SIERRA CLUB

KERN-KAWEAH CHAPTER



May 26, 2010

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Re: Comments on the Tulare County General Plan 2030 Update Recirculated Draft Environmental Impact Report (RDEIR)

Dear Mr. Bryant:

Enclosed are our Comments on the Tulare County General Plan 2030 Update Recirculated Draft Environmental Impact Report (RDEIR), which consist of:

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Attachments:

1. Our letter dated April 26, 2010 to David Bryant, Project Planner, Tulare County RMA

2. Our letter dated May 5, 2010 to David Bryant, Project Planner, Tulare County RMA

3. Letter from Agency Director, Tulare County RMA dated May 14, 2010 to J. Peter Clum and Carole A. Clum

4. Tulare County Guidelines for the Implementation of the California Environmental Quality Act of 1970

5. Assembly Bill No. 162 approved October 10, 2007 amending and adding to certain sections of the Government Code relating to local planning

6. Notice of Preparation and Initial Study for Yokohl Ranch Project dated February 2008

7. "Valley water loss seen via satellite," The Fresno Bee, December 15, 2009

8. "NASA Data Reveal Major Groundwater Loss in California," December 14, 2009

9. "New Hydrologic Model Provides Insights in Water Supplies," Valley Voice, August 6, 2009

10. "California Central Valley Groundwater Study: A Powerful New Tool to Assess Water Resources in California's Central Valley." USGS Fact Sheet 2009-3057, July 2009

11. "Groundwater Level Sets New Record," Valley Voice (Tulare Voice Section), July 9, 2009

12. "Water Table at Lowest Level Ever," Valley Voice, September 10, 2009

13. "Wells Continue to Dry Up, Get Clogged," Times Delta/Advance Register, September 19-20, 2009

14. Kaweah Delta Water Conservation District Annual Average Fall Groundwater Depths 1970 to 2007 from 2007 Annual Groundwater Report, Kaweah Delta Water Conservation District

15. "Valley Still Leads in Worst Air Report," Valley Voice, May 6, 2010

16. "Traffic Pollution Linked to New Cases of Asthma, Valley Voice, May 7, 2009

17. Letter to Supervisors from Carole Clum, dated March 22, 2010

18. Nitrate Contamination Spreading in California Communities, Visalia Times-Delta, May 15-16, 2010

19. Public Water Supply Violations, Tulare County Environmental Health, January 10, 2010

20. Jim May's Presentation to Tulare County Water Commission, January 10, 2010

21. NOAA's Western Regional Climate Center Data, National Oceanographic and Atmospheric Administration, May 4, 2010

22. Flood Potential in Tulare County by Carole Clum, March, 2010

23. Three Rivers Town Hall Meeting by Carole Clum, January 11, 2010

24. California Firefighters' Mission, Wall Street Journal, August 17, 2009

25. Builders Criticized for Raising Fire Risk, Fresno Bee, July 30, 2009

26. Wildfires Speeding Up Global Warming Pace, San Francisco Chronicle, April 24, 2009

27. Farm Water Transfers, State Department of Water Resources, 2010

28. State Water Project, Valley Voice, May 6, 2010

29. Improving Water Quality in Mattheny Tract, Visalia Times-Delta, May 15-16, 2010

30. County Faces $7 Million Budget Shortfall, Valley Voice, March 18, 2010

31. Unemployment in Tulare County, Valley Voice, March and April 2010

32. West is Hit Hardest by Joblessness, Wall Street Journal, April 17, 2010

33. Fewer in U.S. Move as Economy Falters, Wall Street Journal, April 23, 2009

34. Economic Crisis Curbs Migration of Workers, Wall Street Journal, July 1, 2009

35. Ailing Economy Slows Americans' Mobility, San Francisco Chronicle, April 23, 2009

36. Written Comments on 2008 DEIR by J. Peter Clum dated April 14, 2008 submitted to David Bryant, Project Planner, Tulare County RMA

37. Written Comments on 2008 DEIR by J. Peter Clum dated April 23, 2008 submitted to Tulare County Planning Commission

38. Written Comments on 2008 DEIR by J. Peter Clum dated February 26, 2008 submitted to the joint hearing, Tulare County Board of Supervisors and Planning Commission

39. Written Comments on 2008 DEIR by Carole A. Clum dated April 14, 2008 submitted to David Bryant, Project Planner, Tulare County RMA

40. Written Comments on 2008 DEIR by Carole A. Clum dated April 23, 2008 submitted to Tulare County Planning Commission

41. Written Comments on 2008 DEIR by Carole A. Clum dated February 26, 2008 submitted to the joint hearing, Tulare County Board of Supervisors and Planning Commission

42. Written Comments on 2008 DEIR by Kimball R. Loeb dated April 14, 2008 submitted to David Bryant, Project Planner, Tulare County RMA

43. Written Comments on 2008 DEIR by Mineral King Group, Kern-Kaweah Chapter, Sierra Club, dated April 14, 2008 submitted to David Bryant, Project Planner, Tulare County RMA

44. Sample Kern County Farmland Conversion Condition

45. Rosedale Ranch - Sierra Club Settlement Agreement

46. Agricultural Land Conservation Tools Developed by the California Department of Conservation

47. 25 Most Polluted Counties by Year-Round Particle Pollution (Annual PM 2.5), Ozone Pollution, and Short Term Particle Pollution (24-hour PM 2.5)

48. 25 Most Polluted Cities by Year-Round Particle Pollution (Annual PM 2.5), Ozone Pollution, and Short Term Particle Pollution (24-hour PM 2.5)

Attachments 36, 37, 38, 39, 40, 41, 42 and 43 are copies of written comments submitted on the 2008 DEIR. These 2008 written comments are expressly adopted as if set forth in our current written comments.

In the General Plan and RDEIR, the County has again failed, apparently deliberately, to incorporate clear, adequate, measurable, and enforceable policies and implementation measures, thus defeating CEQA's underlying purpose of identifying feasible mitigations and alternatives to avoid or reduce a project's significant effects on the environment. Without adequate, feasible mitigation

significant effects on the environment. Without adequate, feasible mitigation measures, there can be no substantial evidence to support the RDEIR's impact analysis and conclusions.

Regrettably the goals, policies, and implementation measures contained in the General Plan are for the most part the very same as the 2008 version with a number of adjustments (most not for the better.) Table ES-3 pages ES-8 to 11 RDEIR lists revised or new policies identified in the RDEIR as additional policies or implementation measures. This table lists 29 policies and six implementation measures. There are actually seven new implementation measures. Agricultural Element Implementation Measure #15 was identified on page 3.10-15 but omitted from Table ES-3. The most significant changes to the General Plan occur in Part II-Foothill Growth Management Plan. These changes are hardly a model of adequate and enforceable mitigation. So we have the epitome of form over substance, all at the expense, both figuratively and literally, of Tulare County's residents. And the RDEIR leaves no doubt that this plan is at the direction of the Tulare County Board of Supervisors. The Supervisors apparently believe that aggressive development should be allowed throughout the County as market forces dictate. For the reasons noted above and delineated in detail below, the RDEIR is inadequate and fundamentally flawed. The General Plan and RDEIR must be revised in their entirety and the RDEIR recirculated.

Sincerely,

Carole A. Clum

Carole A. Clum
Member
Kern-Kaweah Chapter
Sierra Club

J. Peter Clum

J. Peter Clum
Executive Committee
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Section I

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Section I

The County's Interpretation of CEQA Guidelines § 15088.5(f)(1) is Incomplete and Misleading and Requires Restarting the Public Comment Period

CEQA Guidelines § 15088.5(f) is intended to ease the administrative burdens of recirculation. The County cites § 15088.5(f)(1) as reason why it will not respond to comments on the 2008 DEIR. However, § 15088.5(f) and its subsections must be read in their entirety. We suggest the County ignored the last two sentences of § 15088.5(f) which provide: "This dual approach avoids confusion over whether the lead agency must respond to *comments which are duplicate or which are no longer pertinent due to the revisions to the EIR. In no case shall the lead agency fail to respond to pertinent comments on significant environmental issues.*

As noted throughout these comments, the General Plan and RDEIR do not provide much, if any, improvement from the 2008 version. While the County has assured the public they considered their prior comments, the 2010 version of documents leads one to conclude otherwise. We have nothing but the County's assurance unsupported by any meaningful improvements to the General Plan. More importantly, the language quoted above does not say in no case shall the County "fail to consider" but rather says "fail to respond to pertinent comments on significant environmental issues."

The County's Notice of Availability of the recirculated draft EIR dated March 25, 2010, would have been complete if it had included the language quoted in the first paragraph. But it did not. The result is to undermine the fundamental public disclosure and informational purpose of CEQA. How many members of the public were discouraged from commenting on the RDEIR this time around after having been told the County would not respond to their earlier comments? That they will have to do it all over again regardless of their earlier comments which may have raised significant environmental issues. This perception would only be reinforced by their very possible negative reaction that despite their earlier comments the County had made few, if any, substantive changes to reduce the General Plan's substantial or potential adverse effects on the environment. This failure by the County requires that the Notice of Availability be corrected as noted above and the public comment period on the RDEIR be restarted.

The RDEIR's Summary Fails to Comply with CEQA's Mandatory Content Requirements and Constitutes a Violation of CEQA's Informational Purposes

An environmental impact report is an informational document intended to inform public agency decision makers and the public generally of the significant environmental effect of a project (Tulare County General Plan Update 2030), identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project. CEQA Guidelines § 15120(c) specifies: "Draft EIR's *shall contain* the information required by sections 15122 through 15131. CEQA Guidelines § 15123(6) states:

> The Summary *shall identify*:
>
> (1) Each significant effect with the proposed mitigation measures and alternatives that would reduce or avoid that effect;
>
> (2) Areas of controversy known to the lead agency including issues raised by agencies and the public;
>
> (3) Issues to be resolved including the choice among alternatives and whether or now to mitigate the significant effects.

CEQA Guidelines § 15123 clearly sets forth mandatory content requirements for an EIR's summary (referred to in the RDEIR as Executive Summary). A review of pages ES-1 through ES-26 indicates the RDEIR is in near total non-compliance with this section. The summary does list significant effects, Table ES-4, pages ES-12 to 26, but it fails to contain anything approaching an accurate listing of the mitigation measures discussed in the RDEIR that would reduce or avoid effects. (It sets forth only recommended additional mitigating policies and implementation measures proposed in the RDEIR. And this is despite the RDEIR's assertion to the contrary on page ES-8.

> Table ES-3 lists the revised or new policies and implementation measures that were identified through the CEQA process as additional mitigating policies or implementation measures for potential impacts analyzed in this RDEIR. Table ES-4 presents a summary of impacts and mitigation measures identified in this RDEIR including those proposed in this RDEIR.

The RDEIR's summary totally fails to identify alternatives that would reduce or avoid each significant effect, areas of controversy known to the Lead Agency including issues by agencies and the public (there is at least one: the on-going dispute over the General Plan between the County and Tulare County's eight incorporated cities), and the issues to be resolved including the choice among alternatives and whether or now to mitigate the significant effects.

The purpose of the summary is, of course, to inform the public and the decision makers about these matters. It is the very first item listed in the RDEIR's table of contents and the first part of the RDEIR after the table of contents and the first part of the RDEIR after the table of contents. It is the reader's first introduction to the RDEIR, and they should be able to rely on it to provide it an accurate overview of the RDEIR. But the RDEIR fails miserable in this regard. It is hard to imagine how the County got it so wrong.

By attachments 1 and 2, we brought the deficiencies of the Summary to the County's attention. We requested the summary be corrected, that corrected copies be made available to the public at no additional expense, and that the public comment period be restarted on the date the corrected summary was available for public review and comment. We received the County's response on May 15, 2010. Attachment 3. It is worth noting the County mischaracterized our request as a request for an extension, elected not to address the substance of the request, and offered no rationale for the decision. Such an approach, while non-responsive, is at the discretion of the County's representative. What is not at the discretion of the County is the inclusion of CEQA's mandatory content requirements for an EIR's summary. The County's failure to correct and recirculate the RDEIR's summary constitutes a contemptuous disregard for CEQA's informational purposes.

The RDEIR's summary must be corrected to comply with CEQA Guidelines § 15123(b) and the RDEIR recirculated.

Dumbing Down of Significance Criteria for Impacts 3.6-2, 3.6-5, and 3.8-6 from that of the 2008 DEIR and CEQA Guidelines Appendix G

A. Impact 3.6-2, page 3.6-40 RDEIR provides:

> The proposed project would result in impacts to groundwater supply, recharge, and secondary impacts to groundwater resources.

The 2008 DEIR version, WR-3 page 4-128 DEIR provides:

> The General Plan Update would have the potential, in the long-term, to deplete groundwater supplies or interfere substantially with groundwater recharge such as that there would be a net deficit in aquifer volume or a lowering of the groundwater table.

CEQA Guidelines Appendix G IX (6) provides:

> Would the project: substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater level (e.g. the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses for which permits have been granted?

What is the rationale for and substantial evidence supporting this rewording in Impact 3.6-2 from the 2008 version and from the CEQA Guidelines Appendix G? How does this rewording serve the informational purposes of CEQA? How does this rewording make the impact statement more descriptive? How did this rewording effect impact analysis and evaluation of mitigation measures? What is the professional judgment of the County of Tulare and its consultants which produced this change? Who decided to make this change and why?

We believe the effect of this adjustment is to nullify the descriptive value of the impact, to draw less attention to the impact, and to raise the threshold of significance. Perhaps the County did not want to draw attention to the fact that the Kings, Kaweah, and Tule sub-basins have been in critical overdraft for years and that our groundwater overdraft continues in lineal decline (discussed later in a subsequent section of our comments)

and raise serious and warranted questions about where the water will come from for the General Plan 2030 buildout especially in light of the unenforceable and ineffectual mitigation measures discussed in other sections of these comments.

We find this rewording of Impact 3.6-2 not only problematic but also troubling, as we can think of no bona fide reason for it. On Page 3.6-36 while discussing the methodology of arriving at impacts 3.6-1 through 3.6-6, the RDEIR states, "The first step in the impact analysis was to establish significance criteria consistent with CEQA and the Tulare County Guidelines that was (sic) used as a basis for identifying and evaluating impacts." We requested and received a copy of the Tulare County Guidelines for the Implementation of the California Environmental Quality Act of 1970 (Attachment 4). We have examined them. They appear to have little, if anything, to do with establishing thresholds of significance. The CEQA Guidelines Appendix G: Environmental Checklist Form provides:

> Note: The following is a sample form and may be tailored to satisfy individual agencies' needs and project circumstances. . . . The sample questions in this form are intended to encourage thoughtful assessment of impacts, and do not necessarily represent thresholds of significance.

