainview	Tule	Sewer		Plainview MWC	Unsewered community with septic system problems		Initiate preliminary engineering and build community sewer system, investigate connection with Strathmore or Lindsay		USDA SWRCB-SCWGP						

CDPH – California Dept of Public Health
DWSRF – Drinking Water State Revolving Fund

Attachment

Tulare County - Disadvantaged Community Water and Sewer Issues November 2010

Disadvantaged Communities / Schools	IRWMP	Type of Project	MHI	Entity	Issues	On-going MCL Violation	Solutions Id'd	Estimated Cost	Potential Funding Sources	App / Pre-App Submitted	Date Constructon App Submtd	Feasibility Study Needed	App Amnt Submitted	Date Planning App Submtd	Prelim. Engin. / CEQA Needed
Richgrove	Poso	Water	$22,885	Richgrove Community Services District	1 well has arsenic/DBCP MCL issues;Other well close to nitrate MCL		Drill new well and/or blend	$1,698,000	CDPH- Prop 84	Yes	Jan-08	No	$393,100	Feb-10	Yes
Richgrove	Poso	Sewer	$22,886	Richgrove Community Services District	Treatment plant inflow is in excess of rated capacity		Modify RWQCB Discharge permit and upgrade and expand treatment and disposal facilities		USDA SWRCB-SCWG/ CWSRF						
Rodriguez Labor Camp	Poso	Water	$18,144	Richgrove Community Services District	Nitrate 130 ppm	Yes	Consolidate with Richgrove CSD	included w/ Richgrove	CDPH- Prop 84	Yes	included w/ Richgrove	included w/ Richgrove	included w/ Richgrove	included w/ Richgrove	Yes
Seville	Upper Kings	Water	$14,000	Tulare County as Receiver	Old leaky pipelines, lack of storage		Replace water distribution system and install storage tank	$3,200,000	DPH-SRF & Prop 84 USDA	Yes	Jan-08	Yes	$120,000	Feb-10	Yes
Seville	Upper Kings	Water	$14,000	Tulare County as Receiver	Shallow well (125'), nitrate fluctates above and below MCL		Drill new well and connect with Yettem's water system								
Seville	Upper Kings	Sewer	$14,000	TCCSAZOB	Sewer system at capacity, lines too shallow to allow extensions										
Soults Mutual Water Company	Kaweah	Water	$41,000	Soults Mutual Water Company	Nitrates exceed MCL	Yes	Consolidate with City of Tulare	$982,500	CDPH- Prop 84	Yes	Jan-08	No			No
Sultana	Upper Kings	Water	$12,000	Sultana CSD	1 active well, DBCP over MCL for backup well		Need Feasibility Study to determine best options		IRWMP CDPH-DWSRF Prop 84	Yes		Yes	IRWMP $123,750 DWSRF $396,000	Feb-10	
Teviston	Tule	Water		Teviston CSD	Bottom of one of system's 2 wells has collapsed		Rehabilitate well or drill new well								
Tipton	Tule														
Tipton CSD-Burnett Road	Tule	Water	$19,500	Tipton Community Services District	Temporary connection for water outage has been in place for 10 years		Consolidate with Tipton CSD	$249,283	Prop 84 DWSRF	Yes	Jan-08	No	$55,000	Feb-10	No
Tonyville	Kaweah	Water		City of Lindsay ?	Disinfection byproducts with surface water - nitrate when groundwater temporarily used		Consolidate with City of Lindsay		CDPH-DWSRF Prop 84			Yes	$262,500	Feb-10	
Tooleville	Kaweah	Water	$15,500	Tooleville NMWA	Bolth wells exceed Nitrate MCL, Water capacity		Drill new well west of Exeter and wheel water thru Exeter to replacement distribution system	$3,100,000	USDA DPH-DWSRF Prop 84 CDBG	Yes		No	$408,000	Feb-10	No
Tract 92	Kaweah	Water		Tract 92 CSD	39 abandoned wells need proper destruction										

*TCCSAZOB - Tulare County County Service Area #1 Zone of Benefit
CDBG
DPH Prop 84
DWSRF
USDA
SWRCB
SCWG

Attachment 15

California Regional Water Quality Control Board
Central Valley Region

Water Quality Control Plan for the Tulare Lake Basin Second Edition

Revised January 2004 (with Approved Amendments)

Attachment 16

Water Quality Control Plan for the Tulare Lake Basin

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Water Quality Control Plan for the Tulare Lake Basin

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VI. SURVEILLANCE AND MONITORING (continued)

Attractive, convenient, and adequate toilet facilities, fish cleaning sinks, and disposal containers should be provided to prevent disposal in or near surface waters. Measures should be implemented to reduce lake bank erosion, such as reducing boat speeds near banks. Programs and procedures, developed from studies where necessary, must be adopted for processing and disposal of solid wastes and vault toilet pumpings from recreational areas. Educational programs on proper handling and disposal of wastes must be made available to classes and groups who would apply the techniques.

Well Standards

Improper well construction, maintenance, abandonment, or destruction can lead to contamination of ground water. California Water Code, Section 13801, requires all counties to adopt water well standards in accordance with Department of Water Resources Bulletin No. 74-81: "Water Well Standards: State of California," and Bulletin No. 74-90: "California Well Standards". Counties in the Tulare Lake Basin have established well standards equal to or more stringent than those in the bulletin.

Controlled Burning

Controlled burning is a method to regulate growth of some chaparral species and encourage the growth of preferable trees and grasses. Controlled burning helps prevent wildfire and uncontrolled burns. Burning changes the character of eroded matter from organic to mineral and may increase the contribution of material to streams. Burned areas, whether from controlled or uncontrolled burns, should be managed to minimize erosion of materials into streams.

Municipal and Domestic Wastewater

Increasing population and a higher standard of living require continuing expansion of wastewater treatment facilities. Advances in technology, normal equipment deterioration, and higher performance expectations require continuing replacement of these facilities. Expansion and replacement of municipal wastewater treatment facilities are integral components of the wastewater management program. Wastewater facilities should be evaluated periodically to determine if they adequately meet long-term needs, i.e., 20 years in the future. Financial programs must include a capital replacement fund to provide for these future needs. New land developments should include collection and treatment facilities as part of the initial plans.

The Regional Water Board regulates all municipal wastewater discharges to protect the quality and beneficial uses of ground water and surface water resources, to maximize reclamation and reuse, and to eliminate waste associated health hazards.

Municipal and industrial point source discharges to surface waters are generally controlled through National Pollutant Discharge Elimination System (NPDES) permits. Although the NPDES program is established by the federal Clean Water Act, the permits are prepared and enforced by the regional water boards through program delegation to California and implementing authority in the California Water Code.

The Regional Water Board will issue NPDES permits and waste discharge requirements for municipal waste discharges to protect water quality. Dischargers will be required to reclaim and reuse wastewater whenever reclamation is feasible.

To prevent nuisance, dischargers are required to manage vegetation on their respective facilities. However, birds may utilize this same vegetation during nesting season, creating a potential conflict between the Health and Water Codes and the Fish and Game Code. In accordance with a Memorandum of Understanding between the Department of Fish and Game and Mosquito Abatement Districts in the Tulare Lake Basin (copy is Appendix 25), vegetation management operations should be conducted so that weed removal operations are not necessary when nesting takes place, which is between April 1 and June 30.

Individual Waste Systems

Control of individual waste treatment and disposal systems can best be accomplished by local county environmental health departments if these departments are strictly enforcing an ordinance that is designed to provide complete protection to ground and surface waters as well as public health. The Regional Water Board's policies and guidelines for waste disposal from land developments is in Appendix 32, which is included by reference into this plan.

The Regional Water Board will consider adoption of a ban on new septic tank systems and elimination of existing systems in areas where the systems contaminate underlying ground water or where a substantial percentage of existing systems fail annually. In making this determination, the Regional Water Board must consider the factors listed in Section 13281 of the

California Water Code. (See the "Prohibitions" section of this chapter for a listing of communities with septic tank system moratoria.) The Regional Water Board will also review alternatives to protect water quality standards and beneficial uses; and prevent nuisance, pollution and contamination. Alternatives may include any combination of individual disposal systems, community collection and disposal systems with subsurface disposal, and conventional treatment systems.

A problem may develop in some agricultural areas of the Basin owing to saturation of the soil when irrigation water along the valley trough is restricted from percolating through the soil profile. As the areal extent of this condition expands, individual waste disposal systems in areas where community sewers are not an option may create surfacing waste and a public health problem.

Septage

Every three years, septage should be pumped from the average septic tank. Commercial liquid waste haulers provide this service. Small sewage treatment plants that may be in a rural area of septic tank users are reluctant to accept pumpings from individual waste disposal systems and vault toilets because of the extremely variable nature of the waste and its potential adverse affect on the plant's operation. Where regional wastewater plants have been funded with federal or state grants, one condition of the award typically requires provision for septage. Where this variability can be accommodated, haulers may find the hauling distance too great and fees too large. As a result, illegal dumps of this waste sometimes occur and cause aesthetic and public health problems.

County authorities presently license septic tank pumpers through their environmental health departments. Thus, county and municipal agencies provide effective control, treatment, and disposal of septic tank pumpings. Upon approval of the County Health Officer, septic tank pumpings may be disposed to qualified waste disposal sites, as defined in Chapter 15, or to disposal facilities specifically approved to receive these wastes.

The Regional Water Board recommends construction of facilities for septic tank pumpings at municipal sewage treatment plants where the waste will not interfere with treatment or cause nuisances.

Effluent Limits

Discharges must meet effluent and receiving water limits set forth in adopted waste discharge requirements. Point source discharges to navigable waters must comply with Section 301 of the Clean Water Act. Point source discharges to land must comply with waste discharge requirements developed according to California Water Code Section 13377 and Section 13263, respectively. NPDES permits must be renewed every 5 years. Other waste discharge requirements must be reviewed every 5, 10, or 15 years depending upon the threat to water quality of the discharge.

The effluent limits presented in the following sections of this chapter are the minimum treatment level which must be provided.

Discharges to Navigable Waters

40 CFR 125 requires publicly owned treatment works to provide secondary treatment and best practicable waste treatment technology, or provide adequate treatment to meet the water quality standards, whichever is more stringent. (40 CFR 133 defines secondary treatment as removal of 85 percent or reduction to 30 mg/l, whichever is more stringent, of both 5-day BOD and suspended solids.) Effluent limitations for other point sources are also described in 40 CFR 125. Special limitations for certain types of industrial discharges are defined in the 40 CFR 400 series. These sources must provide best practicable control technology currently available.

The following policy shall govern waste discharges to navigable waters in the Tulare Lake Basin:

- Discharges to surface waters will not be considered a permanent solution when the potential exists for wastewater reclamation.

- Discharge to ephemeral streams or to streams that have limited dilution capacity will not be considered a permanent solution unless it is accomplished in such a manner as to safeguard the public health and prevent nuisances, and the wastewater is of such a quality that it benefits streamflow augmentation.

- Dischargers in mountain areas must evaluate land disposal as an alternative. Where studies show that year-round land disposal is not practicable, dischargers must evaluate dry season land disposal as an alternative.

As a minimum, dischargers to surface waters, including stream channels, shall comply with the following effluent limits:

- All domestic discharges shall be adequately treated and disinfected to reliably meet wastewater reclamation criteria (Title 22, California Code of Regulations, Division 4, Section 60301, et. seq.).

- The maximum electrical conductivity (EC) of a discharge shall not exceed the quality of the source water plus 500 micromhos per centimeter or 1,000 micromhos per centimeter, whichever is more stringent. When the water is from more than one source, the EC shall be a weighted average of all sources.

- Discharges shall not exceed an EC of 1,000 micromhos per centimeter, a chloride content of 175 mg/l, or a boron content of 1.0 mg/l.

In addition to the above, discharges to waters having an EC or water quality objective of less than 150 micromhos shall comply with the following:

- Complete removal of settleable and floatable solids

- Nutrient removal as necessary to control biostimulation

- Removal of dissolved solids to levels consistent with those of the receiving waters

- Ammonia removed as necessary to protect aquatic life.

- Substantially complete removal of any substance known to be toxic to plant and/or animal life.

Discharges to Land

Wastewater treatment facilities that discharge to land in a manner that waste may infiltrate below the ground surface and degrade ground water must also comply with effluent limits. The excellent quality of ground waters along the easterly edge of the Basin should be protected by encouraging the application or disposal of consolidated treated effluents to the west, toward the drainage trough of the valley.

The levels of treatment required of all domestic wastewater facilities with land disposal are as follows:

1. Primary: Primary treatment is acceptable only under exceptional circumstances, typically a relatively minor discharge in an isolated location where there is little risk of nuisance or water quality degradation. Treatment and disposal in some instances could be provided by septic tanks and a leach field. Increased amounts of wastewater or nuisance conditions would require an upgrade in level of treatment.

2. Advanced Primary: This treatment may be satisfactory for smaller facilities in outlying or remote areas where the potential for odors and other nuisances is low. Advanced primary shall provide removal of 60 to 70 percent or reduction to 70 mg/l, whichever is more restrictive, of both 5-day BOD and suspended solids.

3. Secondary Treatment: Secondary treatment should remove 85 percent or reduce to 30 mg/l, whichever is more restrictive, of both 5-day BOD and suspended solids. Secondary treatment may be required where public access to wastewater is not precluded.

   Most wastewater discharges will be adequately precluded from public access and secondary treatment will not be necessary. Facilities which discharge or are designed to discharge in excess of 1 million gallons per day must provide removal of 80 percent or reduction to 40 mg/l, whichever is more restrictive, of both 5-day BOD and suspended solids. Smaller facilities (less than 1 million gallons per day) in close proximity to an urbanized area or using particular methods of effluent disposal (e.g., irrigation of certain types of crops) will also be required to provide 80 percent removal or reduction to 40 mg/l, whichever is more restrictive, of both 5 day BOD and suspended solids.

4. Advanced Wastewater Treatment: Reclaimed water used for the spray irrigation of food crops must also be coagulated and filtered. Coagulated wastewater means oxidized wastewater in which colloidal and finely divided suspended matter have been destabilized and agglomerated by the addition of suitable floc-forming chemicals or by an equally effective method. Filtered wastewater means an oxidized, coagulated, clarified wastewater which has been passed through natural undisturbed soils or filter media, such as sand or diatomaceous earth, so that the turbidity does not exceed an average operating turbidity of 2 NTUs and does not exceed 5 NTUs more than 5 percent of the time during any 24-hour period (Title 22, California Code of Regulations, Section 60301, et seq.).

Additional effluent limits follow:

- The incremental increase in salts from use and treatment must be controlled to the extent possible. The maximum EC shall not exceed the EC of the source water plus 500 micromhos/cm. When the source water is from more than one source, the EC shall be a weighted average of all sources.

- Concentration of total coliform organisms in reclaimed wastewater must be in accordance with limits established in the following provisions of Title 22, California Code of Regulations: Sections 60303 (Spray Irrigation of Food Crops), 60305 (Surface Irrigation of Food Crops), 60311 (Pasture for Milking Animals), 60313 (Landscape Irrigation), 60315 (Nonrestricted Recreational Impoundment), 60317 (Restricted Recreational Impoundment), and 60319 (Landscape Impoundment).

- In the Poso Creek Subarea, discharges shall not exceed 1,000 micromhos/cm EC, 200 mg/l chlorides, and 1.0 mg/l boron. The Poso Creek subarea consists of about 35,000 acres of land between State Highways 99 and 65 about six miles north of Bakersfield, and is defined more specifically in Regional Water Board Resolution No. 71-122, which is incorporated by reference into this plan.

- In the White Wolf Subarea, for areas overlying Class I irrigation water, discharges shall not exceed 1,000 µmhos/cm EC, 175 mg/l chlorides; 60 percent sodium, and 1.0 mg/l boron. For areas overlying Class II or poorer irrigation water, discharges shall not exceed 2,000 µmhos/cm EC, 350 mg/l chlorides, 75 percent sodium, and 2 mg/l boron. In areas where ground water would be Class I except for the concentration of a specific constituent, only that constituent will be allowed to exceed the specified limits for Class I water. In no case shall any constituent be greater than those limits specified for areas overlying Class II irrigation water. The White Wolf subarea consists of 64,000 acres within the valley floor, at the southern tip of the Tulare Lake Basin, about 20 miles south of Bakersfield. The subarea is bounded on the west by the San Emigdio Mountains, on the south and east by the Tehachapi Mountains, and on the north by the White Wolf Fault.

  Criteria for mineral quality of irrigation water is described below:

Constituent	Class I	Class II	Class III
TDS (mg/l)	<700	700 - 2,000	>2,000
EC (µmhos/cm)	<1,000	1,000 - 3,000	>3,000
Chlorides (mg/l)	<175	175 - 350	>350
Sodium (percent base constituents)	<60	60 - 75	>75
Boron (mg/l)	<0.5	0.5 - 2	>2

- Discharges to areas that may recharge to good quality ground waters shall not exceed an EC of 1,000 micromhos per centimeter, a chloride content of 175 mg/l, or a boron content of 1.0 mg/l.

Wastewater Reclamation

Reclaimed water provides a substitute source of water and provides nutrients that nourish crops. When properly managed, reclamation consumes nitrates and effluent that would normally percolate to local ground waters underlying a community and can free up potable water for growth or other uses. Extensive reclamation is a practical necessity simply to maintain present levels of development and activity in the Basin.

Wastewater reclamation shall be maximized by controlling or limiting salt pickup and evaporation during use, treatment, or disposal. Integration of final disposal into existing surface distribution systems appears to be advantageous. Wherever feasible, eventual wastewater reclamation will be requested.

Title 22, California Code of Regulations, establishes reclamation criteria for direct use of reclaimed water but has no criteria for wastewater distributed with irrigation supplies. Therefore, municipal treatment facilities producing effluent for introduction to irrigation canals for unrestricted irrigation will be required, as a minimum, to disinfect to 23 MPN coliform per 100 ml. The Department of Health Services will be consulted for all cases.

To facilitate the use of treated wastewater with short notice, wastewater reclamation requirements may be waived for up to one year provided that the following conditions are met:

1. The reclaimed water will comply with any applicable criteria provided by Title 22, Division 4, California Code of Regulations;

2. The proposed uses receive prior approval from the state and local health departments and the Executive Officer; and

3. The reclamation project is consistent with the "Guidelines for Use of Reclaimed Water" developed by the Department of Health Services. The "Guidelines for Use of Reclaimed Water" is incorporated by reference into this plan. (See Appendix 34.)

Reclamation projects more than one year in duration may be allowed to proceed prior to final approval of reclamation requirements provided that the use complies with reclamation criteria.

Waste discharge requirements will be revised and wastewater reclamation requirements adopted as soon as possible to allow reuse. No enforcement actions will be taken against a community allowing wastewater reuse prior to revision of waste discharge requirements provided that the use complies with reclamation criteria.

Reclamation policies are as follows:

- Discharges to surface water and evaporation of reclaimable wastewater will not be acceptable permanent disposal methods where opportunity exists to replace an existing use or proposed use of fresh water with reclaimed water; a timetable for reclamation or reuse may be set by the Regional Water Board.

- The quality of waste discharges shall be regulated to promote reclamation and reuse wherever feasible.

- Rates of wastewater application that exceed reasonable agronomic rates will not be considered as reclamation or reuse.

- Project reports for new or expanded wastewater facilities shall include plans for wastewater reclamation or the reasons why this is not possible.

- Where studies show that year-round or continuous reuse of all of the wastewater is not practicable, consideration shall be given to partial reuse of the flow and seasonal reuse.

The irrigation season in the Tulare Lake Basin area typically extends 9 to 10 months, but monthly water usage varies widely. To maximize reuse, users should provide water storage and regulating reservoirs, or percolation ponds that could be used for ground water recharge of surplus waters when there is no irrigation demand.

State Water Board policy, described in Resolution No. 77-1, Appendix 4, encourages and provides funds for reclamation projects that protect beneficial uses of existing water supplies, encourage water conservation, and encourage other agencies to assist in implementation.

Consolidations

Proliferation of small treatment plants in developed areas is undesirable. Most small communities do not have adequate resources to properly manage, treat and dispose of wastewater in an urban environment. Typical problems involve nuisance and ground water pollution. Small communities and development close to other small communities may be able to construct and operate a joint wastewater treatment facility with greater treatment ability, opportunity for reclamation, and for lower cost. Policies on consolidation are as follows:

- Adjoining small communities should combine resources to construct and operate a joint or regional wastewater treatment plant.

- Consolidation, whether one or more regional facilities operated by a single sewering authority, should be cost-effective, and consider benefits to the ecology, treatment efficiencies, and effective reuse of the waters.

- Unsewered areas and new developments adjacent to or within existing wastewater collection system service areas should be connected to the system. Developments not within a service area but within the projected sphere of influence of a regional system should be developed in a manner that provides for future connection to the system when the regional sewer system becomes available. One condition of approval of individual sewage disposal systems in certain areas and of certain densities may be that developments be dry sewered in a manner that provides cost-effective sewerage infrastructure to be placed during initial construction.

- Each municipal facility should act as a regional facility and provide sewerage services within its sphere of influence. The municipality must be equitably compensated for these services.

- Areas recommended for consolidation of wastewater systems are the Parlier area, the Bakersfield area, and the City of Delano. The Selma-Kingsburg-Fowler (Tri-Cities) and Fresno-Clovis regions have been consolidated. Consolidations of other wastewater treatment plants may be justified at some future time.

The intent of this policy is to make consolidation the rule rather than the exception. Consolidation should be compared to other approaches. If such a comparison yields clear technical, environmental, or economic advantages for consolidating, then consolidation should be implemented.

Pretreatment

Many municipal facilities in the Basin treat significant volumes of industrial wastewater. Most of this wastewater is from agriculture-related industries that fluctuate seasonally. Requirements for industrial users that discharge directly to surface water or to land are in the "Industrial Wastewater" Section of this chapter. Indirect industrial users discharge to a municipal wastewater treatment system and are regulated by the municipal discharger. Policies on pretreatment are as follows:

- All publicly owned treatment works (POTWs) with a design flow greater than 5.0 million gallons per day must comply with 40 CFR 403, the federal pretreatment program requirements.

- Smaller POTWs with industrial flows which may cause pass-through or interference may also be required to develop pretreatment programs.

- All industrial users that discharge to POTWs must comply with the National Pretreatment Standards regardless of whether the POTW has an approved pretreatment program.

Industrial Wastewater

The number of known cases of ground water pollution or public nuisance attributable to industrial sources has increased steadily over the last decade. Much of the increase is due to sources such as underground tanks that were never intended to discharge but which leaked undetected for years. The Region's inventory of underground storage tanks indicates a high number of leaking tanks. Ground water contamination from other industrial sources generally occurs from the illegal discharge of fluids or other materials used in production processes. Waste compounds have been discharged directly to unlined sumps, pits, or depressions and spread on soils. In some cases, these disposal practices went on for many years before they were discovered or discontinued.

There are two types of industrial dischargers: direct and indirect. Indirect dischargers are those who discharge into community wastewater systems. The federal regulations require that all indirect users abide by general National Pretreatment Standards and that certain categories of indirect users comply with specific discharge standards. (See Pretreatment Section, above.)