The RDEIR states "The CEQA Guidelines Amendments approved by OPR on December 31, 2009 make clear that the identification and adoption of appropriate CEQA thresholds is a matter left to the discretion of the lead agency." We would note that again the County is making and/or relying on incomplete statements. CEQA has a substantial evidence standard and it applies to thresholds of significance, called significance criteria by the County. The most current CEQA Guidelines Amendments became effective on March 18, 2010. Most of the Amendments have been pending for well over a year. CEQA Guidelines § 15064.7 provides:

> When adopting thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, *provided the decision of the lead agency to adopt such thresholds is supplied by substantial evidence.*

CEQA Guidelines § 15064(f) provides:

> The decision as to whether a project may have one or more significant effects shall be based on substantial evidence in the record of the lead agency.

See also CEQA Guidelines §§ 21082 and 21083.

B. Impact 3.6-5, page 3.6-52 RDIER provides:

> The proposed project would expose people or structures to flood hazards from development within a 100-year Flood Hazard Area or from increased rates or amount of surface runoff from development.

The 2008 DEIR addressed flood impacts in HS-9 and HS-10 on page 4-84 and 4-86 respectively using the same language contained in CEQA Guidelines Appendix G IX(g), (h) and (i). IX(g) and (h) were combined in Impact HS-9. Impact HS-9 restated IX(i). CEQA Guidelines Appendix G IX(g) provides:

> Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

CEQA Guidelines Appendix G IX(h) provides:

> Would the project place within a 100-year flood hazard area structures *which would impede or redirect flood flows?*

CEQA Guidelines Appendix G IX(i) provides:

> Would the project expose people or structures to a *significant risk of loss, injury or death* involving flooding, including flooding as a result of failure of a levee or dam?

What was the reason for this rewording and rearranging of the pertinent CEQA Appendix G Guidelines and for departing from the 2008 DEIR format? Why was the language of CEQA Guidelines Appendix G IX(h) structures which would impede or redirect flood flows omitted? Why was to a significant risk of loss, injury or death appearing in IX(i) deleted? How did the rewording effect impact analysis and evaluation of mitigation measures? And what is the basis for the statement on page 3.6-36 RDEIR "Given the nature of the impacts, it is anticipated that implementation of the proposed project would

result in similar impacts to all geographic planning areas of the County." Where is there any discussion in the RDEIR of these impacts in the foothills or mountains to support such a conclusory statement? Our same discussion set forth under Section A above applies here.

C. Impact 3.8-6 states:

> "The proposed project could expose people or structures to a significant risk of loss, injury, or death involving wildland fire."

The 2008 DEIR addressed wildland fire impact with Impact HS-11 on page 4-89 using the same language as that contained in CEQA Guidelines Appendix G VIII(h).

> Would the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, *including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?*

What was the reason for deleting this seemingly descriptive language contained in the 2008 DEIR Impact HS-11 and CEQA Guidelines Appendix G VIII(h)? How did the rewording effect impact analysis and evaluation of mitigation measures? Was it to better inform the public? We think not. We find this change especially troubling given the planned aggressive development envisioned by the General Plan in the foothills and mountains, all unincorporated areas which are classified as "high," "very high," and "extreme" fire zones Figure 3.8-2 (Wildland Fire Threat) page 3.8-31 RDEIR. Figure 3.8-2 does not depict extreme fire hazard areas such as chaparral. However, Figure 3.11-1 (Habitat) page 3.11-7 RDEIR does. The "extreme" rating would apply to chaparral areas. One already planned massive development in the foothills, Yokohl Ranch Project (identified on page 5-6 RDEIR as a General Plan Initiative allowed to proceed) contains chaparral area. See page 4, Notice of Preparation and Initial Study for Yokohl Ranch Project, February 2008. Attachment 5.

Equally problematic is the statement on page 3.8-30 RDEIR:

> Given the nature of the impacts, it is anticipated that implementation of the proposed project would result in similar impacts to all geographic planning areas of the County.

Such a conclusory statement not only is contrary to good judgment, common sense, and common knowledge but also is a rejection of information set forth in the 2009 California Climate Adaptation Strategy. See pages 24, 36, 111, and 122 thereof. This conclusion is contrary to the information contained in pages 8-20 to 22 2010 Background Report and to the Insurance Services Office (ISO) rating explained on page 3.9-26 RDEIR. Both page 8-20 Background Report and page 3.9-26 note that the ISO rating in unincorporated areas is an average of 8. ISO ratings range from 1 to 10, 1 being the best and 10 being the worst. The RDEIR's discussion of Urban and Wildland Fire Hazards, pages 3.8-27 to 35, and of Fire Protection, pages 3.9-24 to 26 and 3.9-59 to 61, make short shrift of the information contained on pages 20 to 22 Background Report. Our same discussion set forth under Section A applies here.

Failure to Establish the Environmental Setting and Thresholds of Significance for Forestry Resources and to Analyze Impacts on Them

Amendments to CEQA Guidelines Appendix G: Environmental Checklist Form II Agricultural *and Forestry* Resources became effective March 18, 2010. The amending language is italicized below. These changes were initiated by the Office of Planning and Research in January 2009, have been available for review for over one year, and were initially scheduled to become effective January 1, 2010. As amended, CEQA Guidelines Appendix G II now reads:

> *II.* AGRICULTURE *AND FORESTRY RESOURCES.*
>
> In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. *In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.* Would the project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

c) *Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?*

d) *Result in the loss of forest land or conversion of forest land to non-forest use?*

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural *use or conversion of forest land to non-forest use?*

Public Resources Code section 12220(g) defines forest land as follows:

> Forest land is land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.

Without explanation, the County has elected not to establish the environmental setting for forestry resources, not to establish thresholds of significance to determine whether the General Plan's impact on the existing forestry resources environment is significant, and not to do an impact analysis. This void occurs despite the County's aggressive development plans for the foothills and mountains. What is the rationale for this decision? What is the substantial evidence supporting the lack of such analysis? How does such a decision fulfill the informational purposes of CEQA? How can intelligent decision making occur about the environmental consequences of the General Plan? How can the General Plan's effect on greenhouse gas emissions, watersheds, water supply, water quality, soil

erosion, and wildfire be evaluated? The County must correct this deficiency in the General Plan and RDEIR and recirculate them.

Failure to Comply with Assembly Bill No. 162 Approved October 10, 2007, Which Amends and Adds to Certain Sections of the Government Code Relating to Local Planning

Among changes made by AB 162 (attachment 5) are some to a general plan's conservation and safety elements and which have an inception date specified "upon the next revision of the housing element on or after January 1, 2009." The County formally adopted a new housing element on March 23, 2010, and as of that date must in this General Plan comply with certain provisions of AB 162. These requirements should come as no surprise to the County as AB 162 has been the law of California for over two years. At a minimum, the County has not complied with the portions noted below. The County's consultants who drafted the RDEIR note this non-compliance on pages 3.6-29, 3.6-53, and 3.6-8 RDEIR. The pertinent statutory provisions are Government Code section 65302(d)(3) and sections (g)(2)(A)(vii), (g)(2)(A)(viii), (g)(2)(A)(ix), and (g)(2)(A)(x) which provide:

> (d)(3) Upon the next revision of the housing element on or after January 1, 2009, the conservation element shall identify rivers, creeks, streams, flood corridors, riparian habitats, and land that may accommodate floodwater for purposes of groundwater recharge and stormwater management.
>
> (g)(2) The safety element, upon the next revision of the housing element on or after January 1, 2009, shall also do the following:
>
> (A) Identify information regarding flood hazards, including, but not limited to, the following:
>
> (vii) Maps of levee protection zones.
>
> (viii) Areas subject to inundation in the event of the failure of project or nonproject levees or floodwalls.
>
> (ix) Historical data on flooding, including locally prepared maps of areas that are subject to flooding, areas that are vulnerable to flooding after wildfires, and sites that have been repeatedly damaged by flooding.
>
> (x) Existing and planned development in flood hazard zones, including structures, roads, utilities, and essential public facilities.

Policies HS-5.4, WR-1.5, WR-3.1, WR-3.6, and Implementation Measures #6, #10, and #27 (Goals and Policies Report, Part I, page 10-9, 11-7, 11-9, 11-12, 11-13, and

11-16, respectively), even if they had been drafted with enforceable and measurable language, do not satisfy the above statutory requirements of Government Code section 65302(d)(3). Likewise, the Flood Hazards Policies HS-5.1 through 5.11 and Implementation Measure #14 (Goals and Policies Report, Part I, pages 10-8 through 10-10, and pages 10-20), even if they had been drafted with enforceable and measurable language, do not satisfy the above statutory requirements of Government Code sections 65302(g)(2)(A)(vii) through (x).

While checking the General Plan for compliance, Carole Clum spoke to a member of Tulare County's Resource Management Agency at 11:25 A.M., April 5, 2010, about a reference she could not find in the Health and Safety element of the General Plan Policy HS-5.2 Development in the Floodplain Zones (Goals and Policies Report, Part I, page 10-9) refers the reader to ERME IV-C; Urban Expansion Recommendation 2, p. 11 which does not exist in the document. The staffer told her it was old language that referred to the 1972 Tulare County Flood Control Master Plan which also does not exist in the document. He also told her that what she was looking for (construction standards for building in a flood zone) did not exist in the old General Plan or the 1972 Flood Control Master Plan. These standards do not exist in the 2010 General Plan either.

The County must correct the General Plan's non-compliance with the planning and zoning law and, then, to comply with the informational purposes of CEQA, correct and recirculate the General Plan and RDEIR.

Population Growth and Distribution

Page 5-4 RDEIR suggests there was confusion among the County's consultants about population growth projections and the percentage of population growth which would occur within incorporated cities and the County Adopted City Urban Development Boundaries (CACUDB) and within the unincorporated areas of the county. The second paragraph under Cumulative Setting provides:

> The **overall assumption of this RDEIR** is that the majority **(85%)** of the net new growth will occur within incorporated city and CACUDBs as opposed to within the unincorporated areas, which will contain a much smaller **(15%)** portion of the net new growth. This distribution of growth is shown in Table 5-1 and Table 2-11 of Chapter 2 of this RDEIR.

Of course, the 85%/15% split does not conform with the tables. So no harm, no foul. But not so fast. The boldfaced quoted language raises the very real

possibility the various employees of ESA (Chapter 6 RDEIR lists 12 ESA employees assigned to report preparation) were utilizing different population projection numbers and net growth distribution percentages when performing their assigned tasks. Or maybe the stated "overall assumption" is what they all or most of them used. Who knows? In any case, the language raises questions about the validity of the RDEIR.

Failure to Adequately Consider the Potentially Significant Impacts Identified in the Yokohl Ranch Project Initial Study Evaluation of Environmental Impacts

The Yokohl Ranch project is identified on page 5-6 RDEIR as a General Plan Initiative taken into consideration for the cumulative impact discussion and analysis. We believe that the Yokohl Ranch Project should have been considered as part of the County's environmental analysis in Chapter 3 RDEIR and not just as a cumulative impact in Chapter 5. Pages 3 and 4 of the Notice of Preparation and Initial Study for the Yokohl Ranch Project dated February 2008 (NOP) (attachment 6) describe the project's setting and description:

> Yokohl Ranch encompasses approximately 36,324 acres in the Sierra Nevada foothills, within the unincorporated areas of Tulare County
>
> . . .
>
> The Yokohl Ranch site is characterized as an area with varied terrain, ranging from nearly flat ranch lands along Yokohl Creek, to the gentle valleys and rolling hills to the south and north along the main valley to steeper hills and canyons in the northern portion of Yokohl Ranch. Vegetation types include riparian and oak woodlands, grasslands, and chaparral. Yokohl Creek flows from the southern portion of the project area west to the western boundary of the project site. Due to its rocky soils and shallow soil depths, Yokohl Ranch lands are not suitable for intensive commercial agricultural uses. Therefore, the property has been historically used for cattle grazing and ranching, as well as ranch family housing and support facilities.
>
> The project includes the phased development (over 20-30 years) of the Yokohl Ranch master planned community. The project is divided into 3 subareas: The Valley, The Meadows and The Oaks. Approximately 30 percent (9,500 acres)* of the ranch is proposed for development with approximately 70 percent (26,000 acres)* of the property to remain as open

space and ranchlands. The project would construct 10,000 residential units, which would include active adult units; approximately 550,000 square feet of mixed use commercial areas; public/quasi-public areas; and infrastructure (e.g., roads, utilities, etc.) within three smaller planned areas on 36,324-acres. Yokohl Ranch would include fire and police facilities, public schools and public parks, which will serve both local and county residents. The project will require approval of the following discretionary actions:

1) Amend the General Plan to include:

   a) Amend the Foothill Growth Management Plan (FGMP), to establish procedures for a Planned Community Area (PCA);

   b) Re-designate the 36,324-acre Yokohl Ranch site from Foothill Agriculture to "Planned Community Area" by establishing a Planned Community Area (PCA) boundary for the project;

2) Rezone the site to a Planned Community Zone (PCZ) (Section 18.8) to replace the Foothill Agriculture and Planned Development - Foothill Combining - Special Mobile Home Zone (PD-F-M) for the project area;

3) Approve the Master Development Plan (all phases);

4) Approve the Area Development Plan Phase I;

5) Tentative Map for Phase 1.

* We note that as of the date of the RDEIR, the County lists 40% (14,400) acres of the ranch is proposed for development with 60% (21,600 acres) of the property to remain as open space and ranchlands. See page 5-6 RDEIR.

At present, there are approximately 12 people living in six houses on the 36,324 acres of Yokohl Ranch. Pages 9 and 10 of the NOP describe the Yokohl Ranch master planned community development as:

The layout and design of the proposed Yokohl Ranch community would be based on a MDP prepared to guide development in conformance with the Planned Community (PC) Zone described above. The Yokohl Ranch project

proposes to create a planned community to include 10,000 residential units in three neighborhoods, which would include active adult units; mixed use commercial areas; public schools and parks; open space areas; public/quasi-public areas; and infrastructure. No development would occur on ridgelines or on slopes over 30 percent. Figure 3 shows the locations of the proposed land uses within the MDP, which are discussed below. Table 1 summarizes the acreage of the proposed land uses and densities of residential areas upon buildout of the community.