Direct dischargers discharge to either surface water or land. Surface water dischargers are subject to federal and state regulations. Federal regulations require dischargers to comply with best conventional pollutant control technology (BCT), best practicable control technology currently available (BPT), or best available technology economically achievable (BAT). Effluent limitations for specific industrial waste discharges to surface waters, together with standards of performance and pretreatment standards for new sources, are found in 40 CFR 400. Waste source categories of particular interest in the Tulare Lake Basin include dairy product processing, meat product and rendering processing, canned and preserved fruit and vegetable processing, beet sugar processing, and petroleum production and refining. When treatment technology is not defined, regulations specify use of best practicable judgement (BPJ).

Generally, the effluent limits established for municipal waste discharges will apply to industrial wastes. Industrial dischargers shall be required to:

1. Comply with water quality objectives established in Chapter III.

2. Comply with Chapter 15 for discharges of designated or hazardous waste unless the discharger demonstrates that site conditions and/or treatment and disposal methods enable the discharge to comply with this Basin Plan and otherwise qualify for exemption from Chapter 15.

3. Comply with effluent limitations set forth in 40 CFR 400 when discharge is to surface water.

4. Comply with, or justify a departure from, effluent limitations set forth in 40 CFR 400 if discharge is to land.

5. Limit the increase in EC of a point source discharge to surface water or land to to a maximum of 500 μmhos/cm. A lower limit may be required to assure compliance with water quality objectives.

   An exception to this EC limit may be permitted for industrial sources when the discharger technically demonstrates that allowing a greater net incre-

mental increase in EC will result in lower mass emissions of salt and in conservation of water, provided that beneficial uses are protected.

An exception may also be permitted for food processing industries that discharge to land and exhibit a disproportionate increase in EC of the discharge over the EC of the source water due to unavoidable concentrations of organic dissolved solids from the raw food product, provided that beneficial uses are protected. Exceptions shall be based on demonstration of best available technology and best management practices that control inorganic dissolved solids to the maximum extent feasible.

Cull fruits and wastes from food processing generally are voluminous and may have a high water content like winery wastes. Provision should be made for thin spreading of such materials on the fields, followed promptly by disking into the soil.

6. The Regional Water Board encourages the reclamation and reuse of wastewater, including treated ground water resulting from a cleanup action, where practicable and requires as part of a Report of Waste Discharge an evaluation of reuse and land disposal options as alternative disposal methods. Reuse options should include consideration of the following, where appropriate, based on the quality of the wastewater and the required quality for the specific reuses: industrial and municipal supply, crop irrigation, landscape irrigation, ground water recharge, and wetland restoration. Where studies show that year-round or continuous reuse of land disposal of all the wastewater is not practicable, the Regional Water Board will require dischargers to evaluate how reuse or land disposal can be optimized, such as consideration of reuse/disposal for part of the flow and seasonal reuse/disposal options (e. g., dry season land disposal).

7. Unless an exception is technically justified, segregate domestic waste from industrial waste, and treat and dispose of domestic waste according to the policy for municipal and domestic wastewater.

Additional specific requirements have been adopted for wastewater from oil fields and wineries.

Oil Field Wastewater

Hydrocarbon production in the San Joaquin Valley's 74 oil fields generates significant volumes of wastewater. Oil field producers continue to use hundreds of sumps as oil/wastewater separators and as wastewater disposal sumps. Some oil field wastewaters contain salts, oil and grease, metals, and organics which can present a threat to the beneficial uses of underlying good quality ground water. However, in some areas, wastewater may be of a quality which allows its reuse for reclamation or discharge to surface waters. In these instances, waste discharge requirements or NPDES permits, as appropriate, are issued. In addition, some ground water in the Basin is naturally of such poor quality that oil field wastewater will not impact its beneficial uses. Due to historical practices, degradation of ground water from oil field wastewater disposal occurred in some areas. The petroleum industry has been eliminating oilfield wastewater disposal sumps.

With the gradual elimination of the use of sumps for disposal, increased amounts of produced wastewater are being discharged to Class II injection wells. Title 14, California Code of Regulations, Section 1724.6, et seq., defines environmental protection regulations relating to oil and gas operations administered by the California Department of Conservation, Division of Oil, Gas & Geothermal Resources in cooperation with other state regulatory agencies. The Department of Conservation administers the federal underground well injection program for Class II injection wells within the state. The Regional Water Board reviews and may comment on the permit application regarding water quality concerns. The review process is in accordance with a Memorandum of Agreement between the State Water Board and the Department of Conservation. The purpose of the agreement is to ensure that the construction or operation of Class II injection disposal wells and the land disposal of wastewaters from oil, gas, and geothermal production facilities does not cause degradation of waters of the state. The Memorandum of Agreement provides a coordinated approach that results in a single permit satisfying the statutory obligations of both agencies.

The Memorandum of Agreement also requires the Department of Conservation to notify the Board of all pollution problems, including spills associated with operators and/or new proposed oil field discharges. The agencies must work together, within certain timelines, to review and prepare permits and coordinate enforcement actions.

Policies regarding the disposal of oil field wastewater are:

- Maximum salinity limits for wastewaters in unlined sumps overlying ground water with existing and future probable beneficial uses are 1,000 μmhos/cm EC, 200 mg/l chlorides, and 1 mg/l boron, except in the White Wolf subarea where more or less restrictive limits apply. The limits for the White Wolf subarea are discussed in the "Discharges to Land" subsection of the "Municipal and Domestic Wastewater" section.

- Discharges of oil field wastewater that exceed the above maximum salinity limits may be permitted to unlined sumps, stream channels, or surface waters if the discharger successfully demonstrates to the Regional Water Board in a public hearing that the proposed discharge will not substantially affect water quality nor cause a violation of water quality objectives.

- Disposal sumps shall either be free of oil or effectively covered or screened to preclude entry of birds or animals. Compliance monitoring for wildlife problems shall continue to be deferred to the Department of Conservation and the Department of Fish and Game. The Regional Water Board will respond to complaints, spot check for compliance, and enforce conditions as necessary.

- Sumps adjacent to natural drainage courses shall be protected from inundation or washout, or properly closed.

- Regulation of oil field dischargers shall be coordinated with all other state and federal agencies having jurisdiction and interest in the oil field.

- The discharge of produced wastewater to land, where the concentration of constituents may cause ground water to exceed water quality objectives, shall be subject to the requirements contained in the California Code of Regulations, Title 23, Section 2510, et seq. (Chapter 15).

Wineries

A substantial number of wineries operate throughout the Central Valley. Many of these wineries produce substantial quantities of stillage waste which is high in concentrations of BOD, EC, TDS, and nitrogen. As stillage is normally discharged directly to land without any prior treatment, there is significant potential for the waste to affect water quality and to create nuisance conditions if not managed properly.

A study conducted in 1980 developed recommendations for minimizing water quality effects and nuisance conditions resulting from land application of stillage waste (Metcalf and Eddy, "Land Application of Stillage Waste: Odor Control and Environmental Effects"). Based on the study, the Regional Water Board adopted guidelines for the land disposal of stillage waste from wineries. These guidelines may not be sufficient where local soil, ground water, weather, or other conditions are not compatible with the stillage to be disposed. These guidelines prescribe the minimum requirements for disposal of stillage waste from wineries and do not preclude the establishment of more stringent requirements as necessary to comply with water quality objectives. The policy for land disposal of stillage waste is presented below.

Storm Water

Runoff from residential and industrial areas can contribute to water quality degradation. Urban storm water runoff contains organics, pesticides, oil, grease, and heavy metals. Because these pollutants accumulate during the dry summer months, the first major storm after summer can flush a highly concentrated load to receiving waters and catch basins. Combined storm and sanitary systems may result in some runoff to wastewater treatment plants. In other cases, storm water collection wells can produce direct discharges to ground water. Impacts of storm water contaminants on surface and ground waters are an important concern.

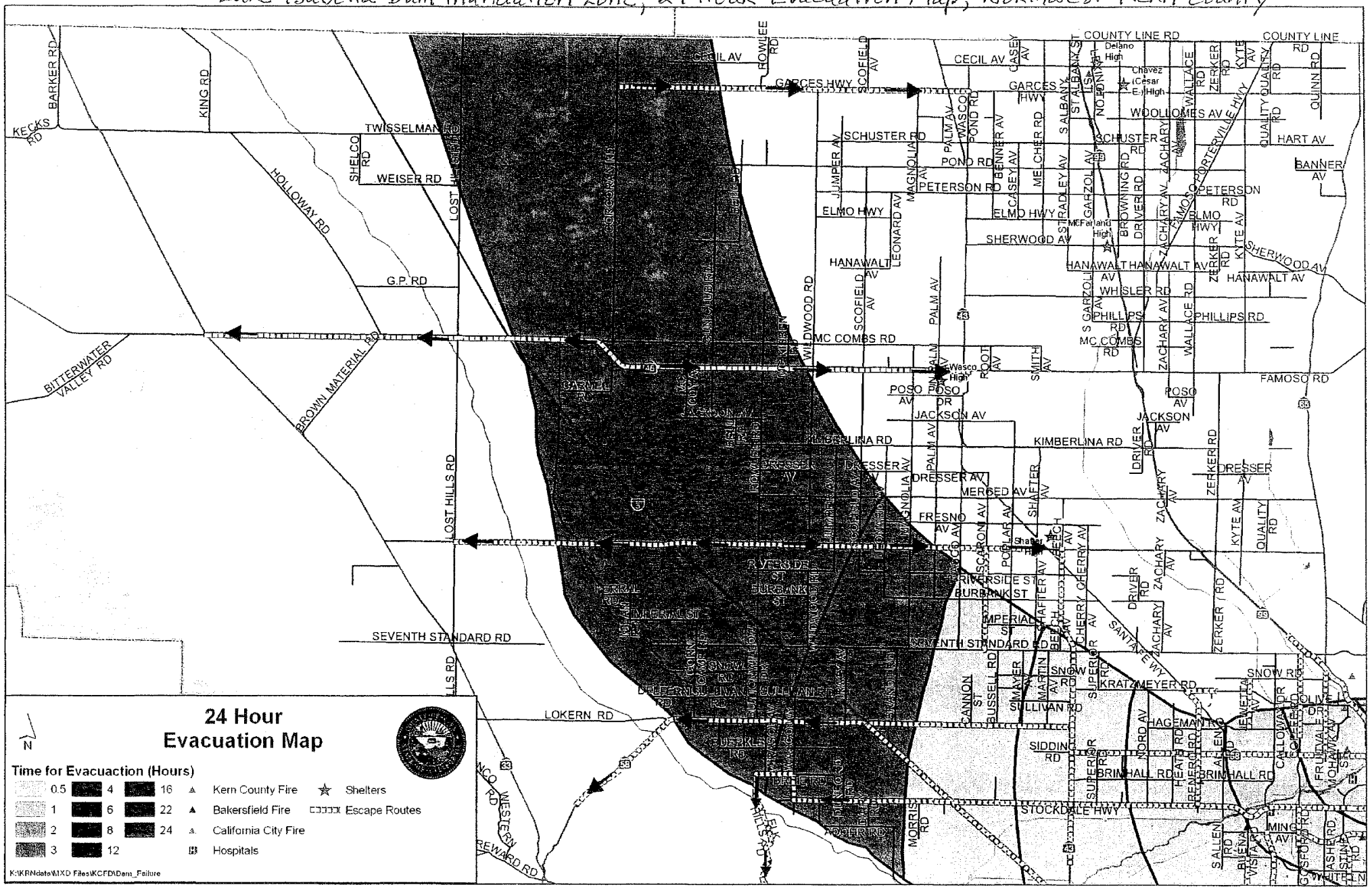
EPA has promulgated regulations for municipal and industrial stormwater permits in 40 CFR 122. The State Water Board implemented these regulations by adopting a General Industrial Activities Storm Water Permit (excluding construction activity) and a General Construction Activity Storm Water Permit. Storm water dischargers indicate intention to follow the specifications in the appropriate permit by filing a Notice of Intent with the State Water Board.

The Regional Water Board will take all measures necessary to protect the quality of surface and ground waters from treatment or disposal of urban runoff.

- The Regional Water Board will issue waste discharge requirements on the discharge of urban runoff when a threat to water quality exists.

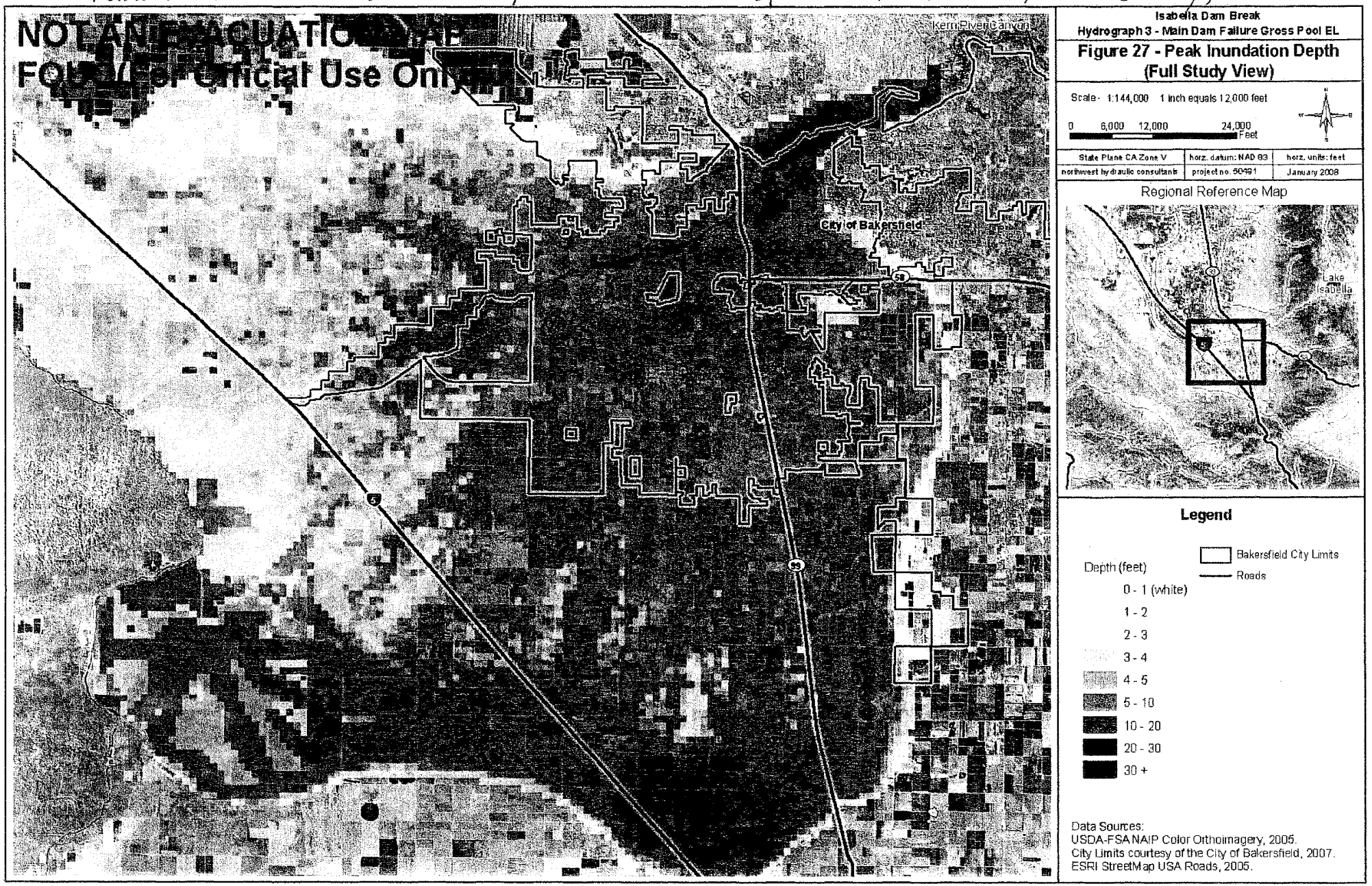
- The Regional Water Board will regulate large and medium municipal stormwater dischargers and, at its discretion, specific industrial dischargers through the issuance of individual NPDES permits. Industrial dischargers may also be

Lake Isabella Dam Inundation Zone, 24 Hour Evacuation Map, Northwest Kern County



Attachment 17

Lake Isabella Dam Inundation Zone, Peak Inundation Depth for Bakersfield, Kern County, CA



Attachment 19

Valley Voice May 27, 2010

Experienced Lawmen Vie For County's Top Job

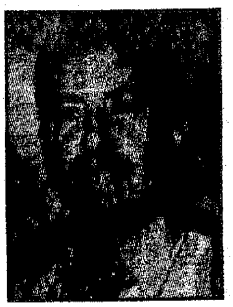
Two experienced lawmen are seeking to be Tulare County Sheriff. One is seeking his first term, the other his fourth term.

John Zapalac is again challenging Bill Wittman for sheriff. The two squared off four years ago, with Wittman winning with 64 percent of the vote in the June race. Wittman ran unopposed in 2002.

Both men have a ton of law enforcement experience. Zapalac served in the Tulare County Sheriff's Office for 14 years before becoming police chief of Woodlake 11 years ago. He began his career in Orange County in 1978.

Wittman began is law enforcement career in the Bay Area in 1968, served many years in the Visalia Police Department before being elected sheriff in 1994.

Bill Wittman



John Zapalac

Both are committed lawmen and both have worked with youth to keep them from a life of crime and gangs. Zapalac began Camp Zap for young kids in Woodlake and surrounding cities, while Wittman formed the TSCO Police Activities League to work with young people.

While the differences are not great, there are differences. Zapalac makes his case with the statement that it is time for a change. He strongly advocates an approach similar to what he has taken in Woodlake to focus working with youth early and steer them away from crime and drugs.

"Look at what we've done in Woodlake. We started 10 years ago targeting our young people and began seeing results three years go. We just

See SHERIFF page 22

SHERIFF from page 21

need to change the way we do law enforcement. We need to get to young people," the Woodlake chief said.

While Wittman said doing all his department can to keep youth from going astray of the law, enforcement is still his main focus. He said he will continue to "hammer" the gangs with injunctions and strong enforcement.

Wittman feels he has earned another term.

"I still have a passion for the job. I'm supported by the men and women of the organization. I have the experience to pull the organization through the hard times we still face," he said, referring to budget challenges. "I have the proper staff and management team to get us through it."

Zapalac feels it's time for a change.

"The incumbent has been there 16 years and drugs and gang issues have gotten worse – based on county numbers, specifically in the unincorporated areas."

He said that the suppression-based solution is not working. He said if elected, he would start focusing more on prevention measures. "Community base policing has to be a philosophy," he said.

Wittman said through good management, the sheriff's office has been able to so far handle budget cuts and has not had to lay off any deputies.

"I don't know of any county or city that's going to hire additional officers this year. We need to be as efficient as we can. When someone calls 911, people still expect to have a deputy there," he said

He said the department is prepared to take on more prisoners as has been suggested by the governor.

However, "We don't have the resources to put on more deputies. I hope the state has a plan and helps us develop resources to add more staff," he said. He added that he has developed some good plans, such as a work furlough program, to keep people out of the jails to make room for the more harden criminal.

Zapalac said he will bring a new attitude to the office of sheriff and would be very cooperative with the city police departments. "Having a good attitude goes a long way. Wanting to work with other agencies goes a long way and when the leader sends down the right message – we are here to serve, hear to cooperate - that's the kind of message our county and city leaders need as well. It's all about attitudes," he said.

Both men agree having enough money to do their jobs is going to be a challenge.

"We have to work harder. There's a level of service I want to provide the people of this county and will need to find resources to continue to do that - like reserves and volunteers (over 500 now)," Wittman said.

Zapalac said the case must be made to the board of supervisors that public safety is a priority. "I will identify where there are shortages in staffing," he said if elected, then seek the money to fill those positions.

Attachment 19

County of Tulare

Office of
Bill Wittman
Sheriff-Coroner
2404 W. Burrel
Visalia, CA 93291-4
(559) 733-6241

Administration
(559) 733-6233

Detentions
(559) 733-6823

Investigations
(559) 733-6523

Operations
(559) 733-6221

DATE 8/30/10

Carole Clum
45638 S. Fork Drive
Three Rivers, Ca, 93271
(559) 561-4661

Dear Ms. Carole Clum,

We received your written request, dated July 9th, 2010 to provide the Tulare County Sheriff's Department budget for fiscal years 2003 through 2011. I tried called you and left several voice messages. Here is the information you requested.

Tulare County Sheriff's Department
Fiscal Year Adopted Operating Budgets

2003/2004 $ 52,813,577
2004/2005 $ 57,220,302
2005/2006 $ 64,453,055
2006/2007 $ 68,223,974
2007/2008 $ 75,088,099
2008/2009 $ 80,987,383
2009/2010 $ 79,637,246
2010/2011 $ 77,450,448 Requested--Not adopted until Sept. 14, 2010

If I can be of ufrther service to you feel free to call my office at (559) 733-6225.

Sincerely,

Lt John Wells

Sheriff's Lieutenant
for Bill Wittman, Sheriff

cc: Department
Employee
Personnel Department

Attachment 20

California's Divided Fortunes

Wall Street Journal, Feb. 2, 2010

Economy Is Starting to Recover on the Coast, but Inland Areas Remain in a Rut

By Cari Tuna

California's economy is showing signs of stabilizing, but progress is uneven as coastal regions begin to rally and inland areas continue to sink.

Unemployment rates are dipping and home prices are rebounding in the San Francisco Bay area, which is driven by its technology industry and exports, and in coastal Southern California, where entertainment and other industries are starting to benefit from the economic thaw. But in the state's Central Valley and Inland Empire regions, where the downturn struck earlier and harder, unemployment rates are still rising and the battered construction industry keeps shedding workers.

"California has become increasingly divided between coastal and inland areas," said Hans Johnson, associate director at the Public Policy Institute of California, a San Francisco think tank.

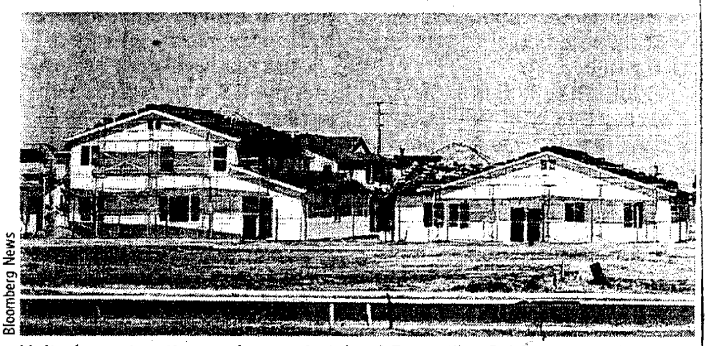
The continuing decline inland could drag down the state's overall recovery and lead to greater inequality between residents. That has national repercussions, since the state's $1.8 trillion economy is often viewed as an economic bellwether.

Overall, California's economy remains weak, and the stabilization on the coast is just beginning. The state's seasonally adjusted unemployment rate was 12.4% in December, down from an October peak of 12.5% but still higher than the national unemployment rate of 10%, according to the California Employment Development Department.