Table 1. Phased Development Summary of Land Uses for the Yokohl Ranch Project

Land Use	Phase I		Phase II		Phase III	
	Gross Acres	Target Units	Gross Acres	Target Units	Gross Acres	Target Units
Residential Uses						
Very Low (0-2 du/ac)	0.0	0	975.5	500	4,105.4	317
Low (1-3 du/ac)	1,054.2	2,108	1,383.3	2,767		0
Medium (3-10 du/ac)	816.5	2,858	271.5	950		0
High (10-20 du/ac)	See MU	See MU	0.0	0		0
Subtotal Residential	*1,870.7*	*4,966*	*2,630.1*	*4,217*	*4,105.4*	*317*
Non-Residential						
Mixed-Use Commercial	27.8	500	0.0		0.0	
Tourist Commercial (Resort)	0.0		0.0		60.0	
Public/Quasi-Public	114.0		0.0		0.0	
Schools	48.4		11.7		0.0	
Public Park	16.0		34.0		0.0	
Golf Course	307.5		0.0		0.0	
Private Recreation	0.0		0.0		0.0	
Open Space/Ranch Land	4,890.8		4,751.8		17,101.0	
Reservoir	129.2		0.0		0.0	
Circulation	95.7		57.7		72.4	
Subtotal Non-residential	*5,629.4*	500	*4,855.2*		*17,233.4*	
Phase Totals	**7,500.2**	**5,466**	**7,485.4**	**4,217**	**21,338.8**	**317**
Population Estimate						
Standard Units (@3.2 pers/du)	4,100 @ 3.2 = 13,119		3,163 @ 3.2 = 10,120		317 @ 3.2 = 1,014	
Active Adult Units (@2.0 pers/du)	1,367 @ 2.0 = 2,733		1,054 @ 2.0 = 2,108		0 @ 2.0 = 0	
Total Population	15,852		12,229		1,014	

Obviously there are many potential significant impacts in store for Yokohl Valley and Tulare County as a result of the Yokohl Valley Project. The consultants preparing the NOP recognized this and identified potentially significant impacts in all environmental factors, except mineral resources, on page 19 NOP. Examining pages 29 through 33 NOP, we see the consultants listed the following potentially significant impacts. These are listed in the center of the page. To the right are

listed the County's assessment in the RDEIR of the same environmental factors as they relate to the General Plan.

Impact Would the project: RDEIR	Yokohl Ranch Project NOP	General Plan
1. Result in substantial soil erosion or loss of topsoil?	Potentially significant	Less than Significant Impact 3.7-1
2. Be located on a geological unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	Potentially significant	Less than Significant Impact 3.7-3
3. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	Potentially significant	Less than Significant Impact 3.8-6
4. * Violate any water quality standards or waste discharge requirements?	Potentially significant	Less than Significant Impact 3.6-1
5. *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner, which would result in substantial erosion or siltation on- or off-site?	Potentially significant	Less than Significant Impact 3.6-3
6. *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?	Potentially significant	Less than Significant Impact 3.6-3
7. Create or contribute runoff water, which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	Potentially significant	Less than Significant Impact 3.6-4
8. *Otherwise substantially degrade water quality?	Potentially significant	Less than Significant Impact 3.6-1

* The RDEIR combined 4 and 8 into one paragraph and 5 and 6 into one paragraph.

Table 5-1, Population Growth and Distribution, page 5-2, RDEIR reflects that under the General Plan the unincorporated areas of Tulare County would have a net new population growth of 78,490. Table 1 of the NOP reflects total population for all three phases of the Yokohl Valley Project at 29,095. We note that the project is described as a phased development over 20-30

years. We also note that phase I and II account for the vast majority of population growth, 28,081. The Yokohl Ranch project will account for up to 37% of the new population growth in the unincorporated area of Tulare County.

By any method of evaluation, the Yokohl Ranch project is projected to account for a substantial portion of the projected growth in the unincorporated areas of the County under the General Plan buildout. The project constitutes a massive development in the foothills of Tulare County. We certainly hope that, if the Yokohl Ranch project goes forward, many of its impacts can be mitigated. However, we find it very hard to understand how the County can prejudge in the RDEIR analysis the impacts of a project of the Yokohl Ranch magnitude as less than significant under the General Plan buildout when the Yokohl Ranch project NOP judged them as potentially significant. Perhaps the county has a crystal ball? Or perhaps the County is looking forward to tiering the Yokohl Ranch project off the General Plan. Then the County's faulty impact assessment will become a self-fulfilling prophecy with the County determining in the future tiered EIR that certain environmental impacts such as wildfire risk, water quality, soil erosion, polluted water runoff had been determined in the RDEIR of the General Plan to be less than significant.

For the reasons stated above, we believe the County's environmental impact analysis is inadequate and resulted in numerous erroneous determinations that impacts were less than significant resulting in an extensive failure to consider appropriate mitigation measures and appropriate project alternatives. The County must correct this pervasive deficiency and recirculate the RDEIR.

Finally, we note the County on page 3-5 RDEIR states "To the extent feasible, the environmental analysis contained in this chapter identifies impacts specific to each planning area for the County." In our comparison above, we did not delineate the RDEIR's impact analysis by planning areas because, when the various impact summaries contained within the RDEIR are examined, one finds that without exception the impact assessment is the same whether by overall general plan or by plan areas. A statistical anomaly no doubt, as unlikely as this may seem. We encourage the reader to examine the summaries of impacts. See Table 3.1-6 on page 3.1-18, Table 3.2-6 on page 3.2-26, Table 3.3-4 on page 3.3-18, Table 3.4-4 on page 3.4-26, Table 3.5-4 on page 3.5-22, Table 3.6-6 on page 3.6-37, Table 3.7-3 on page 3.7-

16, Table 3.8-5 on page 3.8-13, Table 3.8-6 on page 3.8-25, Table 3.8-7 on page 3.8-33, Table 3.9-7 on page 3.9-16, Table 3.10-8 on page 3.10-11, Table 3.11-3 on page 3.11-31, and Table 3.12-2 on page 3.12-16.

Failure to Analyze and Mitigate for the Public Health Impacts Resulting from Air Quality and Water Quality Impacts of the General Plan

Written comments were submitted by Peter Clum on April 14 and 23, 2008 and February 26, 2008 to the 2008 DEIR and are adopted as if set forth herein and are incorporated in these comments as attachments 36, 37 and 38. Regrettably, the RDEIR still does not analyze public health impacts in the meaningful fashion envisioned by CEQA Guidelines § 15126.2. Page 3.3-3 RDEIR has an updated version of the table contained on page 6-5 of the 2008 Background Report. The RDEIR does add an additional air quality impact, "Impact 3.3-4: The proposed project could expose sensitive receptors to substantial pollutant concentrations that could effect public health" and evaluated the impact as a significant unavoidable impact. But the impact analysis on page 3.3-25 to 26 is still the same generic, antiseptic, brief comment. There is no meaningful discussion of the adverse impacts on air quality and the resultant adverse effect on human health and quality of life. The air quality policies and implementation measures still fail to incorporate enforceable and measurable mitigation measures. Policy AQ-4.5 (Goals and Policies Report, Part I page 9-10), meant "to promote public awareness of the seriousness and extent of existing air quality problems" still lacks an implementation measure and receives no mention by the consultants in the impact analysis pages 3.3-25 to 27 RDEIR. The General Plan's promotion of rampant sprawl at any cost will only exacerbate the problem.

The RDEIR assesses the General Plan's impact on water quality, Impact 3.6-1, as less than significant and recommends no additional mitigating policies. Page 3.6-37 RDEIR. The County continues to deliberately avoid addressing serious water quality problems. The result is a **faulty water quality baseline**. Without a proper water quality baseline, significant environmental effects cannot be determined, a project's impacts cannot be assessed, and mitigation measures considered. Without a sufficient baseline, the informational purposes of CEQA are undermined and there can be no intelligent decision making.

Peter Clum's comments submitted April 14, 2008 addressed these deficiencies and attached supporting material. See enclosures (12) through (21) of attachment 36. The reader is encouraged to examine these enclosures. Enclosures (19) and (20) express the concern Tulare County health officials have with issues of deteriorating water quality, which they believe will be exacerbated by the continuing overdrafting of groundwater. Apparently, these concerns were ignored or rejected.

The RDEIR is particularly egregious in its cherry-picking of favorable and less unfavorable water quality information from the Background Report for inclusion in the Goals and Policies Report, Part I, pages 11-3 and 4 and for inclusion in the RDEIR's description of the environmental setting for water quality on page 3.6-27. This description totals a brief 22 line long misstatement of and glossing over of the facts. The Tully and Young Report, RDEIR Appendix G, addresses water quality in the same manner on page 24. The reader is encouraged to compare the above cited pages in the RDEIR and Goals and Policies Report with Appendix C of the Background Report, pages 6 through 18 and 20 to 21. The RDEIR's impact analysis contains the same generalized, non-quantified analysis representative of so much of the RDEIR. The General Plan's policies and implementation measures mentioned in the 3.6-1 impact analysis are lacking in specific, measurable and enforceable language. Impact analysis 3.6-1 and others are discussed in detail later in these comments.

We cannot help but notice that the RDEIR's evaluation of water quality impacts as less than significant is inconsistent with the RDEIR's significant unavoidable impact assessment of Impact 3.9-2 on page 3.9-50 and Impact 3.9-3 on page 3.9-55. "Impact 3.9-2: The proposed project could result in wastewater treatment demand in excess of planned capacity that cannot be met by a new or expanded facilities" is assessed as significant and unavoidable. "Impact 3.9-3: The proposed project would produce substantial amounts of solid waste that could exceed the permitted capacity of a landfill serving the County" is assessed as significant and unavoidable. The RDEIR's water quality impact assessment also appears inconsistent with the impact analysis of Impact 3.9-1 on page 3.9-36 which states "In other cases, insufficient water treatment and conveyance facilities or water quality issues could result inability (sic) of domestic water service providers to meet water demands."

The RDEIR is deficient in its analysis of water quality impacts in general and of air and water quality impacts on public health and in methods to mitigate these impacts. The General Plan and RDEIR must be corrected and recirculated.

The RDEIR Contains a Defective Water Baseline and Inadequately Analyzes and Mitigates the General Plan's Water Supply Impacts

- Adequate analysis should contain the following:
  - identification of water sources needed for full buildout
  - assessment of the environmental impacts associated with providing water for the General Plan
  - where there are both short-term and long-term supplies needed, analysis of long-term supplies and their impacts
  - assessment of the extent to which identified water sources are certain or likely to be available
  - when it is impossible to confidently determine the availability of anticipated water supplies, identification of possible alternative water sources and analysis of the environmental impacts of curtailing development due to inadequate supplies
- The RDEIR is deficient in all these areas.
- The RDEIR states on page 3.9-47 during the analysis of Impact 3.9-1 that: "Overall, it is important to note that Tulare County lacks a comprehensive water supply assessment and approach, and the implementation strategy to address complex, regional water supply issues."
- There is some troubling misinformation contained in both the Background Report pages 7-9 to 34 (Domestic Water Infrastructure, Existing Conditions) and the RDEIR page 3.9-17, Table 3.9-9 (Summary of Domestic Water Supply Conditions for Unincorporated Communities in Tulare County) about the ability of the domestic water service providers in the unincorporated communities to supply water for growth under the General

Plan. RDEIR Table 3.9-9 is an essential part of the information presented in RDEIR's environmental setting for water and wastewater, pages 3.9-2 to 18. This information is the very same information contained in the 2008 Background Report pages 7-10 to 36 and the 2008 DEIR Table 4-5 pages 4-107 to 4-119. The 2008 Table 4-5 is identical to the 2010 Table 3.9-9.

While preparing to comment on the 2008 General Plan and DEIR, Carole Clum reviewed the information in the 2008 Background Report and DEIR pertaining to the domestic water supply conditions of the unincorporated communities. She suspected some of the information was incorrect and contacted by phone all but two or three of the smallest water service providers. (They never answered the phone and had no answering machine.) Some of the water suppliers were contacted more than once. During these phone conversations, she learned of numerous discrepancies with what was reported in the 2008 documents and Table 4-5. Generally, what she learned was that the domestic water service providers had more problems and less capacity to accommodate growth than what was reported in Table 4-5 and the 2008 Background Report and 2008 DEIR. She documented this information in detail in her written comments dated April 14, 2008 on the 2008 Tulare County General Plan DEIR. See attachment 39 pages 37 to 46, and enclosure (10) thereto. The reader is encouraged to review the information.

Despite the County's assurance that it has considered the comments submitted on the 2008 DEIR, we note with concern that the very same information which was wrong in 2008 is still wrong in 2010. As best we can tell, the County used the identical information in the 2010 Background Report and RDEIR as it did in 2008. Table 3.9-9 is identical to its 2008 version Table 4-5. It appears the County made no effort to verify the information after receiving the 2008 comments. However, the County did make one change on page 3.9-17 after the RDEIR's textual reference to Table 3.9-9. As if to add some authoritative or technical support, it inserted "Information in the table was obtained by Omni Means during 2006 and 2007. Discussions were held with those service providers that do not have adopted MSRs (municipal service reviews) in order to complete the table."

Written comments were submitted by Carole Clum on April 14 and 23, 2008 and February 26, 2008 on the 2008 DEIR and are adopted as if set forth herein and are incorporated in these comments as attachments 39, 40 and 41.

The RDEIR's total failure to verify and correct the information contained in Table 3.9-9 is yet another reason the RDEIR's water baseline is defective and its water supply impact analysis and evaluation of mitigation measures inadequate. Such a flawed approach not only undermines the factual basis of the water supply analysis but also defeats the environmental protection and accountability goals of CEQA.

- This approach of failure to document information results in an unacceptable piece of misleading and wrong information on page 3.9-39 in the portion of the RDEIR reciting impacts and mitigation measures for "Impact 3.9-1: The proposed project would require new or expanded water supplies, facilities and entitlements.," The last sentence in the first full paragraph on page 3.9-39 states: *"Additional benefits are expected to be realized with the implementation of the seismic retrofit of Success Dam and the recent enlargement of Success Reservoir."* <u>There has been no recent enlargement of Success Reservoir</u>. In fact, Lake Success has not been filled to more than two-thirds capacity since 1999 due to structural flaws and an inadequate spillway discovered in 1999 during testing and assessment.

It is completely unsatisfactory for the RDEIR to claim "additional benefits are expected to be realized . . . with the recent enlargement of the Success Reservoir" and also fail to note that Lake Success Reservoir can be filled to only two-thirds capacity. Is it simply a case of plugging in supposed details to promote the desired outcome? Clearly such misstatements, regardless of motivation, erode the credibility of the RDEIR's analysis of water supply and of impacts and appropriate mitigation measures.

As to the claimed "Additional benefits are expected to be realized with the implementation of the seismic retrofit of Success Dam," we note the project has not yet been funded. Remediation for seismic and seepage problems will cost $500 million according to Calvin Foster, Southern Area Manager for the Army Corps of Engineers, telephonically contacted on May 13, 2010. He also said it would cost $10 million to purchase 125 acres of real estate below the dam, relocate people, survey, do an environmental analysis, and deal with hazardous material issues. Mr. Foster did not know the cost of raising the spillway. We have learned during a conversation with personnel from R.L. Schafer and Associates that five years ago the cost was estimated at $30 million.

- Neither the RDEIR Appendix G, Water Supply Evaluation (Appendix G) nor the RDEIR ever answer the question whether there be enough water and what is the likelihood there will be enough water. See Appendix G and RDEIR pages 3.6-14 to 26, 3.6-40 to 47, 3.9-2 to 18, and 3.9-36 to 50. Nor does the Background Report in Chapter 7 section 7.2, Chapter 10 section 10.2, or Appendix C. Nor do they identify water sources needed for full buildout other than a hope and a prayer for continued groundwater and help from infusions of surface water. The whole emphasis seems to be "well maybe this or maybe that." Appendix G, pages 24 to 26 notes how essential groundwater is to Tulare County and that our three principal sub-basins, Kings, Kaweah, and Tule, have been in critical overdraft for decades. But there is no coming to grips with this very serious situation of continuing lineal decline of groundwater or proposals of adequate, measurable mitigation.