The different economic trajectories of the state's coastal and inland areas are evident in the experiences of **Marvell Technology Group** Ltd. and Pelco Inc. Marvell, a Silicon Valley microchip maker, currently lists on its Web site about 120 job openings at its operational headquarters in Santa Clara, though some of those spots might be filled internally, said Marvell corporate-marketing executive Tom Hayes.

The job openings follow a sales drop in early 2009, when Marvell cut around 130 jobs in Santa Clara. Since then, revenue has picked up due to rising exports to countries such as China, among other factors, Mr. Hayes said. Marvell has about 5,000 employees world-wide.

By contrast, **Schneider Electric** SA's Pelco unit laid off 100 of its roughly 2,200 employees last month amid weak demand. The maker of video and security equipment, located well inland in the Fresno County city of Clovis, said it didn't expect sales to quickly recover. "It was just absolutely necessary to realign the size of our company to match the current economy," spokeswoman Kathleen Rhodes said.



Bloomberg News

Halted construction on homes in inland Roseville, Calif., seen in August.

The inland-coastal split is likely to have significant demographic and social consequences. Mr. Johnson said that during the housing boom, many coastal residents moved inland to buy homes, despite longer commutes to jobs in the Bay area or greater Los Angeles. In recent years, that migration trend reversed, he said, as foreclosures mounted inland and housing prices fell on the coast.

Now, housing prices in coastal areas again are rising, a sign that their economies are reviving. The median home price in the nine-county Bay area increased 15.2% in December from a year earlier to $380,000, according to data provider MDA DataQuick. In coastal Southern California, the median home price increased 7.5% to $360,000.

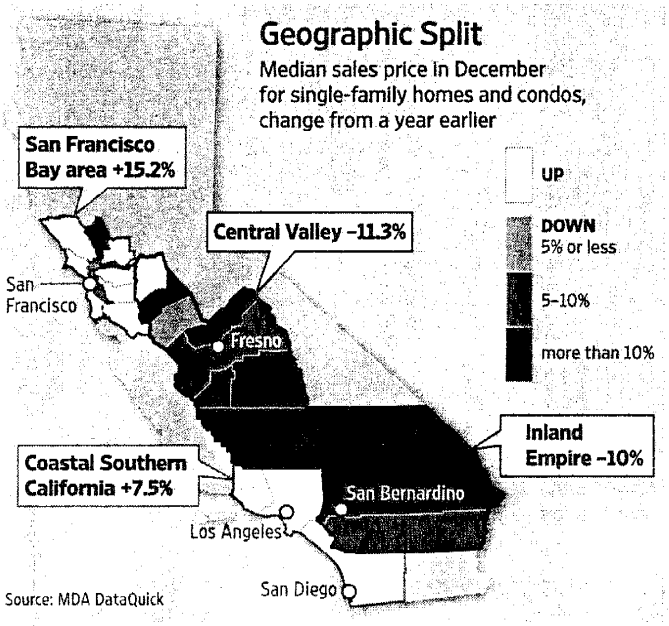
By contrast, the median home price in the eight-county Central Valley fell 11.3% to $142,000 over the same period, according to DataQuick. In the Inland Empire counties of San Bernardino and Riverside, the median home price in December was $180,000, down 10% from a year earlier.

Local jobless rates, which aren't seasonally adjusted, show a similar pattern. Unemployment rates fell in December from November in eight of the Bay area's nine counties and three of coastal Southern California's four counties, according to the state Employment Development Department. But in the Central Valley, where unemployment already is higher, jobless rates rose in six of eight counties and held steady in the other two. In a rare glimmer of positive news, San Bernardino and Riverside saw their unemployment rates fall in December, though joblessness there remained high.

Stephen Levy, director of the Center for Continuing Study of the California Economy, a Palo Alto think tank, said coastal Northern and Southern California are benefiting from a nascent revival in venture-capital investment and exports. In the fourth quarter, venture capitalists invested $2.8 billion in California, according to research firm VentureSource. The Bay area received 76% of that investment and coastal Southern California took in 19%.

The convergence of economic fortunes of coastal Northern and Southern California marks a departure from the past two recessions. In the early 1990s, Southern California hemorrhaged jobs in aerospace and defense and it trailed the Bay area's red-hot economy for the rest of the decade. Southern California weathered the dot-com bust in the early 2000s better than the tech-dependent Bay area.

But recent years saw the rise of a new center of economic activity in inland California, driven primarily by construction. That growth engine is now gone, Mr. Levy said.



Attachment 21

Tulare County General Plan 2030 Update Background Information - March 25, 2010

Tulare County General Plan 2030 Update

The February 2010 draft of the Tulare County General Plan 2030 Update (General Plan Update) documents, which includes Part I, Goals and Policies Report, and Part II, Area Plans, the Recirculated Draft Environmental Impact Report (RDEIR), and the Tulare County General Plan 2010 Background Report are now available for review. A Climate Action Plan has been prepared as an implementation measure of the General Plan Update. The Climate Action Plan is not a part of the formal General Plan Update documents but will be considered for approval subsequent to the adoption of the General Plan Update. These documents are available for review at the County of Tulare Resource Management Agency, located at the Tulare County Government Plaza, 5961 S. Mooney Blvd. in Visalia, California or at any of the Tulare County's library branches. The documents can also be found at the County's website (www.co.tulare.ca.us). For further information, please contact David Bryant, project planner at (559) 624-7000.

The County's General Plan provides a comprehensive, long-term plan for land use and physical development in the unincorporated areas of the County. The County's General Plan consists of development policies that set forth objectives, principles and standards that guide land use decisions within the County. The general plan and its figures, diagrams, and development policies form the basis for the County's zoning, subdivision, and public works decisions.

The General Plan Update maintains the long standing tradition of supporting sustainable agricultural resources through the Rural Valley Lands Plan, and directing future urban growth into established areas containing existing development through the proposed Planning Framework Element (update of the existing Urban Boundaries Element).

The California Environmental Quality Act (CEQA) requires the County to have a public review or comment period wherein interested parties, including but not limited to public entities, private individuals and special interest groups, can comment in writing on the RDEIR. This public comment period will open on March 25, 2010 and close at 5:30 p.m. on May 27, 2010 for a 60 day review period. Notice of this public comment period will be published once on March 25, 2010, in a number of local newspapers in the County. At the end of the public comment period, the County plans on preparing a Final Environmental Impact Report (FEIR) on this project as required under CEQA. The FEIR will consist of the RDEIR and the County's responses to the comments received during the public comment period.

After the preparation of the FEIR, the Tulare County Board of Supervisors and the Tulare County Planning Commission plan to hold a joint public workshop on the General Plan Update in the Chambers of the Board of Supervisors, Administration Building, County Civic Center, 2800 West Burrel, Visalia, California. The workshop will provide the Board of Supervisors and Planning Commission with a review of the preliminary responses to comments on the RDEIR, and seek direction regarding the completion of the General Plan Update process. A notice of this workshop will be published. Copies of the notice will be sent to any individual or entity requesting notice. After this workshop the Planning Commission will meet in a noticed public hearing to review the proposed project and make recommendations to the Board of Supervisors. After the Planning Commission has made its recommendation on the proposed project, the Tulare County Board of Supervisors will notice and hold a public hearing on the proposed General Plan Update and will consider the Final EIR. Both of these public hearings will be noticed separately. Copies of the notice will be sent to any individual or entity requesting notice.

Historical Background:

After many community and County workshops, the County published in January 2008 a proposed Tulare County General Plan Update and Draft Environmental Impact Report (DEIR). The DEIR was circulated for public review and comment for an extended period of over 90 days (January 14, 2008 through April 15, 2008) to allow for maximum public involvement and input. During the public review period, the County received approximately 95 written communications from agencies, organizations and individuals with comments on the General Plan Update and DEIR.

The County and its consultants reviewed these comments to determine whether any additional environmental analysis would be required to respond to issues raised in the comments. Based on that review, the County determined that several subjects warranted additional information, analysis or clarification. In its role as the lead agency, the County directed the recirculation of a revised DEIR for the proposed project. Consideration of the various comments received on the DEIR, as well as continued developments in the areas of air quality, climate change impacts regulation and water resources resulted in the County's decision to update a number of sections of the previous DEIR as well as the Background Report. This effort has resulted in the proposed General Plan 2030 Update and RDEIR, released on March 25, 2010.

Although a part of the administrative record, the comments from the public and public entities received on the January 2008 DEIR do not require a written response in the FEIR because of the RDEIR that is being circulated at this time. The County, as provided in CEQA Guidelines, section 15088.5(f)(1), will not respond to individual comments received on the January 2008 Draft EIR but will respond to any new comments received on this February 2010 RDEIR as part of the FEIR to be considered by the Planning Commission and Board of Supervisors.

The following is a summary of current revisions to the General Plan Update.

1. Introduction Hierarchy: The Introduction chapter to Part I of the General Plan update has been revised to provide a clear hierarchy and summary of the General Plan Update document and how it relates to the existing General Plan documents the County will retain (i.e. Community Plans).

2. Existing Plans Incorporated by Reference: Part III of the General Plan update consists of the existing Plans and Amendments that will not be revised or re-adopted (Community, Hamlet, County Adopted City General, Valley Sub-Area, Corridor Sub-Area, and Mountain Sub-Area Plans). These plans are not being amended by the General Plan Update but are listed in Part I, Chapter 1 (Introduction) for reference. These plans and amendments are available on the County General Plan Update website or by compact disks (CD) upon request for the cost of copying the CD (six disks total) Each County library branch with computers available to the public will also have a copy of these CDs.

3. Land Use Matrix: A land use designation supersedure table/matrix, similar to a Land Use Designation/Zoning Matrix has been added that will realign existing land use designations into those of the proposed GPR.

4. Updated Figures and Diagrams: Many figures and diagrams have been revised, including but not limited to the following: Figure 4-1 in the Land Use Chapter of Part I has been revised to provide greater clarity. The revised diagram identifies all boundaries including Urban Development Boundaries (UDB's), Area Plans, Foothill Development Corridors, Rural Valley Lands Plan Area, Urban Area Boundaries (UAB's), and all new boundaries such as hamlets (HDB's), and Mountain Service Centers (MSC's). Other figures and diagrams have been added, corrected or revised as needed for clarity.

5. Minor Corrections: Minor changes have been made to the General Plan Update to include material inadvertently omitted in the older (2008) version, to provide clarification to policies, and Implementation timeframes, and to change the formatting to an easier to read (one column style instead of two).

6. Implementation Measures: Certain implementation measures that were simply a restatement of state law have been eliminated or condensed.

7. Initiated Climate Action Strategy: In light of on-going developments in the Global Climate Change arena, the RDEIR suggests new or revised policies that may be added to the General Plan Update policies document, including but not limited to air quality, health and safety, and water resources policies. A Climate Action Plan has been proposed as an implementation measure and will be considered for adoption after the adoption of the General Plan Update.

8. Policies related to unincorporated areas around cities: The proposed General Plan update includes revised policies in unincorporated areas around cities pertaining to urban development. The revised policies would provide a unique opportunity for coordinated development with incorporated cities within County Adopted City Urban Boundaries.

Draft Environmental Impact Report

The RDEIR is designed to assess the environmental impacts of the proposed Tulare County General Plan Update. Additionally, the RDEIR is intended to identify ways to minimize significant effects of the General Plan Update and describes reasonable alternatives to the General Plan Update that would avoid or reduce the General Plan Update's significant effects (Section 15121[a] CEQA Guidelines).

The Background Report, an informational document, offers insight into the conditions and environment that existed in the County during the preparation of the General Plan. The RDEIR lists the potential effects that the new policies found in the General Plan Update will have on the environment and identifies mitigation measures that could potentially lessen the effects of these impacts. The RDEIR also contains an executive summary and describes the environmental setting of the General Plan Update.

The following is a summary of current revisions to the DEIR, resulting in the RDEIR, and Background Report:

1. Initiated Climate Action Strategy: In light of the recent legislative actions specific to sustainability and climate change, the County has initiated a Climate Action Strategy specific to its unique rural nature. As an initial step, the County has prepared a Greenhouse Gas (GHG) Inventory for the Planning Area. Information from the inventory, as well as applicable regulatory information is incorporated into the "Air Quality" and "Energy and Climate Change" sections of the recirculated DEIR. Subsequently, the analysis of air quality impacts now includes a more robust discussion of the proposed project's impacts associated with climate change. Additionally, the RDEIR now includes and will be included within the Final General Plan Update, a number of additional policies (in the areas of sustainability, energy conservation, and climate change) that will assist the County in meeting the GHG emissions reduction goals set by the State.

2. Updated Figures and the Land Use/Circulation Diagram: The County has developed a land use/circulation diagram showing the location of all future growth areas proposed as part of the General Plan Update. Refer to Figure 2-2 in Chapter 2, Project Description. This figure also identifies Development Boundaries within which future urban growth is expected to occur. Updated Geographic Information System mapping data (e.g., Important Farmlands, etc.) and available resource agency data (e.g., air quality monitoring, California Natural Diversity Database (CNDDB), etc.) has been included..

3. Greenhouse Gas Inventory: The RDEIR includes a more thorough list of estimates for stationary sources of air pollution, including industrial emissions, residential emissions, agricultural emissions, landfills, power plants, and oil and gas production. Many of these sources were developed as part of the Greenhouse Gas Inventory report and subsequently incorporated into the RDEIR.

4. Environmental Setting: Updated the environmental setting to include any newly available data. The RDEIR now contains its own environmental setting integrated into the document.

5. Updated General Plan Background 2010 Report: To the extent feasible, the County has reviewed or updated baseline data in the General Plan Background Report for topics for which more recent data was available. These topics include Market Conditions and Demographics, Land Use, Agriculture, Recreation, and Open Space, Biological Resources, Air Quality, Safety (including Geologic and Seismic Hazards, Flood Hazards, Fire Hazards, Human-Made Hazards, and Climate Change), Biological, Archaeological, and Historical Resources, Natural Resources (including Mineral Resources, Oil and Gas Resources, and Timber Resources), and Scenic Landscapes. Changes have been made to the Background Report to include material that was inadvertently omitted from the prior version, clarification provided, and formatting, order and clerical errors corrected including updating information on: Important farmlands (FMMP) and Williamson Act lands, current crop types, updated or current information regarding the Reasonable Available Control Measures (RACM) programs, overall update of the air quality regulatory setting, wil[illegible]nd fire hazard areas, biological resources, which included u[illegible]ing the California Natural Diversity Data Base (CNDDB), ar[illegible]dated Hi[illegible]c Resources.

6. Updat Water Supply Evaluation: The RDEIR incorporates the resu f a water supply evaluation prepared for the proposed proj Using the m current (or readily available) data from the Department of W Resources and other sources, the water supply evaluation vides a representation of 'existing' supply and demand conditions and projects 'future' conditions contemplated by the proposed project. The RDEIR updated conditions as it pertains to water, wastewater and sewer. Each community service district (CSD) area was reviewed and updated as needed. Identification of sanitary sewer service providers, community/urban water suppliers, solid waste and storm drainage infrastructure was assessed and updated as needed.

7. Updated Information: The RDEIR was prepared based on the updated technical studies and new information contained in the updated background report and other technical reports.

8. Organization of the RDEIR: The County has simplified the organization of the RDEIR to more closely resemble the CEQA Checklist found in Appendix G of the CEQA Guidelines. While the original DEIR incorporated the Background Report information and data by reference, this RDEIR includes relevant information from the Background Report directly in the "Environmental Setting" and "Regulatory Setting" sections of each EIR resource section. Much of this information has been updated, as described previously.

Climate Action Plan

As part of the Climate Action Strategy, a Climate Action Plan has been prepared. The Tulare County Climate Action Plan (CAP) serves as a guiding document for County actions to reduce greenhouse gas emissions and adapt to the potential effects of climate change. The CAP is an implementation measure of the General Plan 2030 Update. An Implementation Measure is a specific action, program, procedure, or technique. Implementation Measures are provided to help ensure that appropriate actions are taken to implement the General Plan. Implementation Measures may be adjusted over time, without amending the General Plan, based on new information, changing circumstances, and evaluation of their effectiveness, so long as they remain consistent with the intent of the General Plan and adopted mitigation measures. The General Plan provides the supporting framework for development in the County to produce fewer greenhouse gas emissions during Plan buildout. The CAP builds on the General Plan's framework with more specific actions that will be applied to achieve emission reduction targets consistent with California legislation.

Comments on the RDEIR

New comments must be submitted for the RDEIR, because, as mentioned above, Tulare County will not respond to those comments submitted in response to the previous DEIR of January 2008 (Section 15088.5, California Environmental Quality Act (CEQA) Guidelines). The **RDEIR will have a public review period of 60 days**, starting on March 25, 2010 and ending on **May 27, 2010 at 5:30 p.m.** Any written comments on the RDEIR must be received by the County by 5:30 p.m. on May 27, 2010, at the Tulare County Resource Management Agency at Government Plaza, 5961 South Mooney Boulevard, Visalia, CA 93277 to the attention of David Bryant, Project Planner, in order to be included in the FEIR.

Once this public comment period has ended, the County will prepare a proposed Final EIR and set a joint workshop of the Board of Supervisors and Planning Commission. After the joint workshop, it is anticipated that the County will 1) schedule and notice a public hearing on this matter in front of the Planning Commission, and 2) schedule a separate, subsequent public hearing on the matter in front of the Board of Supervisors to consider the recommendations of the Planning Commission before the Board of Supervisors makes its decision on the certification of the FEIR and adoption of the proposed General Plan Update. Anyone desiring mailed or e-mail notice of the workshop and/or future public hearings should make sure that a request for notice is on file with the Tulare County Resource Management Agency.

March 25, 2010
NOTICE OF AVAILABILITY OF
RECIRCULATED DRAFT ENVIRONMENTAL IMPACT REPORT
(State Clearinghouse No. 2006041162)

Tulare County General Plan 2030 Update

The Tulare County General Plan 2030 Update (General Plan Update) provides a comprehensive, long-term plan of the physical development of the County related to planning. The County's General Plan Update consists of development policies that set forth objectives, principles and standards that guide land use decisions within the County. The general plan and its figures, diagrams, and development policies provided in the General Plan Update Part I (Goals and Policies Report), Part II (Area Plans), and Part III (Community, Hamlet, County Adopted City General, Valley Sub-Area, Corridor Sub-Area, and Mountain Sub-Area Plans) form the basis for the County's zoning, subdivision, and public works actions. General Plan Update supporting documents include a 2010 Background Report and Recirculated Draft Environmental Impact Report (RDEIR). The Housing Element, the Animal Confinement Facilities Plan, the Flood Control Master Plan, and (the Part III) Community, Hamlet, County Adopted City General, Valley Sub-Area, Corridor Sub-Area, Foothill Sub-Area, and Mountain Sub-Area Plans will not be modified, amended or readopted by this General Plan Update.

Recirculated Draft Environmental Impact Report (RDEIR)

This RDEIR is designed to assess the environmental impacts of the proposed General Plan Update. Additionally, the RDEIR is intended to identify ways to minimize significant effects of the General Plan Update and describes reasonable alternatives to the General Plan Update that would avoid or reduce the General Plan Update's significant effects (Section 15121[a] CEQA Guidelines). Consistent with CEQA Guidelines (Section 15168[a]), the RDEIR prepared for the proposed General Plan Update is a program-level RDEIR.

In January 2008, the County published the Tulare County General Plan Update Draft Environmental Impact Report (DEIR). The DEIR was circulated for public review and comment for an extended period of over 90 days (January 14, 2008 through April 15, 2008) to allow for maximum public involvement and input. During the public review period, the County received approximately 95 written communications from agencies, organizations and individuals with comments on the Tulare County General Plan Update and DEIR.

The County and its consultants reviewed these comments to determine whether any additional environmental analysis would be required to respond to issues raised in the comments. Based on that review, the County determined that several subjects warranted additional information, analysis or clarification.

In its role as the lead agency, the County has directed the recirculation of the DEIR for the proposed project (RDEIR). Consideration of the various comments received on the DEIR, as well as continued research and documentation in the areas of air quality and climate change regulation resulted in the County's decision to update a number of sections of the RDEIR, as well as the 2010 Background Report.

The RDEIR has determined that implementation of the General Plan Update could result in potentially significant impacts in the following areas: Aesthetics, Air Quality, Traffic and

Attachment 23

Circulation, Energy and Global Climate Change, Noise, Hydrology, Public Safety, Public Services and Utilities, Agricultural Resources, Biological Resources, and Cultural Resources. Hazards (Including evaluation of hazardous material sites identified under Government Code Section 65962.5) are included in the RDEIR.

A copy of this report is available for review at the following locations:

Tulare County Resource Management Agency **Government Plaza** **5961 South Mooney Boulevard** **Visalia, CA 93277**	**Ivanhoe Library** **15964 Heather** **Ivanhoe, CA 93235**	**Terra Bella Library** **23825 Avenue 92** **Terra Bella, CA 93270**
	Lindsay Library **165 North Gale Hill Street** **Lindsay, CA 93247**	**Three Rivers Library** **42052 Eggers Drive** **Three Rivers, CA 93271**
Tulare County Website **http://www.co.tulare.ca.us/**	**Cutler/Orosi Library** **12646 Avenue 416** **Orosi, CA 93647**	**Tipton Library** **301 East Woods Avenue** **Tipton, CA 93272**
Alpaugh Library **3816 Avenue 54** **Alpaugh, CA 93201**	**Pixley Library** **Pixley Union Elementary School** **300 North School** **Pixley, CA 93256**	**Visalia Library** **200 West Oak Avenue** **Visalia, CA 93291**
Dinuba Library **150 South "I" Street** **Dinuba, CA 93618**	**Springville Library** **35800 Highway 190** **Springville, CA 93265**	**Woodlake Library** **400 West Whitney** **Woodlake, CA 93286**
Earlimart Library **780 East Washington Street** **Earlimart, CA 93219**	**Strathmore Library** **19646 Road 230** **Strathmore, CA 93267**	
Exeter Library **230 East Chestnut** **Exeter, CA 93221**		

The **RDEIR has a public review period of 60 days**, starting on March 25, 2010 and ending on **May 27, 2010 at 5:30 p.m**. Any written comments on the RDEIR must be sent or delivered to the Tulare County Resource Management Agency at the following address: Tulare County Resource Management Agency, Government Plaza, 5961 South Mooney Boulevard, Visalia, CA 93277 to the attention of David Bryant, Project Planner.

Comments on the previous DEIR released in January 2008, although a part of the administrative record, will not require a written response in the Final Environmental Impact Report (FEIR). New comments must be submitted for the RDEIR. The County, as provided in CEQA Guidelines, section 15088.5(f)(1), will not respond to individual comments received on the January 2008 Draft EIR but will respond to any new comments received on this February 2010 RDEIR as part of the FEIR to be considered by the Planning Commission and Board of Supervisors.

The Tulare County Board of Supervisors and the Tulare County Planning Commission will hold a joint public workshop after the close of the public review period on the RDEIR and upon completion of a proposed Final EIR.. The workshop will be held on a date to be scheduled later in the Chambers of the Board of Supervisors, Administration Building, County Civic Center, 2800 West Burrel, Visalia, California. The workshop will pertain to the General Plan Update and the associated RDEIR.

For further information regarding this project, contact David Bryant, Project Planner, at (559) 624-7000.