  How will continued lowering of groundwater levels effect existing wells? Are there any other alternative long-term water supplies? What uncertainties are associated with long-term groundwater or alternative water supplies? What are the environmental impacts associated with securing and delivering these supplies? What mitigation is feasible for these impacts?

  The General Plan and RDEIR should scream out the critical information that the important sub-basins in Tulare County are in critical overdraft and emphasize what exactly critical overdraft means. But they do not. Appendix G relegates the definition of critical overdraft to a footnote, footnote 43 on page 25 wherein it states, "Water code § 12924. 'A basin is subject to critical conditions of overdraft when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts.' (DWR Bulletin 118-2003, p. 98)." And then the footnote states "As of 2003, this determination has not been revisited." What is the purpose of such phraseology other than to suggest that perhaps Tulare County's vital sub-basins are no longer in a state of critical overdraft? Such language subtracts from the significance of the impacts and from the increasing need to impose enforceable and measurable mitigation measures. How does such an approach contribute to the analysis of water supply and to the determination of a valid water supply baseline?

Clearly the groundwater in Tulare County continues in decline as documented in the following articles:

- "Valley water loss seen via satellite." The Fresno Bee, December 15, 2009. Attachment 7

- "NASA Data Reveal Major Groundwater Loss in California." December 14, 2009. Attachment 8

- "New Hydrologic Model Provides Insights in Water Supplies." Valley Voice, August 6, 2009. Attachment 9

- "California's Central Valley Groundwater Study: A Powerful New Tool to Assess Water Resources in California's Central Valley." USGS Fact Sheet 2009-3057, July 2009. Attachment 10

- "Groundwater Level Sets New Record." Valley Voice (Tulare Voice section) July 9, 2009. Attachment 11

- "Water Table at Lowest Level Ever." Valley Voice, September 10, 2009. Attachment 12

- "Wells continue to dry up, get clogged." Times Delta/Advance-Register, September 19-20, 2009. Attachment 13

Tulare County's groundwater is in serious trouble and the General Plan's and RDEIR's selective avoidance of confronting this circumstance has resulted in a profoundly inadequate assessment of impacts and analysis of mitigation measures and alternatives. The ship is sinking, and no one is being told to start bailing.

- Appendix G's water supply analysis consists of too many assumptions. Many of the local irrigation and water districts have detailed records extending over years. For example, the Kaweah Delta Water Conservation District prepares a variety of reports such as the Kaweah Delta Water Conservation District Annual Groundwater Report. By way of example, a Historical Graph of Average Annual Fall Groundwater Depths 1970 to 2006 is attached. Attachment 14

- Appendix G relies too heavily on the Department of Water Resources (DWR) draft water budget for Tulare County, and does not make use of much more detailed studies that have been done in recent years, such as:

  - Water Resources Investigation of the Kaweah Delta WCD by Fugro West, Inc. (2003).

  - Annual reports of the Tule River Water Master.

  - Recent reports on groundwater conditions in the Kings River service area, including Alta Irrigation District.

- Extensive water level hydrographs are available on the DWR website that show actual historical water level changes in many hundreds of wells in Tulare County. More than 100 water level hydrographs were provided and evaluated in the Kaweah Delta WCD report referred to above, none were utilized in Appendix G.

- A water budget for only one year such as 2003 used in Appendix G produces results that are not necessarily representative of other years. Normally, a hydrologic base period (period of average surface water supplies) is used that extends for at least about 10 years. For the Kaweah Delta WCD report, an 18-year period was used.

- Most of the Kaweah sub-basin is in the Kaweah Delta WCD. Instead of referencing DWR Bulletin 118 updates in Appendix G, the Kaweah Delta WCD report should be used, which is much more technically applicable.

- The information on irrigation districts groundwater extractions in Table 3.1, page 16 Appendix G is from an outdated source.

- For Alta Irrigation District, how much of the values cited in Section 3.1.2.1, page 18 Appendix G are for Tulare County?

- Section 3.2.3, pages 24 to 26 Appendix G on groundwater overdraft is very incomplete. The Kaweah Delta WCD report indicated an average annual overdraft ranging from only about 18,000 to 36,000 acre feet per year. This portion of the Kaweah Delta WCD report is alluded to on page 3.6-44 RDEIR. Those or slightly greater values are more meaningful than the supposed overdraft in a much larger area.

- Section C, Water Resources, of the Background Report does contain some figures depicting groundwater depth. These were not referred to in Appendix G or anywhere else in the RDEIR that we could find. Background Report Figure 4-7, Groundwater Elevation Contours from Kaweah and Tule Groundwater Basin Maps for Spring 2004; and Figure 4-8, Average Groundwater Elevations, City of Visalia, from 1986 to 2005.

- Appendix G and the RDEIR emphasize the water supply evaluation is focused chiefly on the valley floor, not the foothills and mountains. See section 2 page 1 Appendix G; section 2.2 page 6 Appendix G; section 3.2.1 page 19 Appendix G; and page 3.6-21 RDEIR.

- Water supply in the foothills and mountain areas is referred to at pages 4 to 6 Appendix C Background Report; in Table 3.2 (upper watershed) page 25 Appendix G; Table 3.6-4 page 3.6-22 RDEIR; page 22 (last full paragraph) Appendix G; and page 3.6-24 (last full paragraph) RDEIR. These last two cites contain the same statement: "In the eastern portion of the county in the Sierra foothills, wells are less productive as the groundwater aquifer characteristics are less suitable to large-scale groundwater storage. Specifically, moving into the foothills the permeable and loamy soils give rise to fractured rock aquifers." This quote and the tables alluded to appear to be the extent of information on groundwater from fractured rock (a phrase preferred by some instead of fractured rock aquifer). Not exactly the level of detail you would want if you were planning aggressive development, as the General Plan is, in the foothills and mountains.

- Appendix C Background Report at pages 4 through 6 does contain some more information noting, but in less detail than does the Department of Water Resources (DWR) in the 2009 California Water Plan/Update, Tulare Lake Hydrologic Region page TL-20; "The upland areas rely heavily on fractured rock groundwater wells. Available water from fractured rock wells fluctuates and is vulnerable to even short periods of low precipitation. Population growth in the upland areas has increased the number of wells with dropping water levels and declining yields." There is no mention of these factors in either the General Plan or the RDEIR. The impact analysis of Impact 3.6-2, pages 3.6-40 to 47 and Impact 3.9-1 pages 3.9-36 to 50 does not discuss water supply from fractured rocks, impacts thereto, or mitigation of the impacts. Incredibly, the RDEIR states in the Summary of Impacts for all 3.6 series impacts (page 3.6-36) and all 3.9 series impacts (page 3.9-35): "Given the

nature of impacts, it is anticipated that implementation of the proposed project would result in similar impacts to all geographic planning areas of the County." That's right. There is no difference in water supply impacts between the Corridor Framework Plan, the Rural Valley Lands Plan, the Foothill Growth Management Plan, or the Mountain Framework Plan despite the General Plan's expansive scope of development envisioned for these planning areas and spelled out on pages 2-19 and 20 RDEIR. Such a statement is ridiculous on its face and reflective of the General Plan's emphasis of development everywhere at any cost. This totally inadequate analysis of impacts throughout the planning areas has resulted in a less than sincere effort to develop adequate, enforceable mitigation measures.

- The General Plan's aggressive development plans in the corridors, rural valley lands, foothills and mountain areas seem to reject the science that development of watershed and aquifer recharge lands will impair water supply reliability and quality. Development in the watersheds makes them susceptible to damage and degradation. That damage threatens to significantly impact the ability of watersheds to function by reducing water infiltration, degrading water quality, increasing erosion related impacts, and changing runoff patterns. The RDEIR makes no valid attempt to analyze these impacts and how they vary between planning areas. The RDEIR does mention groundwater overdraft in a general abstract fashion on page 3.9-39, repeating information from page 26 Appendix G under the caption Groundwater Overdraft.

  "As described in the previous sections, the groundwater basin in the Tulare Lake HR has experienced substantial overdraft. In addition to depletion of water faster than it can be naturally or artificially recharged, declining water tables can impact the basin as a resource. Impacts can include (i) increased pumping expenses, (ii) impacts to water quality, and (iii) subsidence that can in some cases permanently decrease the storage capacity of the aquifer. Thus overdraft itself can have effects beyond depletion of an existing quantity of water, but also can impact the ability to use the basin as a storage facility. The future value of such storage capacity in California is potentially very high, and should be taken into account in today's groundwater management. It should also be noted that such impacts are not limited to the portion of the basin directly underlying the water user responsible for the overdraft, but can impact neighboring users as well."

A sterile recitation of possible impacts resulting from groundwater overdraft is not a substitute for meaningful analysis of impacts and consideration of mitigation measures required by CEQA. The RDEIR makes no assessment of what impact extensive development in the foothills and mountains will have on the amount of water moving down to the valley to recharge the Kaweah, Kings and Tule sub-basins and how this might affect the natural storage of water and water quality. The RDEIR makes no assessment of the impact that decreasing levels of water in aquifers can have on water quality. Nor does the RDEIR assess how the variations in precipitation and runoff patterns projected to occur with climate change might impact water supply reliability, water quality, and the General Plan's buildout. Additionally, given the uncertainty of water supply, the RDEIR must consider the environmental impacts of inadequate water supply for the General Plan buildout and of curtailing development. It does not.

- Section II of these comments details at length the inadequacies of the General Plan's mitigation measures for a variety of impacts. But prior to moving on to those comments, the reader is encouraged to review some of the General Plan's policies and implementation measures relating to water supply. All references are to the Goals and Policies Report. LU-7.16 Part I page 4-32; ERM-1.6 Part I page 8-10; ERM-5.8 Part I page 8-16; HS-5.4 Part I page 10-9; all WR series policies and implementation measures Part I pages 11-6 to 11-16; and the FGMP-8 series policies and implementation measures Part II pages 3-11 to 3-12 and 3-21 to 3-28. The vast majority of these measures lack enforceable, measurable criteria or performance standards, and are vague and subject to the whim of the interpreter. By way of example, turn to WR Implementation Measure #1, Part I page 11-11. The "shall develop" sounds like a good start relative to a groundwater ordinance, but the rest of the measure is full of vague words subject to varying interpretations, is unenforceable and lacking in measurable criteria or performance standards. Back to the "shall develop." It is worthwhile noting that at the April 26, 2010, session of the Tulare County Water Commission we heard at least two of the commissioners express displeasure with the use of language "shall develop" in relation to a groundwater ordinance. This occurred during a briefing to the commission by the Project Planner for the General Plan. The end result was the Chair of the Tulare County Water Commission, who is also a Tulare County Supervisor, essentially directed the General Plan Project Manager to change the "shall" to "may." Now that's progress in developing an enforceable mitigation measure pertaining to impacts on a groundwater supply already in critical overdraft.

- The RDEIR fails to establish the water supply baseline and makes no legitimate effort to meaningfully analyze impacts to water supply and develop adequate, enforceable, and feasible mitigation measures. Accordingly, the General Plan and RDEIR must be corrected and recirculated.

The RDEIR's Analysis of the General Plan's Alternatives, Growth-Inducing Impact, Cumulative Effects, Significant and Unavoidable Impacts, and Significant Irreversible Environmental Changes is Flawed.

The RDEIR's inadequate analysis of impacts, failure to propose measurable and enforceable mitigation measures, or otherwise consider feasible mitigation cripples its evaluation of the five topics listed in this subject heading. We have addressed this pervasive deficiency in the RDEIR in Section I and will more specifically focus on it while reviewing specific impacts in Section II.

The RDEIR **fails to consider a reasonable range of alternatives** which offer substantial advantages to the General Plan. The alternatives discussed in Chapter 4 seem to have been preordained to offer little essential or practical difference. Significantly, the County has refused to consider, without explanation, "The Healthy Growth Alternative" submitted by Tulare County Citizens for Responsible Growth in comments on the 2008 DEIR. This proposal is clearly an environmentally superior alternative and would meet most of the objectives of the General Plan. Meaningful analysis is further obscured by unsubstantiated conclusory statements skewed to support the General Plan. The discussion deliberately omits comparison of the wildland-urban interface fire area risk between alternatives. In places, the discussion of hydrology and water quality approaches not only the disingenuous but nonsensical. For example page 4-21, when comparing what the RDEIR has called the City-Centered Alternative, concludes, "Overall, hydrologic and water quality impacts under Alternative 2 are considered to be similar to those of the proposed project." Setting aside for a moment that the so-called City-Centered Growth Alternative is really that in name only, how can the impacts in any way be similar to those which foreseeably would result from aggressive development in the foothills and mountains. Turning to the Hazards and Hazardous Materials analysis in the paragraph above, fire is not even mentioned. And that's because the RDEIR can decipher no difference between fire hazards in the City-Centered Growth Alternative and the General Plan's expansion into the foothills and mountains where of course any reasonable individual might perceive a difference in fire hazards. Not surprisingly, the alternative analysis concludes there is no differences in

Energy and Climate Change and Geology and Soils. Similar conclusions are reached about the Confined Growth Alternative on pages 4-34 and 35. Such is characteristic of the RDEIR's superficial and preordained alternatives analysis. Perhaps this is why Table 4-3 pages 4-7 to 4-12 lists fewer impacts (25) than Table ES-4 (28) pages ES-12 to 26 (There are a different number of noise impacts), the RDEIR does not bother to check the details.

The RDEIR's **analysis of the growth-inducing effect of the General Plan** is flawed by the same type of predeterminative, hollow rationale. The purpose of analyzing growth-inducing impacts is to encourage the public and decision makers to foresee and consider the consequences of suburban sprawl before irreversible decisions that make such sprawl a *fait accompli*. The RDEIR concludes on page 5-3 under Direct Impacts "In addition, the proposed project encourages orderly growth of new development to occur in areas adjacent to existing urban uses and requires developers to provide service extensions. As a result, while the proposed project would result in an increase of growth locally, the policies included in the proposed project reduce the potential for negative impacts associated with directly induced growth." Whoever wrote this forgot about the General Plan's aggressive development portrayed on pages 2-19 to 21 RDEIR or typified by the Yokohl Ranch Project discussed earlier for which the General Plan changes the Foothill Growth Management Plan to allow for planned communities. This analysis is so deceptive and self-serving that it defeats the environmental protection and accountability goals of CEQA.

The RDEIR's **Cumulative Impacts Analysis** suffers from the same infirmities. It undermines its own credibility by the statement on page 5-4, "The overall assumption of the analysis in this RDEIR is that the majority (85%) of the net new growth will occur within incorporated cities and CACUDBs as opposed to within the unincorporated areas, which will contain a much smaller (15%) portion of the new growth. This distribution of growth is shown in Table 5-1 and Table 2-11 of Chapter 2 of this RDEIR." Of course the distribution of growth shown in the tables is not 85%/15%, but rather 75%/25%. This error, as we noted earlier, raises a number of questions and is indicative of the approach of the RDEIR, why bother with the details when you know the outcome.