Cynthia Echavarria
ENVIRONMENTAL ASSESSMENT OFFICER

==========

TO BE PUBLISHED ONCE ONLY ON: March 25, 2010

SEND BILL AND TEAR SHEET TO:
TUL CO RESOURCE MGMT.
5961 SOUTH MOONEY BLVD.
VISALIA, CA 93277-9394

SEND TO: Visalia Times Delta
Porterville Recorder
Tulare Advance Register
Valley Voice
Dinuba Sentinel
Foothills Sun-Gazette
Kaweah Commonwealth

Tulare County - RMA
Payment Voucher (GAX)

Sch Pay Date:		Tms. CD:	GAX
Document Total:	21,811.60	Tms. #:	1023001950
Single Chk Flag:	N	Date:	01/15/10
Check Category:	01	Aprd:	0510
Vendor Name: MICHAEL BRANDMAN ASSOC		Vendor #:	887200
		Altr. Addr:	
Address: 220 COMMERCE ST SUITE 200			
IRVINE, CA 92602			

Ln	Pc	Number	Ln	Fund	Dept	Unit	S Unit	Objt	S Ob	Rsrc	S Rv	R Ct	BSA	Disc	Amount
No	Inv. #			Description:											
01				001	230	0500	00	2150	00						21,811.60
	00048573			REF# CC-2319.0016.0											
02															
03															
04															
05															
06															
07															

ATTACH ORIGINAL SUPPORTING DOCUMENTATION

Total	21,811.60

Prepared by: WINCAMS Ext: Date: 01/15/10

Entered by: WINCAMS Ext: Date: 01/15/10 Reviewed by Auditor:

I have reviewed and approved the attached invoices with this payment voucher. I certify that the are correct and the goods and/or services have been received and that they represent a valid claim for payment.

Date: _____ Authorized Signature: _____

AUD 303 11/27/07 Revised

Attachment 24

Michael Brandman Associates

ENVIRONMENTAL SERVICES • PLANNING • NATURAL RESOURCES MANAGEMENT

January 5, 2010
Invoice No: 00048573

Remit To:
Michael Brandman Associates
220 Commerce, Suite 200
Irvine, CA 92602

Julia Roberts
County of Tulare
Resource Management Agency
5961 South Mooney Blvd.
Visalia, CA 93277-9394

Project 2319.0016.0 DEIR AQ Section General Plan Update Peer Review/Edit

Statement of Professional Services: November 28, 2009 through December 31, 2009

010 Professional Fees

Description	Contract Amount	Percent Complete	Total Billed	Previously Billed	Current Invoice
GP-Initial Document Review	1,240.00	100.00	1,240.00	0.00	1,240.00
GP-Backround Report Review	2,480.00	100.00	2,480.00	0.00	2,480.00
GP-Review AQ & Climate Change Chapters	4,650.00	100.00	4,650.00	0.00	4,650.00
GP-Review Recirculated Draft EIR	6,820.00	100.00	6,820.00	0.00	6,820.00
GP-Respond to County Comments	2,480.00	0.00	0.00	0.00	0.00
GP-Meetings	930.00	0.00	0.00	0.00	0.00
CAP-Information Gathering & Assessment	1,240.00	100.00	1,240.00	0.00	1,240.00
CAP-Emission Reduction Analysis	3,200.00	82.00	2,624.00	0.00	2,624.00
CAP-Administrative Draft Climate Act Pln	6,000.00	44.00	2,640.00	0.00	2,640.00
CAP-Draft Climate Action Plan	2,000.00	0.00	0.00	0.00	0.00
CAP-Meetings	1,160.00	0.00	0.00	0.00	0.00
CAP-Project Management & Coordination	930.00	12.00	111.60	0.00	111.60

David P. Bryant JAN 13 2010

001-230-6500 2150

Bakersfield 661.334.2756 | Fresno 559.497.0310 | Irvine 714.508.4100 | Palm Springs 760.322.8847 | Sacramento 916.447.1100 | San Bernardino 909.884.2255 | San Ramon 925.830.2733 | Santa Cruz 831.262.1731

www.brandman.com mba@brandman.com

Total	33,130.00		21,805.60	0.00	21,805.60
		Total		**21,805.60**	
			Section Total	**$21,805.60**	

030 Direct Costs

Description	Contract Amount	Percent Complete	Total Billed	Previously Billed	Current Invoice
Direct Costs	200.00	3.00	6.00	0.00	6.00
Total	200.00		6.00	0.00	6.00
	Total			**6.00**	
			Section Total	**$6.00**	
			Invoice Total	**$21,811.60**	

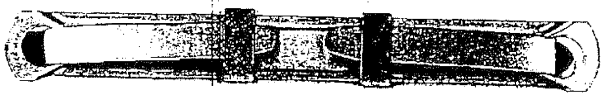
This Invoice is Due and Payable Upon Receipt.

Bud Exp: 001-230-6500-00-2150-00

Cost Ctr: 001-605-0016 Div: 0605 Act: 1001

Project: 0605-00002150-000

Total Compensation 33,330.00



AGREEMENT # CC-2319.0016.0

I. INTRODUCTION

THIS AGREEMENT, is entered into as of December 8, 2009, between the COUNTY OF TULARE, COUNTY COUNSEL (hereinafter "COUNTY COUNSEL"), and MICHEAL BRANDMAN ASSOCIATES, Inc. (hereinafter "CONSULTANT"), with reference to the following:

II. RECITALS

A. COUNTY COUNSEL desires to employ an environmental impact report consultant to assist in investigation and analysis of evidence pertaining to the Tulare County General Plan Update 2030 and environmental impact report. COUNTY COUNSEL seeks assistance in preparation of a legally defensible General Plan and environmental impact report.

B. CONSULTANT has presented evidence to COUNTY COUNSEL of its competence and professional qualifications and has represented to COUNTY COUNSEL, on the basis of such, that it is qualified, able and willing to provide the services described herein under the terms and conditions set forth.

C. COUNTY COUNSEL has selected the CONSULTANT as possessing the expertise and qualifications to render certain expert technical and professional services to assist COUNTY COUNSEL in the investigation and analysis of evidence pertaining to the Tulare County General Plan Update 2030 and environmental impact report, based upon the demonstrated competence and professional qualifications of the CONSULTANT.

D. COUNTY COUNSEL wishes to enter into an agreement with CONSULTANT to perform environmental impact report consulting services and related activities and CONSULTANT is willing and able and holds the proper experience to provide such services. COUNTY COUNSEL also desires to retain CONSULTANT pursuant to a confidential relationship.

E. Government Code Section 31000 authorizes the County of Tulare to contract for special services with persons who are specially trained, experienced, and competent to perform such services. In addition, Tulare County Ordinance Code Section 1-03-1290, subdivision (c), authorizes COUNTY COUNSEL to enter into contracts on behalf of the County for expert services required by the department, within the limits of its budget.

Applied to 001-230-6200-2150
& Should have been
001-230-6500-2150

Michael Brandman Associates

ENVIRONMENTAL SERVICES • PLANNING • NATURAL RESOURCES MANAGEMENT

FEB 2010

February 3, 2010
Invoice No: 00048948

APPROVED FOR PAYMENT
RESOURCE MANAGEMENT AGENCY
BY Paula P. Boyajian

Julia Roberts
County of Tulare
Resource Management Agency
5961 South Mooney Blvd
Visalia, CA 93277-9394

Remit To:
Michael Brandman Associates
220 Commerce, Suite 200
Irvine, CA 92602

001-230-6500-2150

Project 2319.0016.0 DEIR AQ Section General Plan Update Peer Review/Edit

Statement of Professional Services: January 1, 2010 through January 29, 2010

010 Professional Fees

Description	Contract Amount	Percent Complete	Total Billed	Previously Billed	Current Invoice
GP-Initial Document Review	1,240.00	100.00	1,240.00	1,240.00	0.00
GP-Backround Report Review	2,480.00	100.00	2,480.00	2,480.00	0.00
GP-Review AQ & Climate Change Chapters	4,650.00	100.00	4,650.00	4,650.00	0.00
GP-Review Recirculated Draft EIR	6,820.00	100.00	6,820.00	6,820.00	0.00
GP-Respond to County Comments	2,480.00	100.00	2,480.00	0.00	2,480.00
GP-Meetings	930.00	17.00	158.10	0.00	158.10
CAP-Information Gathering & Assessment	1,240.00	100.00	1,240.00	1,240.00	0.00
CAP-Emission Reduction Analysis	3,200.00	100.00	3,200.00	2,624.00	576.00
CAP-Administrative Draft Climate Act Pln	6,000.00	100.00	6,000.00	2,640.00	3,360.00
CAP-Draft Climate Action Plan	2,000.00	20.00	400.00	0.00	400.00
CAP-Meetings	1,160.00	13.00	150.80	0.00	150.80
CAP-Project Management & Coordination	930.00	14.00	130.20	111.60	18.60

Project 2319.0016.0 DEIR AQ Section General Plan Update Peer Review/Edit Invoice 00048948

Total	33,130.00	28,949.10	21,805.60	7,143.50	
	Total		7,143.50		

Section Total $7,143.50

030 Direct Costs

Description	Contract Amount	Percent Complete	Total Billed	Previously Billed	Current Invoice
Direct Costs	200.00	4.00	8.00	6.00	2.00
Total	200.00		8.00	6.00	2.00
	Total			2.00	

Section Total $2.00

Invoice Total $7,145.50

This Invoice is Due and Payable Upon Receipt.

Total Compensation 33,330.00

Tulare County - RMA
Payment Voucher (GAX)

Sch Pay Date:	
Document Total:	8,829.00
Single Chk Flag:	N
Check Category:	01

Tms. CD:	GAX
Tms. #:	1023002611
Date:	03/24/10
Aprd:	0810
Vendor #:	887200
Altr. Addr:	

Vendor Name: MICHAEL BRANDMAN ASSOC

Address: 220 COMMERCE ST SUITE 200
IRVINE, CA 92602

Ln	Pc	Number	Ln	Fund	Dept	Unit	S Unit	Objt	S Ob	Rsrc	S Rv	R Ct	BSA	Disc	Amount
No	Inv. #			Description:											
01				001	230	6500	00	2150	00						8,829.00
	00049260			CC-2319.0016.0											
02															
03															
04															
05															
06															
07															

ATTACH ORIGINAL SUPPORTING DOCUMENTATION

Total	8,829.00

Prepared by: WINCAMS Ext: Date: 03/24/10

Entered by: WINCAMS Ext: Date: 03/24/10 Reviewed by Auditor:

I have reviewed and approved the attached invoices with this payment voucher. I certify that the are correct and the goods and/or services have been received and that they represent a valid claim for payment.

Date: _____ Authorized Signature: _____

AUD 303 11/27/07 Revised

Michael Brandman Associates

ENVIRONMENTAL SERVICES • PLANNING • NATURAL RESOURCES MANAGEMENT

March 4, 2010
Invoice No: 00049260

Remit To:
Michael Brandman Associates
220 Commerce, Suite 200
Irvine, CA 92602

Julia Roberts
County of Tulare
Resource Management Agency
5961 South Mooney Blvd.
Visalia, CA 93277-9394

MAR 24 2010
APPROVED FOR PAYMENT
RESOURCE MANAGEMENT AGENCY
BY David P. Bryant
001-230-6500-2150

Project 2319.0016.0 DEIR AQ Section General Plan Update Peer Review/Edit

Statement of Professional Services: January 30, 2010 through February 26, 2010

010 Professional Fees

Description	Contract Amount	Percent Complete	Total Billed	Previously Billed	Current Invoice
GP-Initial Document Review	1,240.00	100.00	1,240.00	1,240.00	0.00
GP-Backround Report Review	2,480.00	100.00	2,480.00	2,480.00	0.00
GP-Review AQ & Climate Change Chapters	4,650.00	100.00	4,650.00	4,650.00	0.00
GP-Review Recirculated Draft EIR	6,820.00	100.00	6,820.00	6,820.00	0.00
GP-Respond to County Comments	2,480.00	100.00	2,480.00	2,480.00	0.00
GP-Meetings	930.00	17.00	158.10	158.10	0.00
CAP-Information Gathering & Assessment	1,240.00	100.00	1,240.00	1,240.00	0.00
CAP-Emission Reduction Analysis	3,200.00	100.00	3,200.00	3,200.00	0.00
CAP-Administrative Draft Climate Act Pln	6,000.00	100.00	6,000.00	6,000.00	0.00
CAP-Draft Climate Action Plan	2,000.00	100.00	2,000.00	400.00	1,600.00
CAP-Meetings	1,160.00	50.00	580.00	150.80	429.20
CAP-Project Management & Coordination	930.00	90.00	837.00	130.20	706.80
Contingency	6,770.00	90.00	6,093.00	0.00	6,093.00

Project	2319.0016.0	DEIR AQ Section General Plan Update Peer Review/Edit	Invoice 00049260		
Total		39,900.00	37,778.10	28,949.10	8,829.00
		Total		**8,829.00**	

Section Total **$8,829.00**

030 Direct Costs

Description	Contract Amount	Percent Complete	Total Billed	Previously Billed	Current Invoice
Direct Costs	200.00	4.00	8.00	8.00	0.00
Total	200.00		8.00	8.00	0.00
	Total			**0.00**	

Section Total **$0.00**

Invoice Total **$8,829.00**

This Invoice is Due and Payable Upon Receipt.

Total Compensation 40,000.00

Resp. Person Dave Bryant

Vender # 887200

Dept County Counsel

Contract with Michael Brandman Assoc.

Contract Amount 39,900.00 Not to exceed $40,000.

NOTE: 2319.0016.0

County of Tulare
State of California
RECORDS OF CONTRACTS OR AGREEMENTS

BOARD ORDER NO.

Contract of Agreement No. 2319.0016.0

Effective Date

001-230-6500-2150

LINE# ACCOUNT LINE

FINAL PAYMENT DUE FINAL CLAIM DATE

ENCUMBRANCE AMOUNT 0 - Not encumbered.

Date	PVQ # or Warrant No.	Invoice Number	Payment	10% Withheld	Total Paid	Unpaid Balance	NOTES
4/10		00048523	21,811.60				
/10		00048583	80.00		22591.60		
4/10		00049260	8829.00		31420.60		

DIV 0605 ACTIVITY 1001

COST CENTER 001 - 6003 - 0016

PROJECT 0605 - 2150 -

ENCUMBRANCE AUTHORIZATION

BY

DATE

EDMUND G. BROWN JR.
Attorney General

State of California
DEPARTMENT OF JUSTICE

1515 CLAY STREET, 20TH FLOOR
P.O. BOX 70550
OAKLAND, CA 94612-0550

Public: (510) 622-2100
Telephone: (510) 622-4038
Facsimile: (510) 622-2270
E-Mail: Timothy.Sullivan@doj.ca.gov

November 4, 2009

VIA E-MAIL & U.S. MAIL

Dave Warner
Director of Permit Services
San Joaquin Valley Air Pollution Control District
1990 East Gettysburg Ave.
Fresno, CA 93726-0244

RE: Final Draft Staff Report on Greenhouse Gas Emissions Under CEQA

Dear Mr. Warner:

We have reviewed the San Joaquin Valley Air Pollution Control District's September 17, 2009, Final Draft Staff Report on "Addressing Greenhouse Gas Emissions Under the California Environmental Quality Act."[1] We appreciate the Air District's extensive efforts and leadership in this area.[2] We are concerned, however, that the approaches suggested in the Staff Report will not withstand legal scrutiny and may result in significant lost opportunities for the Air District and local governments to require mitigation of greenhouse gas (GHG) emissions.

The Staff Report sets out a proposed threshold of significance for GHG emissions for stationary source projects under the Air District's permitting authority. A threshold of significance is, in effect, a working definition of significance to be applied on a project-by-project basis that can help a lead agency determine which projects normally will be determined to be less than significant, and which normally will be determined to be significant.[3] In the context of GHG emissions, the relevant question is whether the project's emissions, when considered in conjunction with the emissions of past, current, and probable future projects, are

[1] The Attorney General submits these comments pursuant to his independent power and duty to protect the natural resources of the State. (See Cal. Const., art. V., § 13; Cal. Gov. Code, §§ 12511, 12600-12612; *D'Amico v. Board of Medical Examiners* (1974) 11 Cal.3d 1, 14-15.)

[2] The Staff Report states that "[n]o state agency has provided substantial and helpful guidance on how to adequately address GHG emissions under CEQA, nor has there been guidance on how to determine if such impacts are significant." (Report at p. 2.) In fact, there are numerous sources of guidance, including information on the Attorney General's website (http://ag.ca.gov/globalwarming/ceqa.php), a Technical Advisory issued by the Governor's Office of Planning and Research (http://opr.ca.gov/ceqa/pdfs/june08-ceqa.pdf); and the Resources Agency's proposed CEQA Guidelines amendments (http://ceres.ca.gov/ceqa/guidelines/), which is accompanied by a detailed, 78-page Initial Statement of Reasons (http://ceres.ca.gov/ceqa/docs/Initial_Statement_of_Reasons.pdf).

[3] Cal. Code Regs., tit. 14, § 15064.7, subd. (a).

Attachment 25

cumulatively considerable.[4] Thresholds can be a useful interim tool until cities and counties have in place programmatic approaches, e.g., Climate Action Plans, which allow local government to consider a wide variety of mitigation opportunities and can substantially streamline the CEQA process for individual projects.[5] Staff's proposed stationary source GHG threshold relies on implementation of GHG emission control technologies. Under this proposal, projects that implement currently unspecified GHG Best Performance Standards ("BPS") would be deemed to not have significant impacts, regardless of the total amount of GHGs emitted.

The Staff Report also recommends a threshold of significance for cities and counties to use in determining whether a development or transportation project's GHG emissions are significant under CEQA. Like the stationary source threshold, this threshold would also rely on performance measures that are not currently identified. BPS for these projects would be any combination of identified GHG reduction measures that reduce project-specific GHG emission by at least 29 percent as compared to "business as usual," as calculated based on a point system to be developed in the future by the Air District.

The Staff Report contains a useful analysis of possible GHG mitigation measures for a variety of stationary sources and for development and transportation projects. This discussion will certainly assist lead agencies and project proponents in considering what mitigation measures currently are available and should be considered. It is not clear to us, however, how much additional analysis the Air District plans to do to support the proposed CEQA thresholds of significance recommended in the Staff Report. A public agency proposing to adopt a CEQA threshold of significance should be able to answer at least the following questions about its proposed approach:

What defined, relevant environmental objective is the threshold designed to meet, and what evidence supports selection of that objective?

The Staff Report does not discuss a particular environmental objective that would be achieved by implementing the proposed thresholds, such as meeting a GHG emissions reduction trajectory consistent with that set forth in AB 32 and Executive Order S-03-05 within the Air District's jurisdiction.[6] It appears that the Air District has not yet determined what amount of

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[4] Cal. Code Regs., tit. 14, § 15064, subd. (h)(1); see also Initial Statement of Reasons at p. 17 ("Due to the global nature of GHG emissions and their potential effects, GHG emissions will typically be addressed in a cumulative impacts analysis.")

[5] See Proposed Cal. Code Regs., tit. 14, § 15183.5, subd. (b) (describing tiering and streamlining available under "Plans for the Reduction of Greenhouse Gas Emissions"), available at http://ceres.ca.gov/ceqa/docs/FINAL_Text_of_Proposed_Amendemts.pdf; Draft Initial Statement of Reasons (discussing proposed § 15183.5) , available at http://ceres.ca.gov/ceqa/docs/Initial_Statement_of_Reasons.pdf#page=56; see also See Attorney General's General Plan/CEQA Frequently Asked Questions, available at http://ag.ca.gov/globalwarming/pdf/CEQA_GP_FAQs.pdf.

[6] Pursuant to these mandates, California is committed to reducing GHG emissions to 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. These objectives are consistent with the underlying environmental objective of stabilizing atmospheric concentrations of greenhouse gases at a level that will substantially reduce the risk of dangerous climate change. (See AB 32 Scoping Plan at p. 4 ["The 2020 goal was established to be an aggressive,

GHG reduction it is aiming to achieve. Setting a relevant environmental objective is an essential step in establishing any legally defensible threshold of significance; without it, there is nothing against which to gauge the success of the threshold in operation.

What is the evidence that adopting the threshold will meet this objective?

Because the BPS discussed in the Staff Report are described as "illustrative" only, it is not possible at this time to determine whether the BPS ultimately adopted will reduce GHG emissions in the San Joaquin Valley and, if so, by how much. There is no stated commitment to tie BPS proposed in the future to regional GHG reduction objectives.

How does the threshold take into account the presumptive need for new development to be more GHG-efficient than existing development?

The Staff Report seems to assume that if new development projects reduce emissions by 29 percent compared to "business as usual," the 2020 statewide target of 29 percent below "business as usual" will also be achieved, but it does not supply evidence of this. Indeed, it seems that new development must be more GHG-efficient than this average, given that past and current sources of emissions, which are substantially less efficient than this average, will continue to exist and emit.[7]

Will the threshold routinely require new projects to consider mitigation beyond what is already required by law?

Because "business as usual" for a development project is defined by the Staff Report as what was typically done in similar projects in the 2002-2004 timeframe, and requirements affecting GHG emissions have advanced substantially since that date, it appears that the Air District's proposal would award emission reduction "points" for undertaking mitigation measures that are already required by local or state law.[8]

Similarly, we are concerned that project proponents could "game" the system. Under the current proposal, each project will be considered against a hypothetical project that could have been built on the site in the 2002-2004 time period. It is not clear why the project should be compared against a hypothetical project if that hypothetical project could not legally be built

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but achievable, mid-term target, and the 2050 greenhouse gas emissions reduction goal represents the level scientists believe is necessary to reach levels that will stabilize climate."])

[7] We note that CAPCOA expressly found that an approach that would rely on 28 to 33 percent reductions from BAU would have a "low" GHG emissions reduction effectiveness. CAPCOA, CEQA and Climate Change (Jan. 2008) at p. 56, available at http://www.capcoa.org/CEQA/CAPCOA%20White%20Paper.pdf.

[8] To take one important example, Title 24 has undergone two updates since 2002-2004 – in 2005 and 2008. The 2008 Title 24 standards are approximately 15 percent more stringent that the 2005 version. In addition, a significant number of local governments have adopted green building ordinances that go beyond Title 24 in just the past few years, and many more are considering adopting such ordinances as part of their Climate Action Plans. See http://ag.ca.gov/globalwarming/pdf/green_building.pdf.

today,[9] and the approach would appear to offer an incentive to project proponents to artificially inflate the hypothetical project to show that the proposed project is, by comparison, GHG-efficient.[10]

Will operation of the threshold allow projects with large total GHG emissions to avoid environmental review? What evidence supports such a result?

It appears that any project employing certain, as of yet unidentified, mitigation measures would be considered to not be significant, regardless of the project's total GHG emissions, which could be very large. For instance, under the Air District's proposal, it would appear that even a new development on the scale of a small city would be considered to not have a significant GHG impact and would not have to undertake further mitigation, provided it employs the specified energy efficiency and transportation measures. This would be true even if the new development emitted hundreds of thousands of tons of GHG each year, and even though other feasible measures might exist to reduce those impacts.[11] The Staff Report has not supplied scientific or quantitative support for the conclusion that such a large-emitting project, even if it earned 29 "points," would not have a significant effect on the environment.