The RDEIR's **analysis of Significant Irreversible Environmental Changes** which would result from the General Plan's buildout makes short shrift of a topic which we think deserves more than 32 lines of discussion. What about discussing the conversion of forest land to non-forest use? What about the conversion of oak woodlands? What about the secondary effects of highway or road improvement

adjacent to a roadless area which may irretrievably increase access to an otherwise inaccessible area? What about the indirect effects of converting rural open space or agricultural land to urban uses? Because of the length of time many greenhouse gases remain in the atmosphere, the direct or indirect emission of greenhouse gases should be considered an irreversible effect. What about the effect of continued critical overdrafting of our important water basins in Tulare County? Will land subsidence occur to such an extent that compression of the aquifer will permanently decrease the storage capacity of the aquifer. Will loss of aquifer storage capacity lead to such an increase in pollutants that our water quality will deteriorate further?

Section II

Impact
3.2-1

Section II

Impact 3.2-1 The proposed project would result in a substantial increase in vehicular traffic – Significant and Unavoidable for the overall county and each plan area.

CEQA Appendix G Environmental Checklist Form wording for this impact is: "Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?"

What is the rationale for the 2010 RDEIR change of wording, other than to obscure the magnitude of this impact?

Impact Summary

Level of Significance Before Mitigation: Potentially Significant
Required Additional Mitigation Policies and Implementation Measures: No Additional Feasible Mitigation Available
Resultant Level of Significance: Significant and Unavoidable

Impact Analysis

The Transportation and Circulation Existing Conditions, pages 5-27 section of the Background Report seems to be out of date. Most of it appears to have been written in 2001. Measure R funding was inaugurated three years ago but revenue is less than expected because in August 2008 the housing bubble burst. Investment firms and banks began to fail, people lost 30% of the value of their investments, many houses went into foreclosure, bringing down home values and property taxes to the County. In March, 2010 the unemployment rate in Tulare County was 19.4%. People are afraid of losing their jobs or part of their pensions. So, there is less spending which means less sales tax collected in Tulare County. The County expects to have a $7 million shortfall this year. California expects a $19.1 million shortfall. The federal government has a multi-trillion dollar deficit.

Measure R funds may be reduced further by amendments. On Tuesday, January 12, 2010 the Tulare County Board of Supervisors voted 3 to 1 to allow Measure R funds to be used to buy tracks, equipment and right of way for an east county 32 mile railroad line owned by Rail America. This decision was supported by the Tulare County Association of Governments (TCAG). Rail America abandoned the short line because it was not profitable. If TCAG eventually decides to purchase the rail line, it will cost an estimated $28.5 million in Measure R funds. Supervisor Pete Vander Poel, who cast the lone dissenting vote, said the amendment was too much of a departure from the transportation tax voters approved in 2006. Money spent on a railroad line is money not spent on roads, bicycle trails and pedestrian trails which was the intent of Measure R. If the railroad line is purchased, it will probably be a financial albatross for the County. Another worry is the liability expense of owning and operating a railroad. An accident and a lawsuit could beggar the County.

So, where is the money coming from to widen roads improve intersections, widen bridges? The Background Report on page 5-27, paragraph 4 states, "Many requested projects will not be funded through the 2007 Regional Transportation Plan (RTP) because of lack of funding; this includes approximately $250 million in deferred maintenance in the unincorporated roads in the county and over $20 million in deferred maintenance on the Tulare County Regional Road System. In addition, a third of total maintenance costs for the CALTRANS road system improvements is underfunded." "Funds from the federal stimulus program will have virtually run out by 2012, according to the National Conference of State Legislatures," Wall Street Journal April 15, 2010.

Despite this dire recitation, the section ends, optimistically with, "Although the funding picture still looks bleak, Tulare County is better equipped to handle increasing congestion and continued maintenance." Better than what?

Carole Clum
45638 South Fork Drive
Three Rivers CA 93271

January 11, 2010 Three Rivers Town Hall Meeting

I am concerned about the steady deterioration of our county roads. Locally, South Fork Drive beyond mile marker 4.5 and Dinely Drive are in poor shape. The road to Badger (Dry Creek Road) is in poor condition. In fact, according to Tulare County Surveyor Craig Anderson, "90% of our foothill and mountain roads are substandard." The national, state, and county standards for county roads is two 12-foot-wide lanes with two 4-foot-wide shoulders. Roads should be properly graded with 9 inches of road base and 3 inches of asphalt at a minimum.

Johnny Wong, the engineer in charge of the road yards in Transportation Operations for Tulare County, told me on December 8, 2009, "There are 3000 miles of county roads in Tulare County. Even with Measure R money we won't be able to keep up with maintenance of the county roads. They will continue to go downhill."

Some small, disadvantaged communities (Seville, Sultana, East Orosi, Plainview, Tuleville, Tonyville) in Tulare County have only unpaved roads.

The roads that serve the dairies in our county are poorly maintained. The heavy milk trucks have ground those roads into dust. Dust that we have to breathe.

I have been walking four to six miles a day on South Fork Drive (Mountain Road 348) for 16 years. There has been a steady deterioration the entire time. If Matthew, the road maintenance man for Three Rivers, patched pot holes every work day of the year, he could not keep up with the deterioration of Three Rivers' roads.

What is wrong with South Fork Drive, for instance? It is too narrow; the paved area is only 11.5 feet to 16 feet wide in places beyond the Grouse Valley Road turn off. It has hundreds of pot holes. Road edges are broken off in big chunks. It is alligatored with cracks. There are parallel cracks along the downslope edge due to subgrade failure. Retaining walls are needed in many places. There are many blind turns. No speed limit is posted. Some people drive 50-55 miles per hour. Speed limit signs that reflect actual road conditions should be posted on Tulare County's

mountain roads. The asphalt is less that one inch thick. There is no road base. There is no shoulder on the gutter side for most of the way. Every time it rains dirt and rocks erode from the bare, steep slopes above.

After the Grouse Valley Road turnoff (Mountain Road 319), the two lane road narrows considerably and the center line disappears. The farther you drive the worse the road becomes.

So, why are our roads in such bad shape? Tulare County is cash-strapped. And it still does not impose impact fees on new development. Every new house, business, industry, commercial park, and housing development should pay its own way for infrastructure. Then the impact fees would support police and fire protection, ambulances, roads, libraries, jails, and trash collection.

It's not good for our economy to have poor county roads. No one wants to buy land and build a house on a miserable road. No business wants to operate on a steadily deteriorating road. My message to our supervisors is, "You are spending our tax dollars. Fix our roads. Bring them up to safe standards **before** you approve any more roads you will have to maintain." Even if a developer builds roads to his remote development, the county will be responsible for maintaining those roads. And our existing county roads will deteriorate faster because more miles of county roads will have to be maintained with even less money. The property tax and sales tax revenues of Tulare County will be lower in 2010 and 2011, perhaps longer.

Why is the Tulare County GPU encouraging development in the mountains and foothills when they are the most expensive to build in and when these lesser traveled roads have the lowest priority for repair? Foothill and mountain roads aren't even mentioned in the Road System Condition of Transportation and Circulation. All county foothill and mountain roads are in poor condition. Ninety percent of them were built before the Federal standards of two 12-foot-wide lanes and two 4-foot-wide shoulders were enacted. Valley residents who live on seldom-traveled roads (small farms, disadvantaged communities) are out of luck when it comes to road maintenance. First priority for funding road repairs goes to roads serving the greatest number of users. See page 5-41, paragraph 3, Background Report.

Carole Clum

We have included page 5-39 through 5-43 of the Background Report, Transportation and Circulation, 5.5 Road System Condition, following:

5.5 Road System Condition

INTRODUCTION

This section addresses the status of the county's rural roads. The current physical status of the county roadways is noteworthy. Due to a significant reduction of available funding for road maintenance over the past two decades, the county has not been able to adequately maintain its roadway system. This is critical for the agricultural industry that uses these roads for farm-to-market trips and also significantly contributes to road deterioration.

Methods

Information for this section was primarily gathered from the Tulare County RMA.

Key Terms

Pavement Management System (PMS)

EXISTING CONDITIONS

Currently, rural road conditions are deteriorating at an accelerated rate. These county roads are increasingly used by the agricultural and dairy industries to haul their product to market. Large potholes, alligator cracking, and deterioration of the asphalt exist on county roads.

From a capacity standpoint, widening of county roads may not be necessary; however, maintenance to these facilities is critical. Heavy-duty vehicles associated with the agricultural and dairy industries use the roads regularly and are the primary factor for the roads increased deterioration. The increase in dairy and other agricultural activities has exceeded original loading capacities of these rural roads. For over three decades, the increased use of county roads and limited funding for repairs has left many miles of these roads in poor condition.

Heavy duty trucks contribute to the damage of roads much faster than do automobiles. According to the American Association of State Highway and Transportation Officials (AASHTO), a fully loaded truck (80,000 pounds) has an impact on roads equal to the passage of approximately 9,000 cars. In addition, deferred maintenance and water intrusion in the roadbed results in further degradation of roadways.

Understanding that agriculture is the region's economic base, Tulare County strives to maintain and improve the transportation infrastructure that is essential to this industry. For years it has been increasingly difficult to keep pace with necessary maintenance on

existing facilities due to financial constraints. In some cases deferred maintenance has become evident. According to Tulare County RMA, deferred maintenance for these poorly maintained roads is estimated to be at least $250 million dollars. The diffused movement of farm to market and other truck dependent industries result in high maintenance costs that restrict funds that otherwise would be used for much needed expansion.

Maintenance for the county's 3,072 miles of roads is provided by four road yards located in Dinuba, Visalia, Porterville, and Terra Bella. Services include road repair projects, pothole patching, snow removal, debris removal, and road drainage. Traffic operations are centralized in Visalia and perform duties including installing and replacing traffic control signs, traffic signal maintenance, and roadway striping. The Operations Division of the Tulare County RMA oversees contract administration, bridge maintenance, road use investigations, materials testing, and coordinates road yard activities. The Project Coordination Division is also responsible for road funding and the Road Pavement Management system.

The *Tulare County Infrastructure Valuation Report*, dated June 2005, found the value for the Tulare County road system. The breakdown was $844 billion for 3,072 miles of roads, $209 billion for 390 bridges, and $950 billion for 18,000 acres of right of way. The conditions of Tulare County roads were rated as either in good, fair, or poor quality. 54.0% of the roads are in good condition, while 36% are in fair condition, and 10% are in poor condition. Gravel roads are rated as being in poor condition.

In the past 30 years there has been an overall increase in road costs. Motor grader has increased by five times and construction maintenance worker labor has increased 3.5 times. In 1966, road oil prices were approximately $22.00 dollars per ton; 40 years later, the cost has now been raised to ten times that at $220.00 dollars per ton.

According to the American Public Works Association (APWA), there has been a significant increase in truck traffic. There has been a steady increase of truck and commodity growth in Tulare County. 30 years ago there were 150,000 trucks with 4,000,000 in tonnage; now, there are 550,000 trucks with 14,000,000 in tonnage.

In Tulare County there is an increase in costs and reduced buying power. For example, in 1970 nearly three times more roadwork was completed than in 2003 (689 miles vs. 250 miles). If the 1970 work was done in 2003, it would have costs (sic) nearly five times more than what was available for 2003 ($42 million vs. $9 million). The Pavement Management System Policy that was adopted January 12, 1999, is as follows:

> "Adopted the Pavement Management system that includes a strategy of first priority to funding road repairs serving the greatest number of users and that can be preserved by cost effective preventative maintenance procedures."

The findings of the Pavement Management System are:

- Deferred road repairs have resulted in $254 million of immediate needs to restore the road system;
- Predicts that some roads will low traffic volumes will revert to gravel roads over the next ten years;
- By implementing a strategy of prioritized funding, the overall deterioration of the road system can be slowed but not halted;
- Present funding is inadequate to allow pavement repairs to keep up with the rate of deterioration; and
- Surface deterioration has advanced to the point of needing costly reconstruction in many cases and is the result of deferred maintenance over many years.

Maintenance to Bridges

The widening of any type of roadway often takes into account the high amount of funding that goes along with replacing a bridge for modification to the new roadway system. With Tulare County's abundance of irrigation canals and rivers from the Sierra Nevada mountain range and freeway over crossings, bridge maintenance is a concern.

The Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) provides bridge funding with the Highway Bridge Replacement and Rehabilitation Program (HBRRP). Locally, Caltrans Headquarters oversees this program in Tulare County. The purpose of this program is to replace or rehabilitate public highway bridges over waterways, other topographical barriers, other highways, or railroads when the State and FHWA determine that a bridge is significantly important and is unsafe because of structural deficiencies, physical deterioration, or functional obsolescence.

Bridge replacement project candidates selected for the HBRR program shall be structurally deficient or functionally obsolete, have a sufficiency rating below 50, and shall be selected from bridges shown on the federal eligible bridge list (EBL). The EBL is available from the Caltrans District Local Assistance Engineer. Bridge rehabilitation project candidates selected shall be deficient or functionally obsolete, have a sufficiency rating less than or equal to 80, and shall be selected from bridges shown on the EBL.

Reimbursable scopes of work include replacement, rehabilitation, painting, scour countermeasure, bridge approach barrier and railing replacement, low water crossing replacement, and ferry service replacement.

In Tulare County, bridges cross rivers, creeks, canals, ditches, and sloughs. The EBL includes 79 such bridges in Tulare County, Currently, all but one of the 79 bridges are eligible for rehabilitation (a sufficiency rating less than or equal to 80) and 19 bridges (25%) are eligible for bridge replacement (a sufficiency rating below 50).

RURAL ROAD FUNDING

Population instead of road miles apportions monetary funding of roads. Tulare County has nearly 3,100 miles of county maintained roads but proportionally the county has a small population compared (sic) other counties in the state. Tulare County has as many as 50 miles of road scheduled for improvements.

The Tulare County RMA receives approximately $6,8 million per year for maintenance with an estimated need of $16.4 million to maintain county roads. Due to this shortage, the county pursues other funding sources to address the unprogrammed needs. Local Transportation Funds (LTF) available for transit can also be utilized for maintenance of local streets and roads, only if there are no unmet transit needs determined.

As stated throughout this document, given the overall increase in sources of local, state, and federal funds that have materialized over the past decades, the current transportation funding situation for regional and local agencies has resulted in a revenue shortfall both in the areas of capital improvement projects, maintenance and rehabilitation. It is anticipated that revenue shortfalls will continue because the revenues that support the maintenance and improvement of the transportation network are not increasing enough to keep pace with inflation. However, it should be noted that Measure R will lessen that shortfall.

Why is the Tulare County GPU encouraging development in the mountains and foothills when they are the most expensive to build in and when these lesser traveled roads have the lowest priority for repair? Foothill and mountain roads aren't even mentioned in the Road System Condition of Transportation and Circulation. All county foothill and mountain roads are in poor condition. Ninety percent of them were built before the Federal standards of two 12-foot-wide lanes and two 4-foot-wide shoulders were enacted. Valley residents who live on seldom-traveled roads (small farms, disadvantaged communities) are out of luck when it comes to road maintenance. First priority for funding road repairs goes to roads serving the greatest number of users.

Every additional mile of roadway built in Tulare County will add to the inventory of roads to be maintained. The acceleration of road deterioration due to deferment of maintenance will jeopardize the safety of Tulare County residents and those

vehicles passing through our county . Under the GPU and current economic conditions these hazards cannot be mitigated. They must be avoided. More industry in every plan area will bring more and heavier trucks.

Mitigating Policies and Implementation Measures

TC-1.1 Provision of an Adequate Public Road Network

. . . **within the constraints of funding capacity.**

Implementation Measure 1

Through the Pavement Management System (PMS), the County shall continue to maintain a database of all County maintained roadways to determine which roadways should no longer be maintained and allowed to return to rural/ agricultural roads.
(Dirt/gravel roads mean a big increase in particulate matter in the air. Dirt/ gravel roads in the foothills will be dangerous. There will be more erosion of substandard, narrow, winding roads with very narrow or non-existent shoulders and subgrade failure.)

Implementation Measure 2

The County shall develop an impact fee program to offset the cost of development and maintenance of County roadway system as necessitated by development. (The County has promised to devise and impose impact fees for 3 years. Nothing has happened. This is deferred mitigation with no true commitment.)

Implementation Measure 3

The County shall utilize local community road improvements under Measure R to upgrade local community roads and farm to market roads. (Measure R funds have fallen short of expectations. Tulare County had 19.4% unemployment in March 2010. People are spending less so less sales tax is being collected. This Implementation Measure is hopeful, not realistic. Will roads in foothills and mountains be upgraded or even maintained?

TC-1.2 County Improvement Standards

. . . within the constraints of funding capacity.
(The County cannot afford to maintain the 3,100 miles of roads it currently has. Twenty years of deferred maintenance has caused roads to deteriorate at an accelerated rate. Local, state, and federal funding are dropping. This is wishful thinking. Stimulus funding from the federal government will dry up in 2012. The county won't be able to update all the transportation corridors to handle the economic, industrial, commercial and planned community growth it proposes. The Level of Service on these roads will be much lower than predicted in Table 3.2-7, pages 3.2-27 through 30 RDEIR, Roadway Segment Analysis.)

TC-1.3 Regional Coordination

No comment

TC-1.4 Funding Sources

See comments for TC-1.2

TC-1.5 Public Road System Maintenance

The County shall give priority to . . .
(See Background Report, Transportation and Circulation Element, Road System Condition, pages 5-39 through 5-43. Road maintenance has been deferred for 20 years.)

TC-1.6 Intermodel Connectivity

. . . whenever possible
(This is deferred mitigation with no true commitment and no measurable standards.)

TC-1.7 Intermodal Freight Villages

The County shall consider . . . (This is deferred mitigation with no true commitment and no measurable standards.)

TC-1.8 Promoting Operational Efficiency

The County shall give consideration to . . . (This is deferred mitigation with no true commitment and no measurable standards.)

TC-1.9 Highway Completion

No comment

TC-1.10 Urban Interchanges

(This is deferred mitigation with no true commitment and no measurable standards.)

TC-1.11 Regionally Significant Intersections

(This is deferred mitigation with no true commitment and no measurable standards.)

TC-1.12 Scenic Highways and Roads

(How will all the commercial and industrial development along transportation corridors lend any road to be eligible for a scenic highway designation? Our supervisors like neon signs, biofuel plants, food processing plants and confined animal facilities, etc. This is definitely a hollow promise with no commitment.)

TC-1.13 Land Dedication for Roadways and Other Travel Modes

. . . where warranted . . .

(Another hollow promise. This is deferred mitigation with no true commitment and no measurable standards.)

TC-1.14 Roadway Facilities

(This is deferred mitigation with no true commitment and no measurable standards.)

TC-1.15 Traffic Impact Study

(This is deferred mitigation with no true commitment and no measurable standards. There is no Implementation Measure or starting date or plan for when impact fees kick in. Why does the analysis only apply to LOS "D" or worse or projects that may generate over 100 peak hours trips per day? What about cumulative impact of every single car on the road on a given day?)

TC-1.16 County Level of Service (LOS) Standards

The County shall strive . . . (this is a knowingly false promise considering the County's, State's, and federal governments' budget deficits. This is deferred mitigation with no true commitment.)

TC-1.17 Level of Service Coordination

The County shall work with . . .
(This is deferred mitigation with no true commitment and no measurable standards.)

TC-1.18 Balanced System

The County shall strive . . .
(This is deferred mitigation with no true commitment and no measurable standards.)

TC-1.19 Balanced Funding

The County shall promote . . .
(This is deferred mitigation with no true commitment and no measurable standards.)

What a sorry, dishonest slew of policies.

LU-1.10 Roadway Access

No comment

LU-4.4 Travel-Oriented Tourist Commercial Uses

(Too flexible. Allows exceptions for resorts and retreat related development. Weak policy. What does "traffic patterns oriented to major arterials and highways mean? Sounds too inclusive.)

LU-5.4 Compatibility with Surrounding Land Use

The County shall encourage the infill of existing industrial areas and ensure that proposed industrial uses will not result in significant harmful impacts to adjacent land uses.
(Boy, is this reassuring. Development everywhere at any cost. This is deferred mitigation with no true commitment and no measurable standards.)

Impact 3.3-3 The proposed project could conflict with or obstruct implementation of an applicable air quality plan.

Impact Summary

Level of Significance Before Mitigation: Potentially Significant
Required Additional Mitigation Policies and Implementation Measures: No Additional Policies or Mitigation Measures Are Available
Resultant Level of Significance: Significant and Unavoidable

Impact Analysis

The Impact Analysis on page 3.3-25-26 RDEIR fails to analyze the adverse impacts on public health. "The goal of the CARB guidance document "Air Quality and Land Use Handbook [CARB 2005] is to protect sensitive receptors, such as children, seniors, and acutely ill and chronically ill persons from exposure to Toxic Air Contaminants (TAC) emissions by encouraging adequate separation between new sensitive land uses (residential, educational, and healthcare) proposed adjacent to TAC sources in order to minimize land use incompatibility. The recommendations provided are voluntary and do not constitute a requirement or mandate for either land use agencies or local air districts." Too bad Tulare County does not care enough about the health of its residents to adopt these recommendations and make them mandatory.

If the GPU banned fireplaces and woodstoves in new development, wood smoke which is laden with fine particulates (PM 2.5) and which aggravates asthma and chronic heart disease could be reduced in the future. "Spare the Air" days do not motivate people to stop burning. People don't do the right thing until they are legislated into doing the right thing. The County should ban all greenwaste burning. That would reduce woodsmoke from agricultural burning and foothill residents.

We agree that the impact is Significant and Unavoidable. We would like to point out that the Summary of Air Quality Impacts by General Plan Area, Table 3.3-4 on page 3.3-18 in the RDEIR incorrectly lists this impact as Less than Significant for all plan areas.

There is feasible mitigation for this impact:

1) Require all new development to offset its air quality impact 2:1

2) Direct 95% of all new development into eight incorporated cities where there is public transit, walkable neighborhoods, mixed use development, jobs and services.

3) Ban fireplaces and woodstoves in all new development.

4) Ban all greenwaste burning.

Impact
3.3-4

Impact 3.3-4 The proposed project could expose sensitive receptors to substantial pollutant concentrations that could affect public health.

Impact Summary

Level of Significance Before Mitigation: Potentially Significant
Required Additional Mitigation Policies and Implementation Measures: No Additional Mitigation Measures Are Available
Resultant Level of Significance: Significant and Unavoidable

Impact Analysis

The County seems to be hell-bent on County-wide development despite the fact that the air quality will adversely affect sensitive land uses and sensitive receptors. What do these abstract categories refer to?

Sensitive land uses - long-term health care facilities, rehabilitation centers, retirement homes, convalescent homes, residences, schools, childcare centers, and playgrounds near ten transit corridors, foothill growth corridor, highway 99, and near New Towns

Sensitive Population Groups - elderly
infants
children
individuals with asthma, emphysema, lung cancer, chronic bronchitis
residents near ten transit corridors, foothill growth corridor, highway 99, and near New Towns

How many residents of Tulare County will be affected? What proportion of the population is it? What will be the cumulative effects of this GPU and those of all eight Central Valley counties on public health? Don't our Supervisors care about people's health?

See attachment 15 "Valley Still Leads in Worst Air Report"
See attachment 16 "Traffic Pollution Linked to New Cases of Asthma"

It is the policy of the county's road maintenance department (Transportation Operations) to either chip and shred obstructing branches pruned from roadsides or burn them. Burning greenwaste increases air pollution. See attachment 17, "Letter to Supervisors." It would be feasible mitigation to prohibit burning of green waste, Instead, in Part I Health and Safety, Urban and Wildland Fire Hazards HS-6.11 Fire Buffers: The County shall strive to maintain fire buffers along heavily traveled roads within high and extreme hazard zones by thinning, disking, or controlled burning.

The best feasible mitigation to reduce impact of air pollution on public health is to direct 95% of future population growth into the eight incorporated cities in Tulare County. Another feasible mitigation is to require all new development to offset its air quality impacts 2:1.

Impact
3.6-1

Impact 3.6-1 The proposed project could violate water quality standards or waste discharge requirements, or otherwise degrade water quality.

Impact Summary

Level of Significance Before Mitigation: Less Than Significant
Required Additional Mitigation Policies and Implementation Measures: None required
Resultant Level of Significance: Less than Significant

The Yokohl Ranch Project Initial Study listed its impact to violate any water quality standards or waste discharge requirements as Potentially Significant. The population projections for Yokohl Ranch of 29,095 residents plus tourists in three hotels and a 200 room resort and regional sports facility equals a substantial proportion of development proposed by the GPU.

Carole Clum's comments on the 2008 DEIR which pertain to water quality are contained on pages 25-26, 28, 31-36, 37-46, 53-54, 56-63 in attachment 39.

The County states the GPU will have a Less than Significant Impact on water quality. It can be successfully argued otherwise by considering the great increase in: Septic systems
Wastewater treatment plants' overuse
Industry
Hazardous waste generators
Landfill use
Dairy barns, feedlots, manure lagoons, fields of alfalfa and other crops on which liquid manure is repeatedly applied. See GIS map of Dairy Land of Tulare County available from Resource Management Agency
Impervious surfaces
Grading and excavation

Some of the above new development will be in the 100-year flood plains, behind failing levees, and in the path of dam inundation exacerbated by climate change.

The Impact Analysis on page 3.6-38 of the RDEIR states:

"Nonpoint source of water pollution, such as urban runoff, are typically discharged via . . . storm drains to "Waters of the United States" and are

therefore regulated under the federal Clean Water Act (CWA). Consequently, the County must comply with provisions of the CWA, including federal water quality, waste discharge, and total maximum daily load standards. Development of the proposed project would potentially impact the quality of runoff and other pollutant loadings to receiving waters. Water Quality impacts also may be significantly greater during the rainy season.

The construction and use of new individual or community septic systems would occur throughout the County subsequent to the General Plan. Septic systems and their associated leach fields can be a source of groundwater contamination. Depending on site specific characteristics, such as proximity to surface water and groundwater resources, soil type, and slope, septic systems could be restricted in certain parts of the County. Determination of site suitability for septic systems would be analyzed on a case by case basis."

There is no place in the Goals and Policies document that restricts septic systems on the basis of proximity to surface or groundwater resources, soil type, or slope.

The Yokohl Ranch Project NOP/IS considers the impact on water quality standards or waste discharge requirements as Potentially Significant because:

"(Yohohl) Valley . . . has been degraded by historic grazing activities. . .. The proposed project would require excavation and grading on approximately 9,500 acres for the phased development of the planned community. Development of the proposed project would have potential to impact water quality or waste discharge requirements due to grading and excavation, increased impervious surface area, sediment transport and surface runoff from the proposed phased development. In addition, the project proposes to construct a water supply reservoir and water and wastewater treatment plants, which would all be subject to water quality standards."

The Yokohl Ranch project NOP/IS considers the impact on "substantially degrading water quality as Potentially Significant because of:

"grading and excavation, increased impervious surface area, and surface runoff associated with the proposed development."

Extensive and intensive grading on steep slopes leaves loose soil with no vegetative cover.

By any calculation, the 14,400 acres and the estimated 29,095 residents in the proposed Yokohl Ranch development in unincorporated areas equals a substantial proportion (37%) of the expected increase in Tulare County's population of 78,490 in unincorporated areas by 2030.

Tulare County has multiple groundwater pollution sources:

Foothill citrus belt	- nitrates
Arsenic	- naturally occurring
Agriculture	- DBCP, nitrates, herbicides, pesticides, fertilizers
Dairies	- 500 dairy manure lagoons
	- 334 milking barns
	- 60-70 feedlots
	- numerous alfalfa fields (not tracked) where liquid cow manure is spread repeatedly

Untreated stormwater runoff from cities, communities and hamlets

Thousands of septic tanks and leach fields

26	Wastewater treatment plants
5	RCRA hazardous waste generators, large
411	small hazardous waste generators
206	medium hazardous waste generators
136	leaking underground storage tanks
9	Cortese List sites
2	Superfund cleanup sites
21	landfills, transfer stations, material recovery facilities, composting sites, transformation facilities, waste tire sites, and closed disposal sites

See attachment 18, Nitrate Contamination Spreading in California Communities.

These is no one map showing the location of all these sites. And there is no map showing the 100-year flood zones, levee inundation zones, and dam inundation zones in relation to these sites. Development is proposed all over the County with no restrictions based on groundwater contamination. All new development (except for Yokohl Ranch project) will depend almost entirely on groundwater. Where groundwater and surface water flows in relation to these contaminated sites is all important.

There are many contaminated sites in 100-year floodplains.

There are hundreds of sites throughout the County where hazardous wastes are generated, stored, disposed of, treated, and have contaminated the soil and/or the groundwater. There is no map of these sites. The County must generate a large scale (30" X 42") map of the hazardous waste sites overlaid by the FEMA map of the 100-year flood plain. The map needs to show the locations of the 324 dairy barns, feedlots, manure lagoons, the many fields where liquid cow manure is spread repeatedly, and locations of all hazardous material and waste sites on the Cortese list. The map needs to depict all the wastewater treatment plants in Tulare County since none of them provide tertiary treatment to wastewater. And finally, arrows showing the general direction of groundwater flow and those areas where deep, powerful wells create a large cone of depression and inward flow and the recharge areas from which groundwater flows outward in every direction. This map should be consulted by the well permitting division, the Planning Commission, and the Board of Supervisors prior to approving wells or development in those areas. Real estate agents need a copy and must disclose any groundwater contamination risk to potential buyers. In the Tulare County General Plan Background Report on page 8-14, the county warns "channel analyses have not been performed to determine the amount of obstruction posed by vegetation and development in the Kaweah, Kings, or Tule River channels. As such, FEMA maps depicting the 100-year flood plain for the rivers probably do not reflect the true extent and risk of flooding hazards in Tulare County."