Will the threshold benefit lead agencies in their determinations of significance?

For the reasons set forth above, we fear that the recommended approach in its current form may unnecessarily subject lead agencies that follow them to CEQA litigation. This would be detrimental not only to the lead agencies, but to the many project proponents who may face unnecessary delay and legal uncertainty.[12]

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[9] The appropriate baseline under CEQA is not a hypothetical future project, but rather existing physical conditions. (Cal. Code Regs., tit. 14, § 15126.2, subd. (a).)

[10] A detailed analysis of the proposed amendments to Rule 2301 (emissions reduction credit banking) is beyond the scope of this letter. It is important, however, that any such plan comply with CEQA's requirements for additionality. As the most recent draft of the proposed CEQA Guidelines notes, only "[r]eductions in emissions that are not otherwise required may constitute mitigation pursuant to this subdivision." Proposed Cal. Code Regs., tit. 14, § 15126.4, subd. (c), available at http://ceres.ca.gov/ceqa/docs/Text_of_Proposed_Changes.pdf.

[11] In the advance of a programmatic approach to addressing GHG emissions, lead agencies must examine even GHG-efficient projects with some scrutiny where total emissions are large. Once a programmatic approach is in place, the lead agency will be able to determine whether even a larger-emitting project is, or is not, consistent with the lead agency's overall strategy for reducing GHG emissions. If it is, the lead agency may be able to determine that its incremental contribution to climate change is not cumulatively considerable.

[12] The Staff Report states that "[l]ocal land-use agencies are facing increasing difficulties in addressing GHG emissions in their efforts to comply with CEQA." (Report at p. 2.) We strongly believe that this experience is not universal. In fact, many cities and counties are actively taking up their role as "essential partners" in addressing climate change (see AB 32 Scoping Plan at p. 26) by making commitments to develop local Climate Action Plans.

We support staff's continued work in this area. However, before formally endorsing or adopting any particular threshold, we recommend that the Air District consider the issues that we have raised in this letter; if warranted, evaluate the approaches currently under consideration by other districts; and, if possible, work with those districts to devise approaches that are complementary and serve CEQA's objectives.

Sincerely,

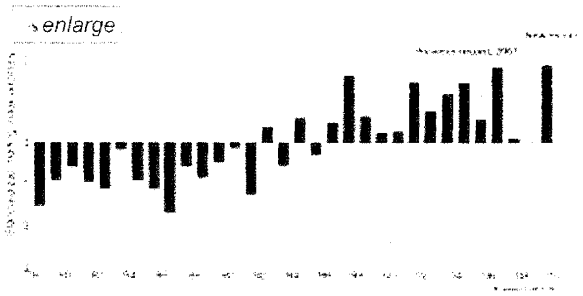
/ s /

TIMOTHY E. SULLIVAN
Deputy Attorney General

For EDMUND G. BROWN JR.
Attorney General

New Melt Record for Greenland Ice Sheet: 'Exceptional' Season Stretched Up to 50 Days Longer Than Average

ScienceDaily (Jan. 21, 2011) — New research shows that 2010 set new records for the melting of the Greenland Ice Sheet, expected to be a major contributor to projected sea level rises in coming decades.



The figure above shows the standardized melting index anomaly for the period 1979 -- 2010. In simple words, each bar tells us by how many standard deviations melting in a particular year wa above the average. For example, a value of ~ 2 fo 2010 means that melting was above the average t two times the 'variability' of the melting signal alon the period of observation. (Credit: M. Tedesco CCNY/CUNY)

"This past melt season was exceptional, with melting in some areas stretching up to 50 days longer than average," said Dr. Marco Tedesco, director of the Cryospheric Processes Laboratory at The City College of New York (CCNY -- CUNY), who is leading a project studying variables that affect ice sheet melting.

"Melting in 2010 started exceptionally early at the end of April and ended quite late in mid- September."

The study, with different aspects sponsored by World Wildlife Fund (WWF), the National Science Foundation and NASA, examined surface temperature anomalies over the Greenland ice sheet surface, as well as estimates of surface melting from satellite data, ground observations and models.

In an article published in *Environmental Research Letters*, Professor Tedesco and co-authors note that in 2010, summer temperatures up to 3C above the average were combined with reduced snowfall.

The capital of Greenland, Nuuk, had the warmest spring and summer since records began in 1873.

Bare ice was exposed earlier than the average and longer than previous years, contributing to the extreme record.

"Bare ice is much darker than snow and absorbs more solar radiation," said Professor Tedesco. "Other ice melting feedback loops that we are examining include the impact of lakes on the glacial surface, of dust and soot deposited over the ice sheet and how surface meltwater affects the flow of the ice toward the ocean."

WWF climate specialist Dr. Martin Sommerkorn said "Sea level rise is expected to top 1 metre by 2100, largely due to melting from ice sheets. And it will not stop there -- the longer we take to limit greenhouse gas production, the more melting and water level rise will continue."

Dr. Tedesco's continuing research on ice sheets can be followed on www.cryocity.org.

For more on Arctic climate change, visit www.panda.org/arctic.

Email or share this story: | More

See Also:

Earth & Climate
- Global Warming
- Climate
- Oceanography
- Ice Ages
- Snow and Avalanches
- Weather

Reference
- Greenland ice sheet
- Ice shelf
- Ice sheet
- Antarctic ice sheet

Story Source:

The above story is reprinted (with editorial adaptations by Science*Daily* staff) from materials provided by **City College of New York**, via EurekAlert!, a service of AAAS.

Journal Reference:

1. M. Tedesco, X. Fettweis, M. R. van den Broeke, R. S. W. van de Wal, C. J. P. P.Smeets, W. J. van de Berg, M.C. Serreze, J. E. Box. **The role of albedo and accumulation in the 2010 melting record in Greenland**. *Environmental Research Letters*, 2011; 6: 014005 DOI: 10.1088/1748-9326/6/1/014005

Attachment 26

JAMES MAY'S REPORT ON RISK OF FLOODING AND LEVEE FAILURE

James May, civil engineer and the Tulare County Flood Control Officer, gave a presentation on July 27, 2009 to the Tulare County Water Commission concerning the risk of flooding on all Tulare County rivers and streams and the risk of levee failure in the county. Flood potential in Tulare County occurs on all rivers and streams (St. John's River, Pozo Creek, Cross Creek, Deer Creek, Cottonwood Creek, White River, Yokohl Creek, Sand Creek, Frazier Creek, Strathmore Creek, Tule River.) Flooding has reached Highway 43 in the past, gone through culverts, and flooded the town of Allensworth. Floodwaters reached Highway 99 and flooded part of the city of Earlimart. Some culverts are too small to accommodate floodwaters, which will cause backflows. The problems with Tulare County's rivers and streams are constricted channels, channels choked with vegetation and trash, unpredictable flows, and bridge piers undermined by previous floods. The County does not maintain the channels because of inadequate funds.

All levees in Tulare County are primitive. They do not meet FEMA or Army Corps of Engineers standards. The levees were not constructed of the proper materials, not compacted enough, not built high enough, are not continuous (breached), and are too close to channels to accommodate floodwaters. They have been breached by property owners. An abandoned raised railroad right-of-way that served as a levee has been breached.

Laser leveling of agricultural land will transform traditional flood patterns to sheet flooding. There have been significant changes to county topography since a flood study was conducted in the 1980s. Many property owners have graded their land since then. Therefore, floodwater flows are unpredictable. Groundwater overdrafting and subsequent land subsidence will increase flood depths in some areas.

Attachment 27

Tulare County Grand Jury 2005/2006 Findings

FLOOD POTENTIAL ON THE ST. JOHNS RIVER LEVEE DISTRICTS I AND II

INTRODUCTION

The watercourses traversing Tulare County originate in the Sierra Nevada Mountains and flow west and southwest. The two primary rivers are the Kaweah and Tule.

The three forks of the Kaweah River along with other tributaries flow into Lake Kaweah. Water released from Lake Kaweah continues as the Kaweah River. It is joined by Dry Creek about one mile below Terminus Dam then almost two miles beyond that, near McKay's point, there is a control structure that diverts the water into either the Lower Kaweah or the St. Johns River. The Kaweah Delta Water Conservation District (KDWCD) operates this control structure. When ranchers and other owners of water rights need water, or when the Army Corps of Engineers (COE) orders a flood release the control structure is adjusted to direct the water into the appropriate river or rivers.

Terminus Dam was originally completed in 1962. During 2003 and 2004 the spillway was raised 21 feet, by the installation of fusegates. [en] In July 2004 there was a ceremony at the Dam to celebrate completion of this project Water was stored behind the fusegates for the first time in 2005. The capacity of Lake Kaweah was increased and the possibility of floods below the dam was reduced, but not eliminated. The Federal Government, the State of California, the Tulare County Flood Control District (TCFCD) along with the City of Visalia, KDWCD, Kings County, and the Tulare Lake Basin Water Storage District sponsored the lake enlargement project through various agreements.

Success Dam, completed at approximately the same time as Terminus Dam, provides some control of the Tule River. Success Dam will be undergoing retrofit and increased spillway height within the next few years. The Federal Government, The State of California, the TCFCD, the Lower Tule River Irrigation District, and the City of Porterville sponsor this project through various agreements. This project is being done to meet the State of California's earthquake standards.

The Tulare County Board of Supervisors (BOS) sits as the TCFCD Board of Directors.

In the late 1800s primitive levees were built along the St. Johns River using earth, rock and sand. These levees were embankments that ran alongside the river to prevent high water from flooding the bordering land. Levee District I was formed on July 22, 1890 to maintain the south bank of the St. Johns River between Road 172 and Shirk Road/Road 92. The levees were rebuilt with the same kind of materials in the 1930s. In 1945 Levee District II was formed to maintain the north bank of the St. Johns River between Road 172 and Demaree/Road 108. The districts run through the northern part of Visalia.

Channels are different from levees in that they are the deepest part of water-ways. The KDWCD has historically maintained the natural channels under its jurisdiction from west of

Attachment 28

McKay's Point to north of Corcoran and east of Hanford. Since private property lines run across the levees and down through the middle of the channel, this maintenance does not take place in all areas of the channel.

Traditionally rain floods occur between November and June, and snow-melt floods between April and June. Within the last ten years severe floods have occurred in Tulare County. The last major levee failure was in the winter of 1998-1999, when Highway 99 was shut down at Earlimart due to the levee failure on the White River. Deer Creek and Sand Creek also have levees.

REASON FOR INVESTIGATION

Shortly prior to Hurricane Katrina and the flooding disaster in New Orleans, the 2005-2006 Tulare County Grand Jury decided to investigate Tulare County's two levee districts. The condition and maintenance of the levees had not been reviewed in the last ten years.

PROCEDURES FOLLOWED

The Grand Jury:
1. Interviewed relevant witnesses.
2. Examined relevant maps and documents.
3. Toured Terminus Dam.
4. Visited several sites on the St. Johns levees.

FINDINGS

1. Levee District I, on the south side of the St. Johns River, has been officially inactive since March 2005 [See map] when the last remaining Levee District Board Member sent in his letter of resignation. On November 21, 2005, the BOS notified the Auditors office to stop the mailings for audit reports.

2. Levee District II, on the north side of the St. Johns River, has been inactive for over 18 years. [See map]

3. Some county officials were unaware that the Levee Districts were inactive until the Grand Jury began this investigation.

4. Levee Districts I and II are taxing agencies. After passage of Proposition 13 the incoming taxes were significantly reduced. At that time, Levee District I sold some land and used the interest from that sale to finance the District's operation and maintenance.

5. In 2002, the Resource Management Agency (RMA) asked the over 1000 property owners in District II for input regarding levee inspection, maintenance and repairs. The owners were uninterested and/or assumed that KDWCD or RMA did the work. The owners did not want a new tax for this purpose.

6. Property owners were given the opportunity to serve as a director on the three-member Levee District II Board of Directors, but expressed a negligible amount of interest.

7. The State of California Legislature formed the Tulare County Flood Control District (TCFCD) in 1972. On June 13, 1972, the BOS, acting as TCFCD, appointed a seven member commission to advise the TCFCD.

8. TCFCD officially has no employees and is overseen part time by the Transportation Division of the RMA.

9. TCFCD is funded by Tulare County property taxes. It receives approximately $350,000 per year. This amount fluctuates with the revenue stream of Tulare County's property tax base and interest earnings.

10. The last time the BOS transferred general fund monies over to TCFCD for channel clearing was the winter of 1997-1998 in the amount of $350,000.

11. The main focus of TCFCD is a channel maintenance spraying program. TCFCD pays for the chemicals and labor, and the Tulare County Agriculture Commission implements the program. This is for channel maintenance only and has no impact on the levees.

12. Tulare County has no property rights to any levees except Sand Creek, which flows through some county land.

13. In March 2005, renewal of the liability insurance policy held by District I was denied due to the age and condition of the levee.

14. There are no active programs for levee maintenance or channel inspections within Tulare County. Most citizen complaints to RMA are for construction encroachment on the levees and fallen trees in the channel.

15. The Tulare Irrigation District comprises approximately 20% of the KDWCD area and maintains its channels, but no levees. Many irrigation districts do not maintain their channels.

16. Vegetation and trash clog many of the county's tributaries.

17. The California Department of Fish and Game requires a 1602 Stream Bed Alteration Agreement Permit for spraying vegetation inside the natural channels. No large clearing equipment is allowed in the channel. Workers can use only hand tools and then clear no more than half way up the bank of the water-way.

18. The Federal Emergency Management Agency (FEMA) has stated that the land west and south of Terminus Dam is still within a flood plain, even with the increase in height of the dam spillway.

19. The Army Corps of Engineers (COE) claims jurisdiction, through the Federal Clean Water Act, over all county lakes and water-ways.

20. The COE will not certify the levees within the two levee districts because they do not meet the COE certification standards. Some of the standards are:

    a. Type of materials used in construction.
    b. Compaction.
    c. Height of levee.
    d. Continuous formation of levees.
    e. Non-rolling banks on the channel side of water-ways.
    f. An active maintenance program in place.

21. FEMA also recognizes that the levees are not up to standards.

22. The Santa Fe Railroad abandoned its right of way and filled up the trestle on the south side of the St. Johns River. In a high-water situation this could push water toward Visalia.

23. RMA estimated that the cost to reconstruct the levees on the St Johns River, within the Certification Standards of the COE, would be close to $17,000,000.

24. The City of Visalia planted over 100 oak trees within the St. Johns channel. These trees have since been removed.

25. In 2004, the City of Visalia entered into a co-operative technical partners agreement with FEMA to have the flood plain from Kaweah Lake west to Highway 99 re-mapped. This includes LiDAR (Light, Detection And Ranging) topographical and aerial mapping. The proposed completion of this project is summer 2006.

26. RMA indicated that Ventura County is a good example of a well-managed flood control model. It consists of both flood control and watershed protection elements including ground water recharge. The county is split into numerous "benefit assessment districts" which help fund the planning, construction and maintenance of projects.

27. The Federal Government and the State of California may provide funding for joint use projects in flood control.

RECOMMENDATIONS

1. The Board of Supervisors acting as the Tulare County Flood Control District should thoroughly examine the flood potential for the entire county.

2. The Board of Supervisors should adequately fund the Tulare County Flood Control District for regular inspection and maintenance for all tributaries and levees in Tulare County.

3. The Resource Management Agency should consider the possibility of obtaining State and Federal grants for matching fund proposals dealing with water issues.

4. Tulare County needs to take a more regional approach and enter into partnerships/JPAs with the irrigation districts, the Army Corps of Engineers, the City of Visalia and the Kaweah Delta Water Conservation District, in joint-use projects incorporating both flood control and groundwater recharge.

5. The Board of Supervisors should look into the possibility of a new flood plan along the lines of the Ventura County plan.

6. The Resource Management Agency's Code Enforcement Department needs to enforce county ordinances regarding weed abatement along the levees. This should be done through fire abatement regulations, which allows clearing on private property.

7. The owners of the properties along the levees should be held responsible for clearing their portions of the levee or be cited for non-compliance.

8. Intra-agency communication needs to be improved so that all agencies involved in any one situation will be informed and able to take action thereon in a timelier manner.

RESPONSES REQUIRED

1. Tulare County Board of Supervisors, acting as the Tulare County Flood Control District Board
2. Resource Management Agency
3. City of Visalia
4. Kaweah Delta Water Conservation District

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[m] There are six fusegates on Terminus Dam spillway. They were placed there to raise the spillway and, most importantly, to protect the dam by tipping when necessary. Each fusegate weighs approximately 450 tons. Each is designed to tip at a designated lake level. When the lake fills to a certain point water wells connected to the six fusegates will start to fill. When the fusegate wells get to a predetermined level they will sequentially tip, letting more water through the spillway. This will continue until the lake level stops increasing or all the fusegates have tipped.

U.S. Department of Homeland Security
1111 Broadway, Suite 1200
Oakland, CA 94607-4052

FEMA

December 27, 2010

Mr. Steve Worthley
Chairman of the Board of Supervisors, Tulare County, California
2800 West Burrel Avenue
Visalia, CA 93291

Dear Mr. Worthley:

Thank you for the courtesy extended by County staff during the recent Community Assistance Visit (CAV) on August 11, 2010. The purpose of the meeting was to provide your staff with the most current information on the National Flood Insurance Program (NFIP), give them an opportunity to discuss concerns they might have had, and assess the county's enforcement of the local floodplain management ordinance that was adopted to meet requirements of the NFIP.

FEMA's evaluation of Tulare's floodplain management program indicates that the County is appropriately and effectively enforcing floodplain requirements. The County's administrative practices and procedures should effectively ensure full compliance with NFIP construction standards. There is, however a deficiency in Tulare's inspection process. Specifically, there is an apparent lack of cooperation by the Building Department in terms of recognition of the relationship between inspection and maintaining the integrity of the local ordinance in order to remain in good standing within the NFIP for the benefit of the entire community. A procedural document will need to be developed in order to define departmental roles throughout the permitting process. A draft will be due to FEMA Region IX by April 1, 2011. In addition, the Flood Prevention Ordinance must be updated; this requires follow-up action. Ordinance language suggestions have been provided to the appropriate County staff and a draft ordinance is due to FEMA Region IX by April 1, 2010. After the necessary changes have been adopted by the County Board of Supervisors, a signed and dated copy of the new ordinance is due to this office.
Finally, there are other highly-recommended action items listed in the last section of this CAV report.

Currently 2,363 policies are in force for residential and commercial buildings in Tulare, representing $473,762,700.00 in coverage. Loss payments totaling $814,284.90 have been made on 7 claims since Tulare joined the NFIP. In order to provide information about the value, location, type, and occurrences of repetitive losses, the Community Repetitive Loss summary sheet has been attached to the end of this CAV report.

If you have any questions, or if I can be of any assistance, please call 510-627-7183.

Sincerely,

Jane Hopkins
Community Compliance
National Flood Insurance Program

Attachment 29

Cc: Mr. Jack Raper, Resource Management Agency Director, Tulare County, CA
Mr. James May, Surveyors/Flood Control/Subdivision Engineer; FPM, Tulare County, CA
Mr. Ed Perez, Water Resources Engineer, CA Department of Water Resources

FEDERAL EMERGENCY MANAGEMENT AGENCY
COMMUNITY ASSISTANCE VISIT REPORT

SECTION I

1. NAME OF COMMUNITY	2. STATE	3. COMMUNITY ID NUMBER	4. COUNTY
Tulare County	CA	065066	Tulare

5. VISIT CONDUCTED BY	6. AGENCY	7. DATE OF VISIT
FM & JH	FEMA	8/11/2010

SECTION II

8. NAME OF LOCAL OFFICIAL	9. TELEPHONE NUMBER
James May	(559) 624-7000

10. ADDRESS OF LOCAL OFFICIAL
Resource Management Agency - Public Works Branch, Government Plaza, 5961 South Mooney Boulevard, Visalia, CA 93277

SECTION III – FINDINGS

PART A

QUESTIONS – Select appropriate response	RESPONSE		
	Serious	Minor	None
1. Are there problems with the community's floodplain management regulations?	x		
2. Are there problems with the community's administrative/enforcement procedures?		x	
3. Are there engineering or other problems with the maps or Flood Insurance Study?		x	
4. Are there any other problems in the community's floodplain management program?		x	
5. Are there problems with the Biennial Report data?	N/A YES ___ NO		
6. Are there any programmatic issues or problems identified?	x YES ___ NO		

7. Are there any potential violations of the community's floodplain management regulations? Yes

x A potential violation or violations has/have been identified.

___ No violations have been identified.

x Actions are being taken on the part of the community to remedy the violation(s) identified during the CAV.

SECTION III – FINDINGS (continued)

PART B - Narrative

Background

1. Floodplain Management Regulations

All ordinance review requests resulting from 2002 Community Assistance Visit (CAV) conducted by the California Department of Water Resources (DWR) were amended and incorporated as recommended. There are additional changes to be made after the 2010 ordinance review. Copies of the California Ordinance Review Checklist and a Federal Emergency Management Agency (FEMA) memo have been attached to the back of this report. The memo contains a list of requested and recommended modifications, with a description of each change and citation of the corresponding federal and state regulations.

2. Administrative and Enforcement Procedures

When applying for a permit, the applicant's first County contact is the Planning Department. The application gets reviewed by other departments, including the Department of Flood Control, Surveyors, Subdivisions, and Encroachments (FSSE). In terms of delivery of National Flood Insurance Program (NFIP), state, and local regulations, FSSE has two engineers for staff. There is a need for assistance with checking plans, including such items as floodproofing and openings. This department is responsible for issuing the preliminary construction permits for projects located within the Special Flood Hazard Area (SFHA). Elevation certificates (ECs) are required for issuance of a final permit. The final permits are filed by one of two surveyors in FSSE. The administrative process for A-Zone development differs for individual residences and subdivisions in that the developer must produce Base Flood Elevations (BFEs) to the County before commencement of construction. It should be noted that there have been no A-Zone developments within the past five years. Many County projects use negative declaration. Regarding Executive Order 11988, the Planning Department is in charge of identifying other affected or concerned regulatory agencies.

The responsibility for the determination of whether or not a substantial improvement is located within the SFHA has been delegated to FSSE. If applicable, the building inspector then determines whether or not the project constitutes substantial improvement. A real estate appraiser typically assists with those determinations. In addition, FSSE is familiar with and has used the Residential Substantial Damage Estimator (RDSI). FEMA stressed the need for consistency with respect to the method of determination. This process does not occur often, and the engineer could only recall one instance within the past five years.

Although there is a substantial ordinance section related to several variance–related issues, such as evaluation criteria, processing procedure, and other topics, variances tend not to be permitted in Tulare County, and any variances granted within past decade have occurred outside of flood zones.

Enforcement procedures are typically triggered by a citizen complaint. FSSE notifies the Code Enforcement Department and they are responsible for the resolution of violations. Currently, there is the case of a pre-FIRM pole barn that was recently enclosed. The County is requiring documentation of floodproofing and an elevation certificate. The Inspector resorted to hand-delivery of County communication after it became clear that the owner would not pick up their mail.