According to Karen Burrow of the U.S. Geological Survey (USGS) in Sacramento, California on May 14, 2010, nitrates above MCL are in shallow groundwater in one third of domestic wells in Tulare County. The nitrates which come from dairies, alfalfa fields spread repeatedly with liquid cow manure, leaking septic systems, and agriculture's over-application of nitrogen fertilizer is leaching deeper into groundwater and affecting wells of cities and suburbs which can afford to remove the contaminant. Poorer rural communities have no access to clean-up technology. Homes built on former alfalfa fields are especially vulnerable to above MCL of nitrates in their domestic well water. These families cannot drink or cook with the water. The aggressive development proposed by the General Plan will locate more people on land with contaminated groundwater. Neither the County nor the Regional Water Quality Control Board keeps track of where liquid cow manure is spread or in what concentration.

In the RDEIR, 3.4 Energy and Global Climate Change, Wildland Fire Hazards, page 3.4-19, "studies indicate that there is a potential for significant increases in the

number of fires escaping initial attack, particularly in areas in which the fuels are dominated by grass and brush. These studies indicate that subtle shifts in fire behavior of the sort that might be induced by the climate changes anticipated for the next century are of sufficient magnitude to result in an increase in the number of fires in areas where brush fuels dominate. . ." These areas are the foothills of Tulare County. Wildfire in the foothills would result in denuded slopes which during intense storms predicted by climate change would erode and produce increasing peak runoff volumes. Stormwater runoff and siltation would degrade water quality.

The RDEIR has rated the risks of 100-year flood hazard (Impact 3.6-5) and inundation by dam or levee failure (Impact 3.6-6) Significant and Unavoidable. We have convincingly demonstrated that despite the RDEIR listing of stormwater runoff, soil erosion, and siltation as Less than Significant (Impact 3.6-3), it is in fact Significant and Unavoidable. Therefore, this GPU will have a Significant and Unavoidable impact on water quality.

There are chronic drinking water issues throughout the San Joaquin Valley. See attachment 19, Public Water Supply Violations, for a listing of Tulare County wells that do not have safe drinking water due to contamination by DBCP and nitrates above MCL. This list was provided by Tulare County Environmental Health.

According to Susana De Anda, co-executive director of the Community Water Center, in Visalia on April 22, 2010, "Tens of thousands of residents in the San Joaquin Valley have lacked access to safe drinking water in their homes and schools for years." The Safe Drinking Water Plan is required by the California Safe Drinking Water Act and is to be completed every five years pursuant to state law, must include an analysis of California's overall drinking water quality, with an emphasis on water systems with fewer than 10,000 service connections and contaminated water sources. Contrary to this legislative mandate, the California Department of Public Health has not submitted the plan to the State since 1993.

What are the criteria for finding the GPU's impact on water quality Less than Significant? This finding flies in the face of common sense.

Another factor affecting water quality is groundwater overdrafting. New development will depend on groundwater extraction. As the water table drops, contamination becomes concentrated. As the wells are driven deeper, they encounter the saline water at the bottom of the aquifer.

What is the impact of all this new development on public health? Nowhere is that analyzed.

Although the RDEIR states the GPU has a Less than Significant impact on water quality, it is logical to conclude that climate change's intense storms, increased risk of 100-year floods, greater risk of dam and levee failure, and dwindling groundwater supply will result in increased groundwater and surface water contamination. Almost all cities, communities, and single rural homes depend solely on groundwater supply. Remediating groundwater that does not meet Safe Drinking Water Act standards could be prohibitively expensive. Appendix G, Phase 1 Water Supply Evaluation for Tulare County recognizes that conversion of farmland to urban uses will result in increased pumping of groundwater.

Policies designed to minimize this impact through appropriate levels of water, wastewater, and storm drainage infrastructure planning, financing and construction include the following:

ERM-2.7 Minimize Adverse Impacts

> The County will minimize the adverse effects on . . . water quality . . . flood plains . . . (The County cannot just promise to fix future problems from 2010-2015, without any performance standards. This is deferred mitigation without any true commitment and no performance standards.)
>
> Implementation Measure 27
>
> The County shall devise procedures as part of the Zoning Ordinance update to mitigate significant conflicts arising from incompatible land uses. (What conflicts are we talking about here? What is significant? This isn't due to happen until 2015-2020. This is deferred mitigation without any true commitment and no performance standards. How does this protect water quality?)
>
> Implementation Measure 29
>
> Areas containing mineral springs and seeps, where such seeps and springs seem to be vital to the continuation of wildlife in the area, shall be protected. (This is deferred mitigation without any true commitment and no performance standards.)

ERM-5.20 Allowable Uses on Timber Production Land

The County shall allow uses (not related to forest production) . . . provided it is demonstrated that it will not degrade the watershed and/or water quality due to increased erosion. (Who is going to do this, when and how? This is deferred mitigation without any true commitment and no performance standards.)

No Implementation Measure

FGMP-8.5 Protection of Lakes

The County shall protect Lake Kaweah and Lake Success from contamination due to runoff, underground seepage of waste effluent, or intrusion of incompatible land uses . . . (This policy dates to FGMP 1981. It is a failed policy. We can point to many leach fields on the South Fork of the Kaweah and the Main Fork of the Kaweah River (in Three Rivers which empties into Lake Kaweah) where leach fields are in the riparian zone, where there is soil eroding from banks into the river. Cattle graze right down to the river. The County has shown no commitment to water quality.)

Implementation Measure 30

No commitment to eliminating sedimentation and contamination. This is an empty promise. Where are the performance standards?

FGMP-9.5 Alternate Sewage Disposal

The County may allow unconventional methods of disposing of sewage effluent provided the system meets the performance standards of the Water Quality Control Board and the Tulare County Health and Human Services Agency. Such systems may include, but are not limited to common leach field, soil absorption mounds, aerobic septic tanks, or evapotranspiration systems. (These alternate sewage disposal systems are inferior to leach fields. Why would the County allow systems that commonly fail or don't treat effluent as effectively? Water quality will get worse. The soil absorption mound for the Comfort Inn in Three Rivers has failed repeatedly. The motel is near the river. The County allowed the motel to expand the number of rooms. Big layoffs are coming in

Tulare County Health and Human Services. They won't be able to oversee this. The unconventional disposal methods need to be prohibited.)

Implementation Measure 31

See above comment. This is an empty promise.

HS-4.4 Contamination Prevention

The County shall review new development proposals to protect . . . surface water and ground water . . . (This is an empty promise, deferred mitigation with no measurable standards, no commitment.)

No Implementation Measure

PF-5.2 Criteria for New Towns (Planned Communities)

. . . the project provides . . . adequate . . . sewer facilities
(This is deferred mitigation with no true commitment and no measurable standards.)

No Implementation Measure

PFS-1.3 Impact Mitigation

The County shall review development proposals for their impact on infrastructure . . .
(This is deferred mitigation with no true commitment and no measurement standards.)

No Implementation Measure

PFS-2.5 New Systems or Individual Wells

Where connection to a community water system is not feasible per PFS-2.4. Water Connections, service by individual wells or new community systems may be allowed if the water source meets standards for quality or quantity. (The County does not require water from new wells be sampled, tested and submitted to the county prior to development. This is meaningless. This policy

has no true commitment and no measurable standards. How does this protect water quality?)

No Implementation Measure

PFS-3.1 Private Sewage Disposal Standards

The County shall maintain adequate standards for private sewage disposal systems to protect water quality and public health.
(This is deferred mitigation with no true commitment and no measurable standards. The County does not inspect septic systems now or monitor water quality in the rivers of Tulare County. The County doesn't have the money or manpower to do this. In the RDEIR the County claims water quality problems are Less Than Significant despite scientific studies refuting this assertion. Many communities have municipal wells that don't meet Safe Drinking Water standards. No county-wide study of domestic well water quality has been completed. No study of agricultural [dairy and citrus] well-quality is even contemplated.)

Implementation Measure 6

The County shall prepare and distribute information on the care and maintenance of private sewage disposal systems. (This is ineffective.)

Implementation Measure 7

The County shall consider amendments . . . in 2010-2015 (This is deferred mitigation with no true commitment and no measurements standards.)

PFS-3.3 New Development Requirements

The County shall require all new development . . . to connect to the wastewater system, where such systems exist. The County may grant exceptions in extraordinary circumstances . . . (There are very few wastewater systems in the unincorporated areas. This is deferred mitigation with no true commitment and no measurement standards.)

No Implementation Measure

PFS-3.7 Financing

The County shall cooperate with special districts . . . (This is deferred mitigation with no true commitment and no measurement standards.)

No Implementation Measure

PFS-4.7 NPDES Enforcement

The County shall continue to monitor and enforce provisions to control non-point source water pollution . . .
(How will the County do this? Who is in charge? How often will it monitor? What are the penalties for polluting? This is deferred mitigation with no true commitment and no measurement standards.)

No Implementation Measure

ERM Implementation Measure 45

Developers of new subdivisions who propose to build recreation facilities shall be required to post adequate bonds or cash deposits to assure completion of the entire facility to ensure long term maintenance. (Not pertinent.)

FGMP Implementation Measure 30

The wastewater disposal system shall be designed to meet the requirements of the Tulare County Health Department and the Regional Water Quality Control Board.

WR-1.2 Groundwater Monitoring

The County shall support the collection of monitoring data for facilities or uses that are potential sources of groundwater pollution as part of project approvals, including residential and industrial development. ("shall support" is weak. What about agricultural sources of groundwater pollution? They are the main culprits in Tulare County. This is deferred mitigation with no true commitment and no measurement standards.)

Implementation Measure 2

Solid waste disposal areas shall not be located where there is a possibility of ground or surface water contamination. (Where would that be? Out of the 100-year flood zone? Away from dam or levee inundation zones? On another planet? Will the County be using groundwater flow maps? Will land subsidence be taken into consideration?)

Implementation Measure 1

The County staff shall develop an ordinance that will regulate the permanent extraction and exportation of groundwater from Tulare County . . . Find and determine that the extraction will not substantially increase the overdraft of the groundwater underlying the County . . . (First, this is scheduled for development from 2010-2015. This measure says "develop" not "adopt." Second, what is "substantial increase in the overdraft" and who determines that? This is deferred mitigation with no true commitment and no measurement standards.)

Implementation Measure 4

Where feasible the County shall participate in coordinated local, regional and Statewide groundwater monitoring and planning programs. (This is weak with no true commitment.)

Implementation Measure 5

The County shall encourage active participation by local stakeholders. . . (This is weak with no true commitment.)

Implementation Measure 7

The County shall work with federal, state, and regional agencies . . . (This is weak with no true commitment.)

Implementation Measure 8

The County shall encourage responsible agencies and organizations to install and monitor additional groundwater monitoring wells in areas where data gaps

exist. (Why doesn't the County install these wells now? This is deferred mitigation with no true commitment and no measurement standards.)

WR-1.7 Collection of Additional Groundwater Information

The County shall support additional studies . . . (How will the County do this? With funding? This is weak, deferred mitigation with no true commitment and no measurement standards.)

Implementation Measure 3

The County shall assure that all watershed planning is done on a complete regional and watershed basis, and that such planning considers a balance between urban and agricultural demands. (What does a balance between urban and agricultural demands have to do with groundwater monitoring?)

Implementation Measure 7

The County shall work with federal, State, local and regional agencies to improve local groundwater pollution detention and monitoring. (This is weak.)

Implementation Measure 8

The County shall encourage responsible agencies and organizations in 2010-2015 . . . (This is weak, deferred mitigation with no true commitment and no measurement standards.)

Implementation Measure 9

The County will research the development of an education program to inform homeowners in Valley and Mountain areas regarding water quality concerns from 2010-2015. (This is weak, deferred mitigation with no true commitment and no measurement standards.)

Implementation Measure 11

The County shall identify and evaluate conditions within established water-sheds which are causing deterioration of water quality . . . in 2010-2015. (This

is weak, deferred mitigation with no true commitment and no measurement standards.)

WR-1.9 Collection of Additional Surface Water Information

The County shall support the additional collection of water quality and flow information . . . (This is weak, deferred mitigation with no true commitment and no measurement standards.)

No Implementation Measure

WR-2.2 National Pollutant Discharge Elimination System Enforcement

The County shall continue to support the State in monitoring . . . (This is weak deferred mitigation with no true commitment and no measurement standards.)

Implementation Measure 12

Development projects involving drainage alterations shall be constructed to minimize soil erosion and silt transport. (How will the County manage this when strict capture and detention of stormwater runoff is not mandated? The County has not adopted Low Impact Development measures. This is deferred mitigation with no true commitment and no measurement standards.)

WR-2.3 Best Management Practices

The County shall continue to require the use of feasible BMPs . . . (This is deferred mitigation with no true commitment and no measurement standards.)

Implementation Measure 12

(Already commented on the Implementation Measure above.)

Implementation Measure 14

. . . to prevent unnecessary substantial amounts of soil erosion. (So, are there necessary substantial amounts of soil erosion? The County must adopt Low Impact Development measures. This is infuriatingly weak mitigation with no true commitment and no measurement standards.)

WR-2.4 Construction Site Sediment Control

The County shall continue to enforce provisions to control erosion and sediment from construction sites. (We can see how effective that will be by reading Implementation Measure 14, immediately above.)

WR-2.5 Major Drainage Management

The County shall continue to promote protection of each individual drainage basin within the County. (Very weak wording. Incidentally, although this policy says "New Policy based on ERME IV-B; Land Resources; Recommendation 9. Pg. 24. ERME IV-C; Surface Water; Recommendation 20, Pg. 53", this element does not exist in the GPU 2010 or GPU 2008. It comes from an old version of the General Plan. Five times in Water Resources Element the ERME element is referenced. This is deferred mitigation with no true commitment and no measurement standards.)

Implementation Measure 6

The County shall avoid destruction of established recharge sites through such means as clustering development to leave such areas in open space, avoidance of lining channels and streams, alteration of existing agricultural practices, or substitutions made of drainage methods that will transport polluted waters away from such sites. (First, the County has almost no established recharge sites. Why would you develop in a recharge basin? What does clustering mean? How much of the recharge basin is allowed to be covered by impervious surfaces? Does alteration of existing agricultural practices mean farmland conversion? The County allows lining of channels elsewhere in the GPU. What does "substitutions made of drainage methods" mean? By developing recharge basins the County is creating polluted runoff over a recharge basin. This is disingenuous and ludicrous. It constitutes non-compliance with AB 162.)

WR-2.6 Degraded Water Resources

The County shall encourage and support the identification of degraded surface water and groundwater resources and promote restoration where appropriate. (This is weak mitigation with no true commitment and no measurement standards.)