It is not uncommon in many communities to find that certain departments or divisions are not engaged in comprehensive floodplain management. The biggest challenges for this department include enlisting the full cooperation of the Building Department in terms of understanding the fundamentals of NFIP requirements, the importance of these regulations in relation to their inspection duties and other job-related tasks, and the necessity of maintaining the integrity of their local ordinance in order to remain in good standing in terms of their NFIP for the benefit of the entire community. Concrete examples include events such as refusal by inspectors to check buildings for floodproofing and openings. Finally, the task of administering the NFIP and its delivery need not be confined to engineering staff. This is a programmatic issue, and in a large county such as Tulare, delivery of the NFIP and application of the local floodplain management ordinance would be enhanced by involvement of the Building and Planning Departments. As floodplain management is primarily a building construction program, it stands to reason that a community's Building Department be actively engaged, if not the delegated entity.

3. **Maps and Flood Insurance Study**

Map issues were discovered during the CAV as a result of the pre-CAV fieldwork. Several of the residences that were identified as potential violations of NFIP were in fact no longer County property, and are now located with Visalia city boundaries. Although reporting changes to FEMA is the responsibility of the annexing community, it would be helpful if counties would review map boundaries (*e.g.*, a review of those maps that were distributed to communities before new FIRM maps were released). It is recommended that County staff assist the City of Visalia with addressing the potential violations. During the CAV fieldwork, several of the Tulare staff identified sites that may need more in-depth studies around growing areas. Some of these included the south fork of the Kaweah River, Cottonwood Creek, the north fork of Tule River, and Yokul Ranch. Staff has been given contact information for Eric Simmons of FEMA and Mark Delorey of FEMA subcontractor Michael Baker Jr., Inc. For the sake of convenience, this information is repeated in this paragraph.

Senior FEMA engineer Eric Simmons is the contact for Tulare County. His contact information follows:

(510) 627-7029

eric.simmons@dhs.gov

FEMA subcontractor Michael Baker Jr., Inc. His contact information follows:

(510)879-0953

MDelorey@mbakercorp.com

The State also has flood plain evaluation, delineation and mapping resources available. State DWR contacts for floodplain study funds/assistance are listed below:

Tom Christensen

(916) 574-1407

thomasc@water.ca.gov

Ricky Doung

(916) 574-1405

rdoung@water.ca.gov

4. **Other Problems**

   On February 10, 2009 there was flooding around Strathmore that affected approximately 30 properties. The source is believed to be flow from a Frazier Creek tributary east of the U.S. Bureau of Reclamation's Friant-Kern Canal levee, where a temporarily plugged inverted siphon drain under the canal blew out.

   In another case, a farmer filled in the floodplain below a newly constructed Caltrans bridge located just south of a Caltrans rest stop near the intersection of Highway 99 and Road 112. Caltrans understands that this fill will have to be removed.

   As discussed in previous emails between Tulare County and FEMA, there was straightening and grading of Frazier Creek. The County is planning a meeting that will include the Regional Water Quality Control Board, Department of Water Resources, Department of Fish and Game, Fish and Wildlife Service, the Central Valley Flood Protection Board, FEMA, Army Corps of Engineers, the Bureau of Reclamation and the landowner and his engineer. The County coordinated for December 2010. The ideal solution would be to restore the creek to its former condition.

5. **Follow-up Required by FEMA Region IX and DWR Staff**

   FEMA agreed to the following items:

   - Provide information about upcoming federal and state training opportunities (emailed). Here is link to list of DWR courses offered. This link also connects

to online registration for the State's various floodplain management and flood insurance workshops.

http://www.water.ca.gov/floodmgmt/lrafmo/fmb/fas/nfip/workshop/dwr.cfm

There are also federal training opportunities available, specifically, the Emergency Management Institute (EMI) 273 Managing Floodplain Development through the NFIP (National Floodplain Insurance Program in Emmitsburg, Maryland. This course is designed for local officials responsible for administering local floodplain management ordinances, including, but not limited to, floodplain management administrators, building inspectors, code enforcement/zoning officers, planners, city/county managers, attorneys, engineers, and public works officials. Federal/state/regional floodplain managers also are encouraged to attend. The course is designed for those officials with limited floodplain management experience. Important to note is that attendance will be limited to two participants from any state for each offering. The course length is four days, and would provide an excellent starting point for County staff to begin to take a more active role in assisting with local floodplain management and enforcement. This course is paid for by FEMA and includes airfare, ground transportation and accommodation. Remaining costs are for per diem (approximately $100 for the week). Travel occurs Sunday with the return trip on the following Friday. It is key to remember that applications must be at EMI six weeks before class begins. Available dates include the following: 2011 January 24-27, May 16-19, and Aug 29- Sept 1. Finally, these courses will also be offered once or twice in California in 2011, but currently no dates have been established. The web link for EMI is listed below.

http://www.training.fema.gov/

- Provide Keyhole Markup Language (KML) layer in support of the Geographic Information System (GIS) software to county (emailed). During the CAV, FEMA staff was under the impression that KML file changed regularly, and promised to figure out a process that would notify County about updated versions. After discussion with FEMA GIS Coordinator Scott McAfee, it was discovered that this layer is in fact currently very stable, and that majority of changes occurred during the early stages of development of this product. However, any changes that may occur will be available at the web address:

  https://hazards.fema.gov/femaportal/wps/portal/NFHLWMSkmzdownload

- During the CAV drive there were two properties identified as photos # 5 & 6, located at 1016 West Riverway Drive and 1230 West Riverway Drive. Specifically, staff wanted to know how to advise the homeowners in terms of the insurance available for their properties. When constructed, these building were listed as being sited in the C-zone, but now designated as AE-zone since the map updates. Because there were many conditional questions that

needed to be addressed before FEMA Insurance Specialist Jana Critchfield could properly answer, Jana's contact information was emailed to County staff, with an invitation to resolve this with a conference call. This has not yet occurred, and the information is repeated here for the sake of convenience. FEMA Insurance Specialist Jana Critchfield's contact information follows:

510-627-7266

Jana.R.Critchfield@fema.gov

- During the CAV drive, it was discovered that a new school was under construction. County staff requested that FEMA make them aware of the local floodplain regulations. DWR was contacted by FEMA for assistance with this matter because they are both State entities. Bill Hom of DWR stated that DWR has been working with the State Architect's Office on the school issue and that they would get answers about this project. There has not yet been a response, but Bill Hom, an engineer and certified floodplain manager with Floodplain Assistance Section in DWR's Division of Flood Management, has agreed to investigate this matter. His contact information is listed below.

  916-574-1413

  billh@water.ca.gov

- County staff mentioned that they had submitted their biennial report, but it did not appear in FEMA's Community Information Service (CIS) database. An email was sent to both Tulare County staff and Juanita Thompson, NFIP Policy Specialist at FEMA's Washington headquarters. Since that time, it has been decided that the Biennial Report requirements have been suspended.

- As requested by County staff, information about the Community Rating System (CRS) was emailed to Tulare County Chairman of the Board of Supervisors Steve Worthley and Tulare County Resource Management Agency Director Jake Raper. A copy of the "what if?" sheet from CIS is attached to this report. A web address that has multiple links to several CRS documents related to various aspects of this program, including literature about joining this program is also listed below. As promised, the information transmitted in the email will be repeated in this report:

  NFIP's CRS is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS:

  1. Reduce flood losses;
  2. Facilitate accurate insurance rating; and
  3. Promote the awareness of flood insurance.

  http://training.fema.gov/EMIWeb/CRS/

Dave Arkens of the Insurance Services Office, Inc. is a CRS specialist. His contact information is listed below:

(541) 261-9186

dmarkens@iso.com

- FEMA promised to get cost per linear foot for more detailed studies needed in remote areas now subject to development. This is difficult as there are so many contingencies that would affect costs for individual sites. The roughest answer is $10,000- $20,000 per mile, and the email exchange on this topic was forwarded to the County. In addition, there is an opportunity for cooperating technical partners in the form of FEMA CTP program. The link follows:

  http://www.fema.gov/plan/prevent/fhm/ctp_main.shtm

  Senior FEMA engineer Eric Simmons is the contact for Tulare County. His contact information follows:

  (510) 627-7029

  eric.simmons@dhs.gov

  It is recommended to keep in contact with the FEMA engineer; the more aware they are of mapping needs, the better that prioritization for available funding will be.

  For additional assistance, please refer to the state contacts previously listed in this report under the mapping section of this report.

- Because some of the potential violation addresses obtained were erroneously recorded, FEMA staff promised to revisit these sites and collect correct information. This was done, and these properties were determined to be in compliance.

- The county requested information about potential sources of funding for levee repair. Exact answers were not easy to obtain, because there are typically many "depends" conditions, including considerations such as history and site-specific factors, so these details would best be discussed with the individuals in charge of administering their programs. A hard copy of FEMA's Policy for Rehabilitation Assistance for Levees and Other Flood Control Works is attached to this report and can be accessed online at the following web address:

  http://www.fema.gov/government/grant/pa/9524_3.shtm

This document provides an introduction to the fact that the United States Army Corps of Engineers (USACE) and the Natural Resources Conservation Service (NRCS) have primary authority for the repair of flood control works. For the purposes of this report, the representative for this region is Kimberly Carsell. Additional names have been provided in the event that Ms. Carsell is not immediately available. Though USACE contact information has been emailed to the County, the information is repeated below:

Kimberly Carsell at Sacramento USACE: (916) 557-7635

kimberly.m.carsell@asace.army.mil.

Craig Connor at San Francisco USACE: (415) 503-6903

craig.s.conner@usace.ary.mil

Mr. Kim Gavigan at Los Angeles USACE: (602) 640-2015 x 274

Kim.M.Gavigan@usace.army.mil

In California, tens of millions of dollars have been directed to repair levee systems, and were funded by the American Recovery and Reinvestment Act of 2009 (ARRA). Program contact information is listed below:

US Army Corps of Engineers' Recovery Act Contact Information Recovery Act Information Line: 877-515-1187

Recovery Act Email Address:

recoveryact@usace.army.mil

NRCS has various programs related to flood plain management, including some that are designed to be preventive, Such as the Floodplain Easement Program (restore, protect and maintain existing floodplain functions) and the Wetland Reserve Program (targets marginal agricultural land that is frequently flooded and where planned restoration offers the potential to maximize wildlife habitat and improve water quality).

There is also an emergency response program (Emergency Watershed Protection Program (EWP) designed to respond to emergencies created by natural disasters and to relieve imminent hazards to life and property caused by floods and other natural occurrences. The links to some introductory program information are included below:

http://www.ca.nrcs.usda.gov/programs/ewp/

http://www.ca.nrcs.usda.gov/programs/

The program manager is Alan Forkey, and his contact information follows:

(530)-792-5653

Alan.Forkey@ca.usda.gov

There are multiple State programs available for levee repair, and DWR engineer Michael Sabbaghian has emailed to say that he is willing to assist those trying to access this sort of funding. The state also has a webpage with a matrix listing their grant programs, eligible projects, and respective funding sources. State information is listed below:

(916) 574-1243

msabbagh@water.ca.gov

http://www.water.ca.gov/floodmgmt/fpo/sqb/llap/

Regarding levee repair, there was a helpful collection of papers associated with the following link. This site included one document related to seepage prevention by low-tech and low-cost bentonite slurry, and is based on Sacramento Valley experiences.

http://www.escalera.com/safelevee/index.htm

6. **Community Action Needed**

- Make permit applicants aware of anchoring requirements for structures such as propane tanks.
- Raise community awareness regarding potential flood level and other flood-related impacts of massive nurseries or other storage areas in flood zones
- Develop written procedures to document the process of permitting developments and residences beginning with the initial permit application, during construction, and through issuance of the final elevation certificate and certificate of occupancy. Staff roles from the various county departments should be specified. This should be completed by April 1, 2011.
- Several ordinance modifications are required. As previously mentioned, there is a hard copy of the State Ordinance Review worksheet and a FEMA memo that describes the required edits/additions. These changes will have to be adopted by the County. This should be completed by April 1, 2011.

- Obtain final permits for 12558 First Drive, or locate record of elevation certificate that dwellers claimed they paid for and delivered to County. Resolve potential violation at 29752 Avenue 304.This should be completed by April 1, 2011. The associated photos are attached to the appendix at the end of the report.

- During the next CAV, staff from the Planning Department and Building Department will participate in that meeting, and discuss their role(s) in delivery of the NFIP and administration of the local floodplain ordinance.

- Compile and transmit all requests for areas needing additional study for flood risk and for any other map changes.

- It is recommended that Tulare County staff assist the City of Visalia with the resolution of potential violations identified during the fieldwork portion of the Tulare County CAV, that are located in areas annexed by the City. The associated photos are attached to the appendix at the end of the report.

7.

SECTION IV – List of Attendees

City or County: James May; Craig Anderson

State: N/A

Federal Emergency Management Agency: Frank Mansell; Jane Hopkins

U.S. Department of Homeland Security
1111 Broadway, Suite 1200
Oakland, CA 94607-4052

FEMA

DATE: September 14, 2010

MEMORANDUM FOR: Tulare County

FROM: Jane Hopkins
Natural Hazards Program Specialist

SUBJECT: Ordinance Review, Tulare County

Findings of Part VII, Chapter 27 Flood Prevention Ordinance Numbers 2726, 3212, and 1998 Tulare County Municipal Code, Floodplain Management.

1. Definitions:
    a. Amend the definition of "Development" to include the words "mining" and "dredging", and the phrase "storage of equipment and materials", as per section 59.1 of the Code of Federal Regulations (CFR §59.1), and section 2.0 of the California Model Floodplain Management Ordinance" (CMFMO §2.0).
    b. Include the definition of "Historic Structure" as per CFR §59.1 and CMFMO §2.0.
    c. Amend the definition of "New Construction" to include "subsequent improvements to such structures", as per CFR §59.1 and CMFMO §2.0.
    d. Include the definition of "New Manufactured Home Park or Subdivision" as per CFR §59.1 and CMFMO §2.0.
    e. Amend the definition of "Recreational Vehicle" to replace "2,400 square feet" with "400 square feet", as per CFR §59.1 and CMFMO §2.0.
    f. Amend the definition of "Special Flood Hazard Area" to replace "A, AO, AH, A1-99, VO, V1-30" by "A, AO. A1-A30, AE, A99, or AH", as per CFR §59.1 and CMFMO §2.0.
    g. Amend the definition of "Structure" to include "a gas or liquid storage tank", as per CFR §59.1 and CMFMO §2.0.
2. There is a requirement to submit new technical data t to FEMA within six months. Develop a section to address this omission, as per CFR §65.3 and CMFMO §4.2.D.2.
3. A required provision for all adopted ordinances includes certification, the signature of an appropriate official, and the date of ordinance adoption. FEMA has these items for Ordinances 3212 and 3287. Ordinance Code Part VII, Chapter 27 Flood Damage Prevention was obtained from the internet, and so has no certification and has no signature.
4. There is a requirement to assure that all other State and Federal permits are obtained. Develop a section to address this omission, as per CFR §60.3(a)(2) and CMFMO §4.2.A.2.
5. There is a requirement to assure that subdivision proposals are reviewed such that these proposals minimize flood damage. Develop a section to address this omission, as per CFR §60.3(a)(4)(i) and CMFMO §5.3.B.

6. There is a requirement to assure that public utilities and facilities are sited and constructed such that flood damage will be minimized. Develop a section to address this omission, as per CFR §60.3(a)(4)(ii) and CMFMO §5.3.C.
7. There is a requirement to assure that all subdivisions and other proposed development provide adequate drainage. Develop a section to address this omission, as per CFR §60.3(a)(4)(ii) and CMFMO §5.3.C.
8. There is a requirement that all subdivisions greater than 50 lots or five acres develop base flood elevation data. Include a section to address this omission, as per CFR §60.3(b)(3) and CMFMO §5.3.A.
9. Alteration and/or relocation of a watercourse requires a provision for notification of DWR. Modify §7-27-1110-a to incorporate the corresponding model ordinance language, as per CFR §60.3(b)(6) and CMFMO §4.2.D.1.a
10. Alteration and/or relocation of a watercourse requires assurance that flood-carrying capacity is maintained in the watercourse. Incorporate the corresponding model ordinance language, as per CFR §60.3(b)(7) and CMFMO §4.2.D.1.c.
11. There is a requirement that flood openings be on two different sides of a structure, and that buildings with more than one opening must have flood openings for each enclosed space.. Include a section to address this omission, as per CFR §60.3(c)(5) and CMFMO §5.1.C.3.
12. Clarification regarding §7-27-1215 is needed. CFR § 60.3(c)(10) and CMFMO §5.6.A require that the water surface elevation not increase more than one foot above BFE. If the conditions associated with §7-27-1215 indicate that some increase that would amount to more than a one-foot increase in the BFE, then this section must be modified to stipulate that no increase in BFE greater than one foot is allowed.

California Ordinance Review Checklist

March 25, 2007

Community: Tulare County, CA

Level of Regulations: a b c √d e
(If a community has both floodways & coastal high hazard areas, circle d & e.) (circle one)

Ordinance Numbers: Chapter 27 part VII(09/29/86); 3212, (1998); & 3287 (2003)
Adopted on: 05/20 2003 **Effective date:** 06/19/03

Date of Review: 09/13/2010 **Reviewer:** J. Hopkins **FEMA STATE- CA**

NOTE: The "Item Description" is a synopsis of the regulatory requirement and should not be construed as a complete description. Refer to the actual language contained in the National Flood Insurance Program Rules and Regulations for complete descriptions of the required standards.

Item Description (Section reference of NFIP Regulations follows)	CA State Model Ordinance Section	Applicable Ordinance Section
Required provisions for all ordinances		
1. Citation of Statutory Authorization. [59.22(a)(2)]	1.1	17-27-1001
2. Purpose section citing health, safety, and welfare reasons for adoption. [59.22(1)]	1.2 & 1.3	17-27-1002
3. Adopt definitions of: ☑ Base Flood ☑ Basement ☐ Development ☑ Existing Manufactured Home Park or Subdivision ☑ Expansion to an Existing Manufactured Home Park or Subdivision ☑ Flood Insurance Rate Map ☑ Flood Insurance Study ☑ Floodproofing ☑ Floodway ☑ Highest Adjacent Grade ☐ Historic Structure ☑ Lowest Floor ☑ Manufactured Home ☑ Manufactured Home Park or Subdivision ☐ New Construction ☐ New Manufactured Home Park or Subdivision ☐ Recreational Vehicle ☐ Special Flood Hazard Area ☑ Start of Construction ☐ Structure ☑ Substantial Damage ☑ Substantial Improvement ☑ Violation and other definitions as appropriate. [59.1]	NOTE: Definitions for Existing, Expansion to An Existing or New Manufactured Home Park are not required if community requires elevation of all manufactured homes to the BFE (1986 regulations). 2.0	17-27-1010 **Refer to enclosed ordinance review memo for file: items # 1. a-g.**
4. Adopt or reference correct Flood Insurance Rate Map (and where applicable, Flood Boundary Floodway Map) and date.[1] [60.2(h)]	3.2	17-27-1020
5. Adopt or reference correct Flood Insurance Study and date.[1] [60.2(h)]	3.2	17-27-1020
6. Include a reference to all subsequent revisions and amendments to above-referenced flood maps and Flood Insurance Study.	3.2	17-27-1020

Community: Tulare County — Level of Regulations: a b c √d e

7. Adequate enforcement provisions including a violations/penalty section specifying community actions to assure compliance. [60.2(e)]	3.3	17-27-1025
8. Abrogation and Greater Restriction section. [60.1(b)]	3.4	17-27-1030

1 If a community has annexed territory (e.g. county land) not covered on its flood maps or FIS, the FIS and appropriate FIRM panels (usually County) must be adopted.

Item Description (Section reference of NFIP Regulations follows)	State Model Ordinance Section	Applicable Ordinance Section
Required provisions for all ordinances (continued)		
9. Disclaimer of Liability (Degree of flood protection required by the ordinance is considered reasonable but does not imply total flood protection.)	3.6	17-27-1040
10. Severability section. (If any section, provision or portion of the ordinance is deemed unconstitutional or invalid by a court, the remainder of the ordinance shall be effective.)	3.7	17-27-1041
11. Framework for administering the ordinance (permit system, establish office for administering the ordinance, etc.) [59.22(b)(1)]	4.0	17-27-1095 & 17-27-1100
12. Designate title of community Floodplain Administrator [59.22 (b)]	4.1	17-27-1095
13. Requirement to submit new technical data: within 6 months, notify FEMA of changes in the base flood elevation by submitting technical or scientific data so insurance & floodplain management can be based on current data. [65.3]	4.2.D.2	Missing Refer to enclosed ordinance review memo for file: item # 2.
14. Variance section with evaluation criteria & insurance notice. [60.6(a)]	6.0	17-27-1080-a & 17-27-1080-b-1
15. For adopted ordinance: Signature of Appropriate Official & Certification. Date ordinance adopted: _____	N/A	Missing Refer to enclosed ordinance review memo for file: item # 3.
60.3 (a) When no SFHA's have been identified, no water surface elevation data has been provided, and floodways and coastal high hazards areas have not been identified and the community applies for participation in the NFIP, the following are required:		
16. Require permits for all proposed construction or other development including placement of manufactured homes. [60.3(a)(1)]	N/A for 60.3(b)-(e) communities	N/A
17. Assure that all other State and Federal permits are obtained. [60.3(a)(2)]	4.2.A.2	Missing Refer to enclosed ordinance review memo for file: item # 4.
18. Review permits to assure sites are reasonably safe from flooding and require for new construction and substantial improvements in flood-prone areas: [60.3(a)(3)]	4.2.A.3	17-27-1170-a-2
(a) Anchoring (including manufactured homes) to prevent floatation, collapse, or lateral movement. [60.3(a)(3)(i)]	5.1.A	17-27-1170
(b) Use of flood-resistant materials. [60.3(a)(3)(ii)]	5.1.B.1	17-27-1175-a
(c) Construction methods/practices that minimize flood damage. [60.3(a)(3)(iii)]	5.1.B.2	17-27-1175-b

Community: Tulare County Level of Regulations: a b c √d e

(d) Electrical, heating, ventilation, plumbing, air conditioning equipment, and other service facilities designed and/or located to prevent water entry or accumulation. **[60.3(a)(3)(iv)]**	5.1.B.3	**17-27-1175-c**
19. Review subdivision proposals to assure that: (a) Such proposals minimize flood damage. **[60.3(a)(4)(i)]**	5.3.B	**Missing** **Refer to enclosed ordinance review memo for file: item # 5.**
(b) Public utilities and facilities are located & constructed so as to minimize flood damage. **[60.3(a)(4)(ii)]**	5.3.C	**Missing** **Refer to enclosed ordinance review memo for file: item # 6.**
(c) Adequate drainage is provided. **[60.3(a)(4)(iii)]**	5.3.D	**Missing** **Refer to enclosed ordinance review memo for file: item # 7.**
20. Require new and replacement water supply and sanitary sewer systems to be designed to minimize or eliminate infiltration. **[60.3(a)(5) & (6)]**	5.2 A.1 & 2	**17-27-1200-a**
21. Require on-site waste disposal systems be located to avoid impairment or contamination. **[60.3(a)(6)(ii)]**	5.2.B	**17-27-1200-b**

Community: Tulare County — Level of Regulations: a b c √d e

Item Description (Section reference of NFIP Regulations follows)	State Model Ordinance Section	Applicable Ordinance Section
60.3(b) When SFHA's are identified by the publication of a community's FHBM or FIRM, but water surface elevation data have not been provided or a floodway or coastal high hazard area has not been identified, then all the above ordinance provisions for 60.3(a) and the following are required:		
22. Require permits for all proposed construction and other development within SFHAs on the FIRM. [60.3(b)(1)]	4.3	17-27-1090
23. Require base flood elevation data for subdivision proposals or other developments greater than 50 lots or 5 acres. [60.3(b)(3)]	5.3.A	Missing Refer to enclosed ordinance review memo for file: item # 8.
24. In A Zones, in the absence of FEMA BFE data and floodway data, consider other available data as basis for elevating residential structures to or above base flood level, and for floodproofing or elevating nonresidential structures to or above base flood level. [60.3(b)(4)]	4.2.C	17-27-1100-b
25. Where BFE data are utilized, obtain and maintain records of lowest floor and floodproofing elevations for new construction and substantial improvements. [60.3(b)(5)]	4.2.E.1 & 2	17-27-1100-b-4 & 17-27-1100-c
26. Notify neighboring communities of watercourse alterations or relocations. [60.3(b)(6)]	4.2.D.1.a	17-27-1100-b Incomplete Refer to enclosed ordinance review memo for file: item # 9.
27. Maintain carrying capacity of altered or relocated watercourse. [60.3(b)(7)]	4.2.D.1.c	Missing Refer to enclosed ordinance review memo for file: item # 10.
28. Require all manufactured homes to be elevated and anchored to resist flotation, collapse, or lateral movement. [60.3(b)(8)]	5.1.A, 5.1.C.4, & 5.4	17-27-1210 & 17-27-1170
60.3(c) When final flood elevations, but no floodways or coastal high hazard areas have been provided on a community's FIRM, then all the above ordinance provisions for 60.3(a) & 60.3(b) and the following are required:		
29. Require all new and substantially improved residential structures within A1-30, AE, and AH Zones have their lowest floor (including basement) elevated to or above the BFE. [60.3(c)(2)]	5.1.C.1.a	17-27-1180-a
30. In AO Zones, require that new and substantially improved residential structures have their lowest floor (including basement) at or above the highest adjacent grade at least as high as the FIRM's depth number. [60.3(c)(7)]	NOTE: Item 29 is not required if community has no AO zones.	
	5.1.C.1.b	17-27-1180-b & 17-27-1180-c

Community: Tulare County Level of Regulations: a b c √d e

31. Require that new and substantially improved nonresidential structures within A1-30, AE, and AH Zones have their lowest floor elevated or floodproofed to or above the base flood elevation. [60.3(c)(3)]	5.1.C.2	17-27-1180-d
32. In AO Zones, require new and substantially improved nonresidential structures have their lowest floor elevated or completely floodproofed above the highest adjacent grade to at least as high as the depth number on the FIRM. [60.3(c)(8)]	NOTE: Item 31 is not required if community has no AO zones.	
	5.1.C.2	17-27-1180-d
33. Require that, for floodproofed non-residential structures, a registered professional/architect certify that the design and methods of construction meet requirements at (c) (3) (ii). [60.3(c)(4)]	5.1.C.2.c	17-27-1180-d

Community: Tulare County — Level of Regulations: a b c √d e

Item Description (Section reference of NFIP Regulations follows)	State Model Ordinance Section	Applicable Ordinance Section
60.3(c) (continued)		
34. Require, for all new construction and substantial improvements, that fully enclosed areas below the lowest floor that are usable solely for parking of vehicles, building access or storage have permanent openings designed to allow the entry and exit of flood waters in accordance with specifications of 60.3(c)(5).	5.1.C.3	17-27-1180-e **Incomplete Refer to enclosed ordinance review memo for file: item # 11.**
35. Within Zones A1-30 and AE without a designated floodway, new development shall not be permitted unless it is demonstrated that the cumulative effect of all past and projected development will not increase the BFE by more than 1 foot. [60.3(c)(10)]	NOTE: Item 34 is not required if *all* streams have floodways designated.	
	4.2.A.4 & 5.6.A	17-27-1180-a-3 & 17-27-1215-b **Unclear &/or missing Refer to enclosed ordinance review memo for file: item # 12.**
36. In Zones AO and AH, require drainage paths around structures on slopes to guide water away from structures. [60.3(c)(11)]	NOTE: Item 35 is not required if community has neither AO nor AH zones.	
	5.1.B.4	17-27-1175-d
37. Require that manufactured homes placed or substantially improved within A1-30, AH, and AE Zones, which meet one of the following location criteria, to be elevated such that the lowest floor is at or above the BFE and be securely anchored: i. outside a manufactured home park or subdivision; ii. in a new manufactured home park or subdivision; iii. in an expansion to an existing manufactured home park or subdivision; iv. on a site in an existing park which a manufactured home has incurred substantial damage as a result of flood. [60.3(c)(6)]	NOTE: Item 36 is not required if community requires elevation of all manufactured homes to the BFE (1986 regulations).	
	5.1.A, 5.4.A.1 (non-coastal) & 5.4.A.2 (coastal)	17-27-1210
38. In A1-30, AH, and AE Zones, require that manufactured homes to be placed or substantially improved in an existing manufactured home park to be elevated so that: i. the lowest floor is at or above the BFE ***or*** ii. the chassis is supported by reinforced piers no less than 36 inches above grade and securely anchored. [60.3(c)(12)]	NOTE: Item 37 is not required if community requires elevation of all manufactured homes to the BFE (1986 regulations).	
	5.4.B	N/A
39. In A1-30, AH, and AE Zones, all recreational vehicles to be placed on a site must be elevated and anchored ***or*** be on the site for less than 180 consecutive days ***or*** be fully licensed and highway ready. [60.3(c)(14)]	5.5	17-27-1211
60.3(d) When final flood elevations and floodway delineations have been provided on a community's FIRM, then all the above ordinance provisions for 60.3(a), 60.3(b) & 60.3(c) and the following are required:		
40. In a regulatory floodway, prohibit any encroachment which would cause any increase in the base flood level unless hydrologic and hydraulic analyses prove that the proposed encroachment would not increase flood levels during the base flood discharge. [60.3(d)(3)]	5.6.B	17-27-1215-a

Community: Tulare County — Level of Regulations: a b c √d e

Item Description (Section reference of NFIP Regulations follows)	State Model Ordinance Section	Applicable Ordinance Section
60.3(e) When final flood elevations and coastal high hazard areas have been provided on a community's FIRM, then all the above ordinance provisions for 60.3(a), 60.3(b) & 60.3(c) and the following are required: **NOTE: If a community has both floodways and coastal high hazard areas, it must meet the requirements of both 60.3(d) and 60.3(e).**		
41. In V1-30, VE, and V Zones, obtain and maintain the elevation of the bottom of the lowest structural member of the lowest floor of all new and substantially improved structures. **[60.3(e)(2)]**	4.2.E.6 & 5.7.F.2	
42. In V1-30, VE, and V Zones, require that all new construction and substantial improvements: (a) Are elevated and secured to anchored pilings or columns so that the lowest portion of the lowest horizontal structural member is at or above the BFE. **[60.3(e)(4)]**	5.7.A	
(b) A registered professional engineer/architect certify that the design and methods of construction meet elevation and anchoring requirements at (e)(4)(i) and (ii). **[60.3(e)(4)]**	5.7.F.1	
(c) Have the space below the lowest floor constructed with breakaway walls or left open. **[60.3(e)(5)]**	5.7.C	
(d) All new construction is landward of the reach of mean high tide. **[60.3(e)(3)]**	5.7.B	
(e) Prohibit use of fill for structural support. **[60.3(e)(6)]**	5.7.D	
(f) Prohibit alteration of sand dunes and mangrove stands which would increase potential flood damage. **[60.3(e)(7)]**	5.7.E	
43. Require that manufactured homes placed or substantially improved within V1-30, VE, and V Zones, which meet one of the following location criteria, meet the V Zone standards in 60.3(e)(2) through (e)(7): i. outside a manufactured home park or subdivision; ii. in a new manufactured home park or subdivision; iii. in an expansion to an existing manufactured home park or subdivision; iv. on a site in an existing park which a manufactured home has incurred substantial damage as a result of flood. **[60.3(e)(8)]**	NOTE: Item 43 is not required if community requires all manufactured homes meet the V Zone standards (1986 regulations).	
	5.4.A.2	
44. In V1-30, VE and V Zones, require that manufactured homes to be placed or substantially improved in an existing manufactured home park to be elevated so that: i. the lowest floor is at or above the BFE, ***or*** ii. the chassis is supported by reinforced piers no less than 36 inches above grade and securely anchored. **[60.3(e)(8)(iv); 60.3(c)(12)]**	NOTE: Item 44 is not required if community requires all manufactured homes meet the V Zone standards (1986 regulations).	
	5.4.B	
45. In V1-30, VE, and V Zones, all recreational vehicles to be placed on a site must be elevated and anchored or be on the site for less than 180 consecutive days or be fully licensed and highway ready. **[60.3(e)(9)]**	5.5.B	

From: "Hopkins, Jane" <Jane.Hopkins@fema.dhs.gov>
To: 'James May' <JMay@co.tulare.ca.us>
Date: 10/24/2011 12:12 PM
Subject: CAV Closure
Attachments: Regarding the ordinance review.docx; March 2007 CA Ordinance Review Checklist.docm

Dear James:
Thank you very much for the updates & address corrections on all remaining closure issues. So everything has been addressed, but regarding the ordinance review, several of the memo items were resolved, but there are still some omissions that must be addressed in order for the community ordinance to be NFIP-compliant. All points are included in the attached memo. For convenience, I've also included a copy of the CA State Model Ordinance for language reference. At least one point bears consulting with County atty. The flow chart is a great idea, and I hope that it would be fine to share with other communities as need arises. I also appreciate that there is a procedure being developed for record transfer with neighboring communities after boundary changes. If you get a copy soon, that would be nice to use as a model for other counties. Otherwise, it can be a topic for the next CAV. It was very nice working with you & Craig and I appreciate your helpfulness. Thank you.
Sincerely,
Jane Hopkins

Attachment 30

Regarding the ordinance review, several of the memo items were addressed. However, there are still some omissions:

1) After the changes below have been adopted, a copy of the revised ordinance, including signature(s) of appropriate official(s); certification (*e.g.,* seal/stamp); and date of ordinance adoption.
2) In the "Notification of Other Agencies" section, there are still some omissions. The first refers to the requirement to notify DWR and other adjacent communities about "alteration and relocation of a watercourse". This requirement corresponds to section 4.2.D.1.a of the California State Model Ordinance, which has been attached for convenient referral.
3) The second omission from the "Notification of Other Agencies" section is the requirement to maintain the carrying capacity of an altered or relocated watercourse. This requirement corresponds to section 4.2.D.1.c of the California State Model Ordinance.
4) In section 17-27-1180-e, it would make sense to revise "and must exceed the following minimum criteria" to state "and must meet the following minimum criteria ".
5) Section 17-27-1180-e.1 must have language specifying that the flood openings have to be paced "on different sides" of a structure.
6) Section 17-27-1180-e.1 must be revised to correspond to California State Model Ordinance sections 5.1.C.3.a.3 **and** 5.1.C.3.a.4 **or** 5.1.C.3.b
7) Regarding 7-27-1180-c, the language must be revised such that 7-27-1180-c-3 is the mandatory first step, and preferably, the only step. If The County chooses to retain the options of 7-27-1180-c-1 and 7-27-1180-c-2, FEMA strongly recommends consulting with the County attorney in order to address the potential liability of flood level exceeding either of these two default limits. This is not to say that these two alternate limits could not be used in the absence of any data to support 7-27-1180-c-3; one of those alternatives might be what is decided without any data to support a locally developed BFE. This edit might prove useful in a situation with flooding exceeding either of these limits, and a judge asking why a certain elevation limit was selected that resulted in damages.

   Another perspective about elevation can be found in the FEMA Flood Insurance Manual, in which increased elevation corresponds to less expensive flood insurance. Below is an example excerpted from the manual. The link to this document is included here:
   http://www.fema.gov/pdf/nfip/manual200910/cover.pdf

TABLE 3C. REGULAR PROGRAM -- POST-FIRM CONSTRUCTION RATES
ANNUAL RATES PER $100 OF COVERAGE
(Basic/Additional)

UNNUMBERED ZONE A --WITHOUT
BASEMENT/ENCLOSURE/CRAWLSPACE1,6

Elevation
Difference to nearest foot BUILDING RATES CONTENTS RATES TYPE OF ELEVATION

CERTIFICATE
Occupancy Occupancy
1-4 Family Other & Non-
Residential
Residential2 Non-
Residential2
+5 or more .35 / .10 .47 / .15 .61 / .12 .64 / .12
NO ESTIMATED
BASE FLOOD ELEVATION3
+2 to +4 1.08 / .13 .99 / .20 .86 / .17 .97 / .23
+1 2.07 / .63 2.23 / .74 1.52 / .56 1.45 / .71
0 or below *** *** *** ***
+2 or more .40 / .08 .33 / .09 .50 / .12 .48 / .12
WITH THE ESTIMATED
BASE FLOOD ELEVATION4
0 to +1 1.05 / .12 .90 / .18 .84 / .16 .83 / .21
-1 3.45 / 1.29 4.37 / 1.01 2.68 / .69 2.18 / 1.01
-2 or below *** *** *** ***
No Elevation
Certificate5 4.02 / 1.41 5.45 / 1.68 3.33 / .99 3.21 / 1.34 No Elevation
Certificate

California Ordinance Review Checklist

March 25, 2007

Community: _____

Level of Regulations: a b c d e
(If a community has both floodways & coastal high hazard areas, circle d & e.)

Ordinance Number: _____ **Adopted on:** _____ **Effective date:** _____

Date of Review: _____ **Reviewer:** _____ *(circle one)* **FEMA STATE**

NOTE: The "Item Description" is a synopsis of the regulatory requirement and should not be construed as a complete description. Refer to the actual language contained in the National Flood Insurance Program Rules and Regulations for complete descriptions of the required standards.

Item Description (Section reference of NFIP Regulations follows)	CA State Model Ordinance Section	Applicable Ordinance Section
Required provisions for all ordinances		
1. Citation of Statutory Authorization. **[59.22(a)(2)]**	1.1	
2. Purpose section citing health, safety, and welfare reasons for adoption. **[59.22(1)]**	1.2 & 1.3	
3. Adopt definitions of: ☐ Base Flood ☐ Basement ☐ Development ☐ Existing Manufactured Home Park or Subdivision ☐ Expansion to an Existing Manufactured Home Park or Subdivision ☐ Flood Insurance Rate Map ☐ Flood Insurance Study ☐ Floodproofing ☐ Floodway ☐ Highest Adjacent Grade ☐ Historic Structure ☐ Lowest Floor ☐ Manufactured Home ☐ Manufactured Home Park or Subdivision ☐ New Construction ☐ New Manufactured Home Park or Subdivision ☐ Recreational Vehicle ☐ Special Flood Hazard Area ☐ Start of Construction ☐ Structure ☐ Substantial Damage ☐ Substantial Improvement ☐ Violation and other definitions as appropriate. **[59.1]**	NOTE: Definitions for Existing, Expansion to An Existing or New Manufactured Home Park are not required if community requires elevation of all manufactured homes to the BFE (1986 regulations). 2.0	
4. Adopt or reference correct Flood Insurance Rate Map (and where applicable, Flood Boundary Floodway Map) and date.[1] **[60.2(h)]**	3.2	
5. Adopt or reference correct Flood Insurance Study and date.[1] **[60.2(h)]**	3.2	
6. Include a reference to all subsequent revisions and amendments to above-referenced flood maps and Flood Insurance Study.	3.2	
7. Adequate enforcement provisions including a violations/penalty section specifying community actions to assure compliance. **[60.2(e)]**	3.3	
Abrogation and Greater Restriction section. **[60.1(b)]**	3.4	

[1] If a community has annexed territory (e.g. county land) not covered on its flood maps or FIS, the FIS and appropriate FIRM panels (usually County) must be adopted.

Community: _____ Level of Regulations: a b c d e

Item Description (Section reference of NFIP Regulations follows)	State Model Ordinance Section	Applicable Ordinance Sect.
Required provisions for all ordinances (continued)		
9. Disclaimer of Liability (Degree of flood protection required by the ordinance is considered reasonable but does not imply total flood protection.)	3.6	
10. Severability section. (If any section, provision or portion of the ordinance is deemed unconstitutional or invalid by a court, the remainder of the ordinance shall be effective.)	3.7	
11. Framework for administering the ordinance (permit system, establish office for administering the ordinance, etc.) **[59.22(b)(1)]**	4.0	
12. Designate title of community Floodplain Administrator **[59.22 (b)]**	4.1	
13. Requirement to submit new technical data: within 6 months, notify FEMA of changes in the base flood elevation by submitting technical or scientific data so insurance & floodplain management can be based on current data. **[65.3]**	4.2.D.2	
14. Variance section with evaluation criteria & insurance notice. **[60.6(a)]**	6.0	
15. For adopted ordinance: Signature of Appropriate Official & Certification. Date ordinance adopted: _____	N/A	
60.3 (a) When no SFHA's have been identified, no water surface elevation data has been provided, and floodways and coastal high hazards areas have not been identified and the community applies for participation in the NFIP, the following are required:		
16. Require permits for all proposed construction or other development including placement of manufactured homes. **[60.3(a)(1)]**	N/A for 60.3(b)-(e) communities	
17. Assure that all other State and Federal permits are obtained. **[60.3(a)(2)]**	4.2.A.2	
18. Review permits to assure sites are reasonably safe from flooding and require for new construction and substantial improvements in flood-prone areas: **[60.3(a)(3)]**	4.2.A.3	
(a) Anchoring (including manufactured homes) to prevent floatation, collapse, or lateral movement. **[60.3(a)(3)(i)]**	5.1.A	
(b) Use of flood-resistant materials. **[60.3(a)(3)(ii)]**	5.1.B.1	
(c) Construction methods/practices that minimize flood damage. **[60.3(a)(3)(iii)]**	5.1.B.2	
(d) Electrical, heating, ventilation, plumbing, air conditioning equipment, and other service facilities designed and/or located to prevent water entry or accumulation. **[60.3(a)(3)(iv)]**	5.1.B.3	
19. Review subdivision proposals to assure that: (a) Such proposals minimize flood damage. **[60.3(a)(4)(i)]**	5.3.B	
(b) Public utilities and facilities are located & constructed so as to minimize flood damage. **[60.3(a)(4)(ii)]**	5.3.C	
(c) Adequate drainage is provided. **[60.3(a)(4)(iii)]**	5.3.D	
20. Require new and replacement water supply and sanitary sewer systems to be designed to minimize or eliminate infiltration. **[60.3(a)(5) & (6)]**	5.2 A.1 & 2	
21. Require on-site waste disposal systems be located to avoid impairment or contamination. **[60.3(a)(6)(ii)]**	5.2.B	

Community: _____ Level of Regulations: a b c d e

n Description tion reference of NFIP Regulations follows)	State Model Ordinance Section	Applicable Ordinance Section
60.3(b) When SFHA's are identified by the publication of a community's FHBM or FIRM, but water surface elevation data have not been provided or a floodway or coastal high hazard area has not been identified, then all the above ordinance provisions for 60.3(a) and the following are required:		
22. Require permits for all proposed construction and other development within SFHAs on the FIRM. **[60.3(b)(1)]**	4.3	
23. Require base flood elevation data for subdivision proposals or other developments greater than 50 lots or 5 acres. **[60.3(b)(3)]**	5.3.A	
24. In A Zones, in the absence of FEMA BFE data and floodway data, consider other available data as basis for elevating residential structures to or above base flood level, and for floodproofing or elevating nonresidential structures to or above base flood level. **[60.3(b)(4)]**	4.2.C	
25. Where BFE data are utilized, obtain and maintain records of lowest floor and floodproofing elevations for new construction and substantial improvements. **[60.3(b)(5)]**	4.2.E.1 & 2	
26. Notify neighboring communities of watercourse alterations or relocations. **[60.3(b)(6)]**	4.2.D.1.a	
27. Maintain carrying capacity of altered or relocated watercourse. **[60.3(b)(7)]**	4.2.D.1.c	
28. Require all manufactured homes to be elevated and anchored to resist flotation, collapse, or lateral movement. **[60.3(b)(8)]**	5.1.A, 5.1.C.4, & 5.4	
60.3(c) When final flood elevations, but no floodways or coastal high hazard areas have been provided on a community's FIRM, then all the above ordinance provisions for 60.3(a) & 60.3(b) and the following are required:		
29. Require all new and substantially improved residential structures within A1-30, AE, and AH Zones have their lowest floor (including basement) elevated to or above the BFE. **[60.3(c)(2)]**	5.1.C.1.a	
30. In AO Zones, require that new and substantially improved residential structures have their lowest floor (including basement) at or above the highest adjacent grade at least as high as the FIRM's depth number. **[60.3(c)(7)]**	NOTE: Item 29 is not required if community has no AO zones. 5.1.C.1.b	
31. Require that new and substantially improved nonresidential structures within A1-30, AE, and AH Zones have their lowest floor elevated or floodproofed to or above the base flood elevation. **[60.3(c)(3)]**	5.1.C.2	
32. In AO Zones, require new and substantially improved nonresidential structures have their lowest floor elevated or completely floodproofed above the highest adjacent grade to at least as high as the depth number on the FIRM. **[60.3(c)(8)]**	NOTE: Item 31 is not required if community has no AO zones. 5.1.C.2	
33. Require that, for floodproofed non-residential structures, a registered professional/architect certify that the design and methods of construction meet requirements at (c) (3) (ii). **[60.3(c)(4)]**	5.1.C.2.c	

Community: _____ Level of Regulations: a b c d e

Item Description (Section reference of NFIP Regulations follows)	State Model Ordinance Section	Applicable Ordinance Sec.
60.3(c) (continued)		
34. Require, for all new construction and substantial improvements, that fully enclosed areas below the lowest floor that are usable solely for parking of vehicles, building access or storage have permanent openings designed to allow the entry and exit of flood waters in accordance with specifications of **60.3(c)(5).**	5.1.C.3	
35. Within Zones A1-30 and AE without a designated floodway, new development shall not be permitted unless it is demonstrated that the cumulative effect of all past and projected development will not increase the BFE by more than 1 foot. **[60.3(c)(10)]**	NOTE: Item 34 is not required if ***all*** streams have floodways designated.	
	4.2.A.4 & 5.6.A	
36. In Zones AO and AH, require drainage paths around structures on slopes to guide water away from structures. **[60.3(c)(11)]**	NOTE: Item 35 is not required if community has neither AO nor AH zones.	
	5.1.B.4	
37. Require that manufactured homes placed or substantially improved within A1-30, AH, and AE Zones, which meet one of the following location criteria, to be elevated such that the lowest floor is at or above the BFE and be securely anchored: i. outside a manufactured home park or subdivision; ii. in a new manufactured home park or subdivision; iii. in an expansion to an existing manufactured home park or subdivision; iv. on a site in an existing park which a manufactured home has incurred substantial damage as a result of flood. **[60.3(c)(6)]**	NOTE: Item 36 is not required if community requires elevation of all manufactured homes to the BFE (1986 regulations).	
	5.1.A, 5.4.A.1 (non-coastal) & 5.4.A.2 (coastal)	
38. In A1-30, AH, and AE Zones, require that manufactured homes to be placed or substantially improved in an existing manufactured home park to be elevated so that: i. the lowest floor is at or above the BFE ***or*** ii. the chassis is supported by reinforced piers no less than 36 inches above grade and securely anchored. **[60.3(c)(12)]**	NOTE: Item 37 is not required if community requires elevation of all manufactured homes to the BFE (1986 regulations).	
	5.4.B	
39. In A1-30, AH, and AE Zones, all recreational vehicles to be placed on a site must be elevated and anchored ***or*** be on the site for less than 180 consecutive days ***or*** be fully licensed and highway ready. **[60.3(c)(14)]**	5.5	
60.3(d) When final flood elevations and floodway delineations have been provided on a community's FIRM, then all the above ordinance provisions for 60.3(a), 60.3(b) & 60.3(c) and the following are required:		
40. In a regulatory floodway, prohibit any encroachment which would cause any increase in the base flood level unless hydrologic and hydraulic analyses prove that the proposed encroachment would not increase flood levels during the base flood discharge. **[60.3(d)(3)]**	5.6.B	

Community: _____ Level of Regulations: a b c d e

Item Description (section reference of NFIP Regulations follows)	State Model Ordinance Section	Applicable Ordinance Section
60.3(e) When final flood elevations and coastal high hazard areas have been provided on a community's FIRM, then all the above ordinance provisions for 60.3(a), 60.3(b) & 60.3(c) and the following are required: **NOTE: If a community has both floodways and coastal high hazard areas, it must meet the requirements of both 60.3(d) and 60.3(e).**		
41. In V1-30, VE, and V Zones, obtain and maintain the elevation of the bottom of the lowest structural member of the lowest floor of all new and substantially improved structures. **[60.3(e)(2)]**	4.2.E.6 & 5.7.F.2	
42. In V1-30, VE, and V Zones, require that all new construction and substantial improvements: (a) Are elevated and secured to anchored pilings or columns so that the lowest portion of the lowest horizontal structural member is at or above the BFE. **[60.3(e)(4)]**	5.7.A	
(b) A registered professional engineer/architect certify that the design and methods of construction meet elevation and anchoring requirements at (e)(4)(i) and (ii). **[60.3(e)(4)]**	5.7.F.1	
(c) Have the space below the lowest floor constructed with breakaway walls or left open. **[60.3(e)(5)]**	5.7.C	
(d) All new construction is landward of the reach of mean high tide. **[60.3(e)(3)]**	5.7.B	
(e) Prohibit use of fill for structural support. **[60.3(e)(6)]**	5.7.D	
(f) Prohibit alteration of sand dunes and mangrove stands which would increase potential flood damage. **[60.3(e)(7)]**	5.7.E	
43. Require that manufactured homes placed or substantially improved within V1-30, VE, and V Zones, which meet one of the following location criteria, meet the V Zone standards in 60.3(e)(2) through (e)(7): i. outside a manufactured home park or subdivision; ii. in a new manufactured home park or subdivision; iii. in an expansion to an existing manufactured home park or subdivision; iv. on a site in an existing park which a manufactured home has incurred substantial damage as a result of flood. **[60.3(e)(8)]**	NOTE: Item 43 is not required if community requires all manufactured homes meet the V Zone standards (1986 regulations).	
	5.4.A.2	
44. In V1-30, VE and V Zones, require that manufactured homes to be placed or substantially improved in an <u>existing</u> manufactured home park to be elevated so that: i. the lowest floor is at or above the BFE, ***<u>or</u>*** ii. the chassis is supported by reinforced piers no less than 36 inches above grade and securely anchored. **[60.3(e)(8)(iv); 60.3(c)(12)]**	NOTE: Item 44 is not required if community requires all manufactured homes meet the V Zone standards (1986 regulations).	
	5.4.B	
45. In V1-30, VE, and V Zones, all recreational vehicles to be placed on a site must be elevated and anchored <u>or</u> be on the site for less than 180 consecutive days <u>or</u> be fully licensed and highway ready. **[60.3(e)(9)]**	5.5.B	

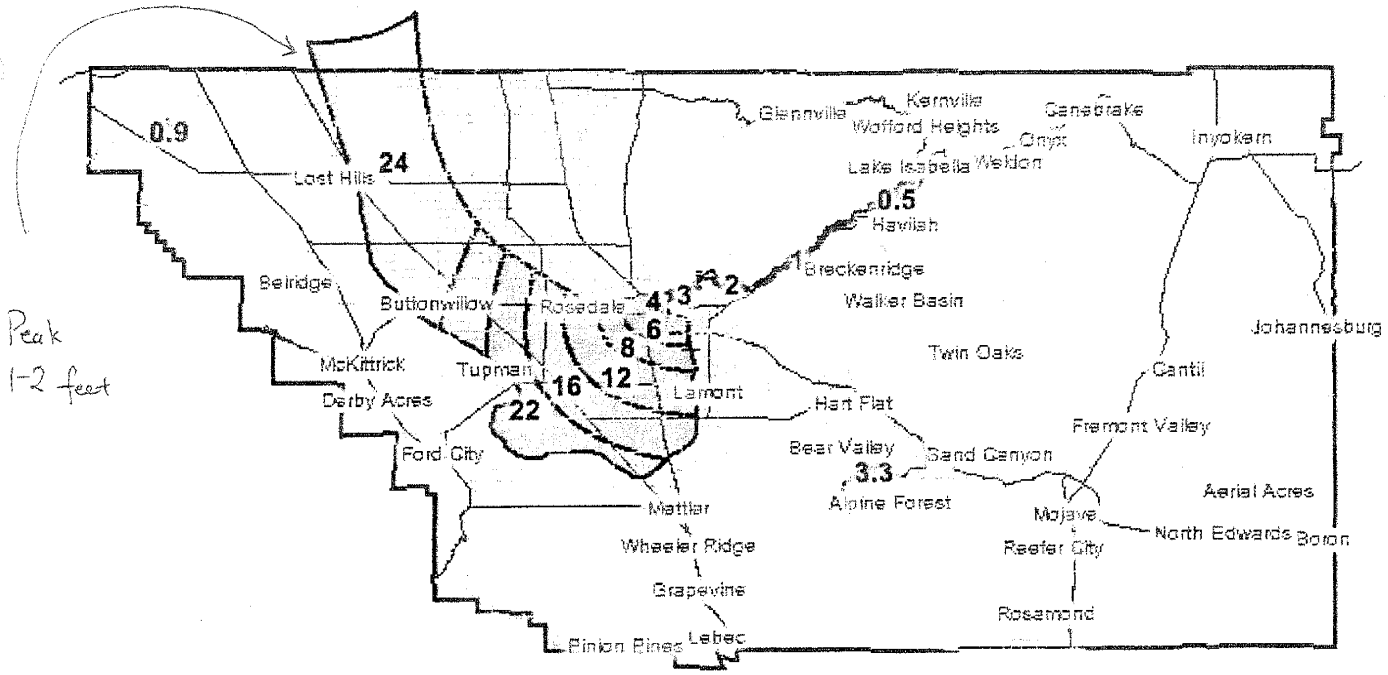
Yokohl Ranch Project Cost Summary
thru September 2011

	FY 2006/2007	FY 2007/2008	FY 2008/2009	FY 2009/2010	FY 2010/2011	FY 2011/2012 Thru Sept. 2011	Total
Permit Fees	4,328.00						4,328.00
County Staff Charges	94,060.00	145,355.00	66,385.00	41,967.00	79,575.00	15,200.00	442,542.00
Training			635.13				635.13
Travel for Comm Tour					209.67		209.67
TC WID		3,471.41					3,471.41
Print Shop (Copies)		827.98	568.09				1,396.07
Meeting		254.58	271.46		54.99		581.03
Office Supplies		49.46	107.50				156.96
County Counsel		18,698.30	22,253.90	11,106.80	11,048.00	2,319.80	65,426.80
Consultant Invoices	23,940.00	953,222.23	939,938.18	517,381.05	240,705.05	46,116.00	2,721,302.51
TOTAL	**122,328.00**	**1,121,878.96**	**1,030,159.26**	**570,454.85**	**331,592.71**	**63,635.80**	**3,240,049.58**

H:\ROGER\Yokohl Ranch\Yokohl Consolidated Charges thru Sept 2011
Yokohl Ranch Project Costs

Attachment 10/12/2011

Attachment 31



Peak
1-2 feet

This was presented in 2007.

Anticipated Flooded Areas Caused by Possible Failure of Lake Isabella Dam, 24 Hour Peak Inundation Map Extending into Tulare County

from U.S. Army Corps of Engineers model

Attachment 32

TULARE COUNTY
FIRE DEPARTMENT

907 West Visalia Road, Farmersville, CA 93223 - Phone (559) 747-8233 - Fax (559) 747-8242

TEODORO A. MENDOZA
INTERIM CHIEF

October 11, 2011

Carol Clum
45638 So. Fork Dr.
Three Rivers, CA 93271

Dear Ms. Clum,

Here is the Tulare County Fire Department budget information you requested.

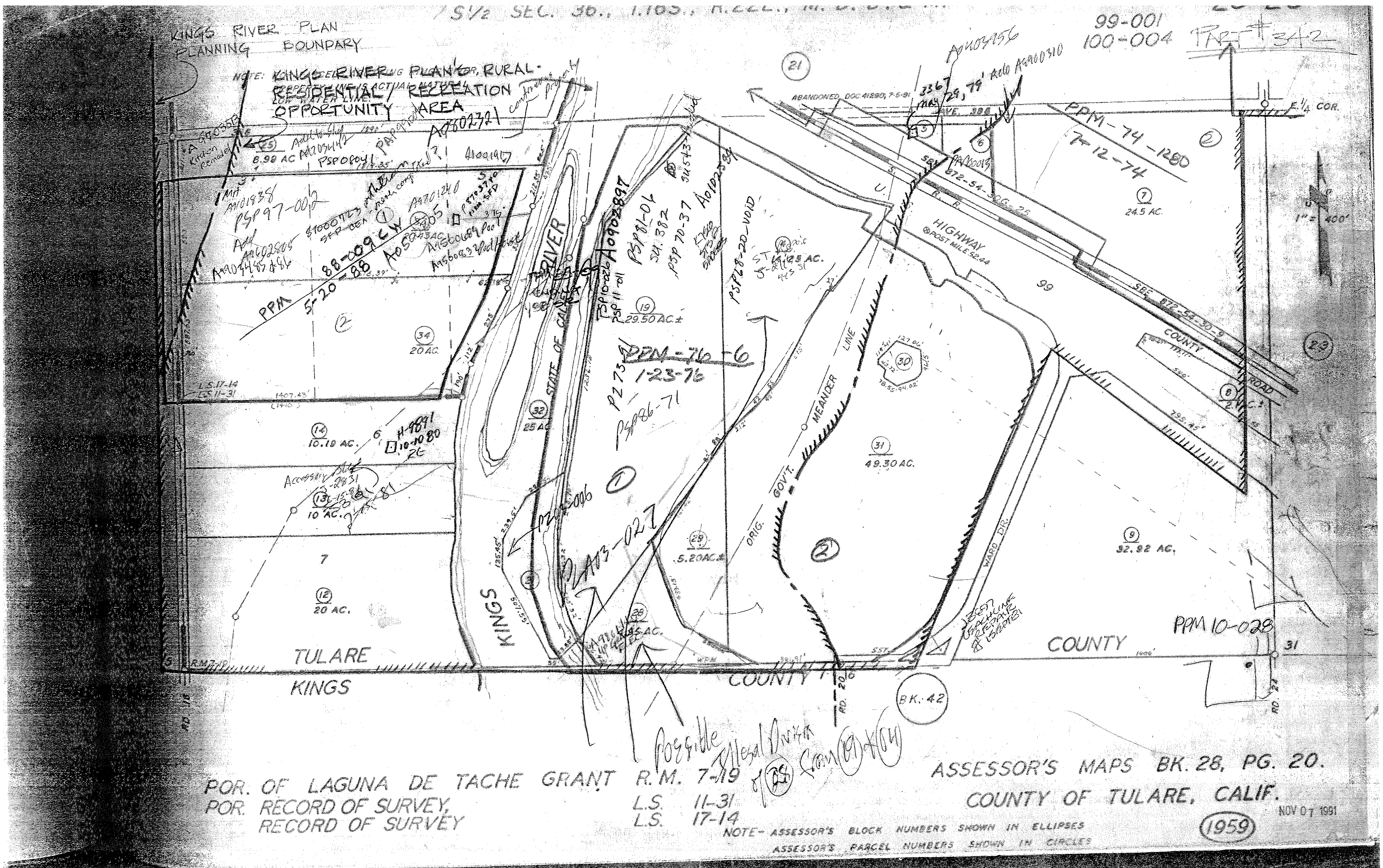
Budget Fiscal Year	Approved Budget	
2011-2012	$12,839,750	
2010-2011	$12,998,300	
2009-2010	$13,529,548	
2008-2009	$13,334,398	
2007-2008	$13,501,839	
2006-2007	$14,256,605	*
2005-2006	$11,763,622	
2004-2005	$10,661,618	
2003-2004	$11,362,352	

* Transition year from CDF Contract to County Fire Dept.

If you have any questions please call me at 559-747-8233.

Steve King
Steve King
Administrative Services Officer II

Attachment 33


S 1/2 SEC. 30
KINGS RIVER PLAN
PLANNING BOUNDARY
NOTE: KINGS RIVER PLAN'S RURAL-RESIDENTIAL/RECREATION OPPORTUNITY AREA
99-001
100-004
PART #342
ABANDONED DOC. 41890, 7-5-91
E. 1/4 COR.
1" = 400'
PPM-74-1280
7-12-74
24.5 AC.
HIGHWAY
POST MILE 52.44
99
SEE 872-54-30-9
COUNTY ROAD
8.99 AC.
20.43 AC.
20 AC.
10.10 AC.
10 AC.
20 AC.
RIVER
STATE OF CALIF.
25 AC.
29.50 AC.±
PPM-76-6
1-23-76
A0902897
A0102384
PSP 68-20-VOID
49.30 AC.
MEANDER LINE
ORIG. GOV'T.
5.20 AC.±
32.92 AC.
WARD DR.
PPM 10-028
KINGS
TULARE
KINGS
COUNTY
COUNTY
RD. 18
RD. 20
RD. 24
BK. 42
POR. OF LAGUNA DE TACHE GRANT R.M. 7-19
POR. RECORD OF SURVEY, L.S. 11-31
RECORD OF SURVEY L.S. 17-14
ASSESSOR'S MAPS BK. 28, PG. 20.
COUNTY OF TULARE, CALIF.
NOV 07 1991
1959
NOTE- ASSESSOR'S BLOCK NUMBERS SHOWN IN ELLIPSES
ASSESSOR'S PARCEL NUMBERS SHOWN IN CIRCLES

Tulare County - Disadvantaged Community
Water and Sewer Issues
November 2010

Disadvantaged Communities / Schools	IRWMP	Type of Project	MHI	Entity	Issues	On-going MCL Violation	Solutions Id'd	Estimated Cost	Potential Funding Sources	App / Pre-App Submitted	Date Constructon App Submtd	Feasibility Study Needed	App Amnt Submitted	Date Planning App Submtd	Prelim. Engin. / CEQA Needed
Allensworth	Tule*	Water	$23,750	Allensworth CSD	Arsenic levels in both wells have now exceeded MCL, prblems with control system, inadequate storage	Yes	Sealing off bottom of west well, refinement of power at motor control panels, additional storage		CDPH-DWSRF Prop 84	Yes	Jan-08	Yes			Yes
Alpaugh	Tule*	Water	$23,688	Alpaugh Joint Powers Authority	Water from both new wells exceeds arsenic MCL (16 to 25 ppb)	Yes	Arsenic Treatment Plant	$1,368,000	CDPH- Prop 84	Yes			$389,200		No
Beverly-Grand	Tule	Water	$29,000	Beverly Grand Mutual Water Company	Nitrates exceed MCL	Yes	Consolidate with City of Porterville	$801,000	CDPH-Prop 84	Yes	Feb-09	Yes	$142,600	Feb-10	Yes
Cutler	Upper Kings	Water	$24,330	Cutler PUD	Need to complete metering of customers										
Ducor	Tule	Water	$23,000	Ducor Community Services District	Well collapse, lack of adequate supply of water, H2S		New water supply (well &/or consolidation)	$700,000	USDA DWSRF	Yes					
East Orosi	Upper Kings	Water	$26,071	East Orosi CSD	Both wells at times exceed nitrate MCL		Short Term: Rehabilitate both wells	$137,000	IRWMP CDPH-DWSRF Prop 84	Yes	Yes	Yes	IRWMP $102,600 DWSRF $137,000		Yes
East Orosi	Upper Kings	Sewer	$26,071	East Orosi CSD	Both wells at times exceed nitrate MCL		Long Term: Drill new well/ Investigate connection to Orosi		IRWMP CDPH-DWSRF Prop 84	Yes			IRWMP $152,788		
Fairways Tract	Tule	Water		Fairways Tract MWC	Water from only well exceeds NO3 MCL by almost 3 times	Yes	Consolidate with City of Porterville	$892,886	DPH-DWSRF	Yes		No	$892,886		No
Lemon Cove and Sequoia Union School	Kaweah	Water	$28,333	Lemon Cove Sanitary District/Sequoia Union School District	Nitrates exceed MCL	Yes	Feasibility Study Drill test well(s), new well(s), storage and transmission		CDPH-DWSRF Prop 84	Yes	N/A	Yes	$315,070	Oct-08	Yes
Lemon Cove	Kaweah	Sewer	$28,333	Lemon Cove Sanitary District	Regional Board has requested treatment plant modifications		upgrade treatment plant								
London	Upper Kings	Water	$21,678	London CSD	Inadequate supply, storage, distribution		New well, storage, replace and loop undersized pipelines	$2,800,000	USDA DWSRF IRWMP	Yes	under contract	No	USDA app submited ->	Jul-10	No
Matheny Tract	Kaweah	Water	$27,467	Pratt MWC	1 well shut down due to high NO3, the other 2 wells wells excxeed arsenic MCL. Distribution system needs replacement	Yes	Consolidate with City of Tulare and replace water distribution system.	$6,000,000	CDPH-DWSRF Prop 84	Yes	Dec-05	No	SRF$389,200 P84 $97,300 $486,500	Feb-10	Yes
Matheny Tract	Kaweah	Sewer	$27,468	County-City of Tulare ??	Unsewered community on septic systems		Negotiate, secure funding and connect with City of Tulare system								
Monson	Upper Kings	Water		Sultana CSD ?	Private wells with nitrate levels over MCL		Determine community and County support and that of neighboring Sultana for potential consolidation with Sultana system.		CDPH-DWSRF Prop 84	Yes		Yes	$495,000	Feb-10	Yes
Pixley	Tule	Water	$23,304	Pixley Public Utility District	3 of 4 wells at times exceed arsenic MCL	Yes	Drill new wells and provide storage	$3,000,000	CDPH- Prop 84	Yes	Jan-08	No	$500,000	Feb-10	No
Plainview	Tule	Sewer		Plainview MWC	Unsewered community with septic system problems		Initiate preliminary engineering and build community sewer system, investigate connection with Strathmore or Lindsay		USDA SWRCB-SCWGP						

Tulare County - Disadvantaged Community
Water and Sewer Issues
November 2010

Disadvantaged Communities / Schools	IRWMP	Type of Project	MHI	Entity	Issues	On-going MCL Violation	Solutions Id'd	Estimated Cost	Potential Funding Sources	App / Pre-App Submitted	Date Constructon App Submtd	Feasibility Study Needed	App Amnt Submitted	Date Planning App Submtd	Prelim. Engin. / CEQA Needed
Richgrove	Poso	Water	$22,885	Richgrove Community Services District	1 well has arsenic/DBCP MCL issues;Other well close to nitrate MCL		Drill new well and/or blend	$1,698,000	CDPH- Prop 84	Yes	Jan-08	No	$393,100	Feb-10	Yes
Richgrove	Poso	Sewer	$22,886	Richgrove Community Services District	Treatment plant inflow is in excess of rated capacity		Modify RWQCB Discharge permit and upgrade and expand treatment and disposal facilities		USDA SWRCB-SCWG/ CWSRF						
Rodriguez Labor Camp	Poso	Water	$18,144	Richgrove Community Services District	Nitrate 130 ppm	Yes	Consolidate with Richgrove CSD	included w/ Richgrove	CDPH- Prop 84	Yes	included w/ Richgrove	included w/ Richgrove	included w/ Richgrove	included w/ Richgrove	Yes
Seville	Upper Kings	Water	$14,000	Tulare County as Receiver	Old leaky pipelines, lack of storage		Replace water distribution system and install storage tank	$3,200,000	DPH-SRF & Prop 84 USDA	Yes	Jan-08	Yes	$120,000	Feb-10	Yes
Seville	Upper Kings	Water	$14,000	Tulare County as Receiver	Shallow well (125'), nitrate fluctates above and below MCL		Drill new well and connect with Yettem's water system								
Seville	Upper Kings	Sewer	$14,000	TCCSAZOB	Sewer system at capacity, lines too shallow to allow extensions										
Soults Mutual Water Company	Kaweah	Water	$41,000	Soults Mutual Water Company	Nitrates exceed MCL	Yes	Consolidate with City of Tulare	$982,500	CDPH- Prop 84	Yes	Jan-08	No			No
Sultana	Upper Kings	Water	$12,000	Sultana CSD	1 active well, DBCP over MCL for backup well		Need Feasibility Study to determine best options		IRWMP CDPH-DWSRF Prop 84	Yes		Yes	IRWMP $123,750 DWSRF $396,000	Feb-10	
Teviston	Tule	Water		Teviston CSD	Bottom of one of system's 2 wells has collapsed		Rehabilitate well or drill new well								
Tipton	Tule														
Tipton CSD-Burnett Road	Tule	Water	$19,500	Tipton Community Services District	Temporary connection for water outage has been in place for 10 years		Consolidate with Tipton CSD	$249,283	Prop 84 DWSRF	Yes	Jan-08	No	$55,000	Feb-10	No
Tonyville	Kaweah	Water		City of Lindsay ?	Disinfection byproducts with surface water - nitrate when groundwater temporarily used		Consolidate with City of Lindsay		CDPH-DWSRF Prop 84			Yes	$262,500	Feb-10	
Tooleville	Kaweah	Water	$15,500	Tooleville NMWA	Bolth wells exceed Nitrate MCL, Water capacity		Drill new well west of Exeter and wheel water thru Exeter to replacement distribution system	$3,100,000	USDA DPH-DWSRF Prop 84 CDBG	Yes		No	$408,000	Feb-10	No
Tract 92	Kaweah	Water		Tract 92 CSD	39 abandoned wells need proper destruction										

*TCCSAZOB - Tulare County County Service Area #1 Zone of Benefit
CDBG
DPH Prop 84
DWSRF
USDA
SWRCB
SCWG