Implementation Measure 17

The County shall amend the well ordinance to require deeper seals in areas of known contaminants. (The County has yet to make a meaningful attempt to determine where contamination exists. What good does a deeper seal do? Now wells are sealed to 20 feet. How deep does the contamination percolate? How much deeper will the seal go? Wells should be prohibited in areas where there has been long term contamination. This will be accomplished in 2010-2015. This is deferred mitigation with no true commitment and no measurement standards.)

WR-2.7 Industrial and Agricultural Sources

The County shall work with agricultural and industrial concerns to ensure that water contaminants and waste products are handled in a manner that protects the long-term viability of water resources in the County. (In what manner will this be handled? How does "working with" agricultural and industrial concerns guarantee water quality? This is weak, deferred mitigation with no true commitment and no measurement standards.)

WR-2.8 Point Source Control

The County shall work with the Regional Water Quality Control Board . . . (Where is the true commitment to clean water? Why hasn't the County adopted Low Impact Development measures and maintained levees and created basins into which to divert floodwaters? This is deferred mitigation with no true commitment and no measurement standards.)

Implementation Measure 6

(We've already commented on this confused, counter-productive measure above.)

WR-2.9 Private Wells

The County shall ensure that private wells are adequately constructed to provide protection from bacteriological and chemical contamination and do not provide a hazard as to contaminate the aquifer. (What does this mean? What

are the performance standards? No one from the County inspects private wells during construction. This is deferred mitigation with no true commitment and no measurement standards.)

Implementation Measure 17

(We have already commented on this above.)

WR Implementation Measure 14

Groundwater and soil conditions shall be identified prior to subdividing (on) road and building construction and such development properly engineered to control or avoid potential landslides in areas of unstable soil, as well as to prevent unnecessary substantial amounts of soil erosion. (Cut-and-fill grading on slopes an average of 30° create steeper gradients and loose unstable soil. This is what will happen on the Yokohl Ranch project and other hoped-for planned communities in the foothills and mountains. As stated before, "unnecessary substantial amounts of soil erosion" is an outrageously low standard. Yokohl Ranch project intends to build on a large landslide. GEOCON engineering recommended removal of large amounts of debris and shoring up the remaining loose material. This sounds like a recipe for disaster regarding soil erosion, stormwater runoff and septic systems. Simply identifying soil conditions doesn't prevent unwise construction in an unfavorable environment. There is no true commitment here or measurement standards.)

WR Implementation Measure 16

The County shall consider expanding the role of the Water Commission to examine contaminant management in cooperation with the agricultural community and industrial interests. (Carole Clum has attended all Tulare County Water Commission meetings since its inception. They have accomplished nothing. Some members heatedly deny there is a water quality problem in Tulare County. Some of the members care nothing for residential water quality problems. They resist the development and adoption of a strong well ordinance and groundwater monitoring. This is a worthless promise.)

WR Implementation Measure 17

The County shall amend the well ordinance to require deeper seals. (This is inadequate. Requiring deeper seals in areas of known groundwater contamination doesn't solve the contamination problem. Prohibit wells in these areas. Is the County checking for groundwater contamination? No. Does the County know the depth of contamination? No. Is the County tracking plumes of contamination in groundwater? No. This is a feeble attempt to guard against well water contamination.)

Policies designated to minimize water quality impacts associated with stormwater, water, and wastewater utility infrastructure needed to serve existing and planned urban areas include:

ERM-5.7 Public Water Access

The County shall give a high priority . . . shall be encouraged . . . special consideration should be given . . . (Hogwash. The policy dates to the 1964 General Plan and it refers to a goal or policy that doesn't exist in this document. This is deferred mitigation with no true commitment and no measurable standards.)

ERM-7.3 Protection of Soils on Slopes

Unless otherwise provided for in this General Plan, building and road construction on slopes of more than 30 percent shall be prohibited, and development proposals on slopes of 15 percent or more shall be accompanied by plans for control or prevention of erosion, alteration of surface water runoff, soil slippage, and wildfire occurrence. (This policy allows development on slopes greater than 30°. In the Foothill Growth Management Plan, roads and buildings are allowed on an average of 30 degree slopes. This is hardly protection from soil erosion. The policy offers no standards for measurement. It is not a true commitment. Where is the commitment to Low Impact Development? This policy was written to allow cut-and-fill development even on steep slopes in the Yokohl Ranch development. It should read "prohibits development on 30° or more slopes. What are the standards for control or prevention of erosion? It also refers to the ERME element that doesn't exist in this GPU.)

Implementation Measure 52

The County shall adopt standards . . . in 2010-2015. (What will those standards be? This is deferred mitigation with no true commitment and no measurement standards.)

Implementation Measure 53

(Already commented on above.)

FGMP-8.2 Development of Drainage Patterns

The County shall assure that drainage patterns of foothill developments are designed to prevent contamination and sedimentation due to soil erosion. (Exactly how will the county do this? What standards will be adopted? This is weak mitigation with no true commitment and no measurement standards.)

Implementation Measure 29

The County shall require submission of a drainage plan with development projects in conjunction with site plan review. (What are the standards development is to be held to? This Implementation Measure refers to the 1981 Foothill Growth Management Plan. We have a new FGMP in this 2010 GPU. This is deferred mitigation with no true commitment and no measurement standards.)

FGMP-8.4 Development of Wastewater Systems

No comment.

FGMP-8.6 Development in the Frazier Valley Watershed

The County shall ensure that projects proposed in the Frazier Valley watershed portion of the Tule River Development Corridor do not aggravate the downstream flooding problem by generating additional runoff from the project site. (This is deferred mitigation with no true commitment and no measurement standards.)

Implementation Measure 24

Drainage plans shall be required for all projects within the "Foothill Mixed Use" areas of Frazier Valley . . . (What standards for drainage plans will be adopted? The words "prohibit additional stormwater discharge from project that would aggravate downstream flooding problems" sound like zero runoff into the stream. The County has no policy for this. Why can't this standard be applied to all development projects?)

HS-5.8 Road Location

The County shall plan and site new roads to minimize disturbances to banks and existing channels and avoid excessive cuts and accumulations of waste soil and vegetative debris near natural drainage ways. [ERME; Water; Issue 4; Recommendation 1, Modified] [ERME; Pg 28]. (This reference is to the old General Plan and does not exist in this GPU. What are the measurement standards? What is the definition of an "excessive cut"?)

No Implementation Measure

HS-5.9 Floodplain Development Restrictions

The County shall ensure that riparian areas and drainage areas within 100-year floodplains are free from development that may adversely impact floodway capacity or characteristics of natural/riparian areas or natural groundwater recharge areas. (The best way to do this is to not build in these areas. What an empty promise. This is deferred mitigation with no true commitment and no measurement standards.)

No Implementation Measure

PF-5.2 Criteria for New Towns (Planned Communities)

(This is a very long policy with no performance standards for drainage, sewage and wastewater treatment facilities. This is a lengthy promise with no true commitment and no measurement standards.)

No Implementation Measure

PFS-3.5 Wastewater System Failures

The County shall require landowners to repair failing septic tanks, leach field, and package systems that constitute a threat to water quality and public health or connect to an existing community system . . . (This will be a challenge for the County since it doesn't monitor individual wastewater systems. Most people don't know or care if their septic tank or leach field fails and they will hardly notify the County. In most rural areas there is no existing community system to hook up with. The County gives people permits to build homes and septic systems very close to riparian zones now. This policy is meaningless and not enforceable, an empty promise.)

No Implementation Measure

PFS-3.6 Care of Individual Systems

The County shall promote and support programs to educate homeowners . . . (This is deferred mitigation with no true commitment and no measurement standards.)

Implementation Measure 6

The County shall prepare and distribute information on the care and maintenance of private sewage disposal systems. (Don't know if this has been done. Never seen a pamphlet. It is described as both a new policy and on-going.)

PFS-4.1 Stormwater Management Plans

The County shall consider the preparation and adoption of stormwater management plans for communities and hamlets . . . ("Shall consider" sinks this policy. This is deferred mitigation with no true commitment and no measurement standards.)

Implementation Measure 8

The County shall consider financial tools to prepare and implement drainage plans . . . ("Shall consider" shows no true commitment. This is listed as on-going.)

PFS-4.3 Development Requirements

The County shall encourage project designs that minimize drainage concentrations and impervious coverage, avoid floodplain areas, and where feasible, provide a natural watercourse appearance. (What a lie. Elsewhere in the GPU "clustered" development is allowed in floodplains; there is no limitation of impervious coverage; there are no standards for reducing or eliminating stormwater runoff or soil erosion or sedimentation. "Shall encourage" shows no true commitment. This is a deferred mitigation with no measurement standards. "Appearance" is not the point. The idea is to retain the natural hydrological drainage patterns.)

No Implementation Measure

PFS-4.4 Retention Facilities

The County shall require on-site detention/retention facilities and velocity reducers when necessary to maintain existing (pre-development) storm flows and velocities in natural drainage systems. The County shall encourage the multi-purpose design of these facilities to aid in active groundwater recharge. (This is deferred mitigation with no true commitment and no measurement standards.)

No Implementation Measure

PFS-4.5 Detention/Retention Basins Design

The County shall require that stormwater detention/retention basins be visually unobtrusive and provide a secondary use, such as recreation, when feasible. (This is deferred mitigation with no true commitment and no measurement standards.)

No Implementation Measure

PFS-4.6 Agency Coordination

The County shall work with the Army Corps of Engineers and other appropriate agencies to develop stormwater detention/retention facilities . . . (This is deferred mitigation with no true commitment and no measurement standards.)

No Implementation Measure

PFS-4.7 NPDES Enforcement

(Already commented on this policy above.)

No Implementation Measure

WR-1.9 Collection of Additional Surface Water Information

The County shall support . . . (Already commented on this policy above.)

WR-2.1 Protect Water Quality

All major land use and development plans shall be evaluated . . . as necessary . . . (This is listed as a new policy but the reference to ERME element which does not exist in this GPU or the 2008 GPU shows it is an old General Plan element. Apparently this policy hasn't worked well since there is so much groundwater contamination. Why does this GPU only intend to evaluate "major" land use and development plans? This is deferred mitigation with no true commitment and no standards of measurement.)

Implementation Measures 2, 4, 5, 7, 8, 17

(Already commented on these implementation measures above.)

WR-2.2 National Pollutant Discharge Elimination System Enforcement

(Already commented on this policy above.)

WR-2.3 Best Management Practices (BMPs)

The County shall continue to require the use of feasible BMPs and other mitigation measures designed to protect surface water and groundwater from adverse impacts . . . (This is inconsistent with earlier policies. There is no requirement to employ Low Impact Development techniques in new development. This is deferred mitigation with no true commitment and no measurement standards.)

Implementation Measures 12, 14

(Already commented on above.)

WR-2.4 Construction Site Sediment Control

(Already commented on above.)

WR-2.5 Major Drainage Management

(Already commented on above.)

WR-2.6 Degraded Water Resources

The County shall encourage and support . . . (This is deferred mitigation with no true commitment and no measurement standards.)

WR-2.7 Industrial and Agricultural Resources

The County shall work with . . . (This is deferred mitigation with no true commitment and no measurement standards.)

WR-2.8 Point Source Control

The County shall work with . . . (This is deferred mitigation with no true commitment and no measurement standards.)

WR-2.9 Private Wells

The County shall ensure that private wells are adequately constructed to provide protection from bacteriological and chemical contamination and do not provide a hazard as to contaminate the aquifer.
(The County does not inspect private well drilling or construction so how is the County going to ensure they provide protection from bacteriological and chemical contamination . . . ? This is deferred mitigation with no true commitment and no measurement standards.)

WR-10 Diversion of Surface Water

. . . should be prevented . . . (This is deferred mitigation with no true commitment and no measurement standards.) When a Supervisor was notified by an irate resident that unreasonable and non-beneficial amounts of surface water had been diverted by a ditch company, causing the river to dry up for $1\frac{1}{2}$ miles in length, no action was taken.)

WR Implementation Measures 14, 16, 17

See comments above.

FGMP Implementation Measure 33

. . . shall consider . . . (This is deferred mitigation with no true commitment and no measurement standards. What does a financing plan have to do with diversion of surface water?)

PFS Implementation Measures 1, 2

No comment.

PFS Implementation Measures 3,7

(This is deferred mitigation with no true commitment and no measurement standards. Development and adoption of impact fees won't occur until 2010-2015. The County shall consider in 2010-2015 restricting the number of lots allowed with septic tanks and leachfields.)

The above policies and implementation measures are meaningless, deferred mitigation which will not improve water quality or waste discharge. There are no standards for measurement of success. With the level of development permitted by this General Plan, there will be a considerable decline in water quality which will affect the health and welfare of the residents of Tulare County. See attachment 20, James May's Presentation to Tulare County Water Commission on Stormwater.

What is the effect on public health of this General Plan Update?

At the April 26, 2010 Tulare County Water Commission Dennis Keller of Keller-Wegley civil engineering company in Visalia spoke about testing of Mill Creek (for the Kaweah sub watershed of Southern San Joaquin Valley Water Coalition) for adverse chemicals as part of the Irrigated Lands Program. He said they don't know where all the contamination comes from. He suspects multiple discharges to the irrigation channel from point and non point sources (like the Visalia wastewater treatment plant, Highway 99 runoff, and railroad line runoff. Meanwhile $12,000-20,000 a month is being spent on water testing and Mill Creek is being held responsible for contaminated water (some of which came from upstream sources) by the Regional Water Quality Control Board. Supervisor Allen Ishida commented that these were unintended consequences of the Irrigated Lands Program.

On April 29, 2010 Dennis Keller told me that in Tulare County stormwater runoff is captured, but not treated, and diverted to groundwater recharge, natural channels, and captured and reused by farmers like the Modoc Ditch Company which has a contract with the city of Visalia for a portion of its storm drain water. Denis Keller is an at-large-member of the Tulare County Water Commission. His firm, Keller-Wegley, consults with public agencies, water districts, irrigation districts, CSDs, and cities.

At the Tulare County Water Commission session April 26, 2010, Commissioner Chris Kapheim stated Alta Irrigation District has issues with stormwater. The County discharges stormwater runoff at 50-60 locations in Alta Irrigation District. He said cities and communities should put their stormwater into ponds. The minutes of that meeting can be found on the Tulare County website.

Impact
3.6-2

Impact 3.6-2 The proposed project would result in impacts to groundwater supply recharge, and secondary impacts to groundwater resources

CEQA Environmental Quality Act 2010 Statute and Guidelines wording for this impact is:

Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the groundwater table level (e.g. the production rate of nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted.)?

What is the County's rationale for dumbing down this impact? It should be clear to the reader that this impact addresses depletion of groundwater supplies, lowering the groundwater table and negatively impacting neighbors' wells. This is extremely serious in the critically overdrafted Tulare Lake Basin.

Impact Summary

Level of Significance Before Mitigation: Potentially Significant
Required Additional Mitigation Policies and Implementation Measures: None Available
Resultant Level of Significance: Significant and Unavoidable

Carole Clum's comments and enclosures dated April 14, 2008, submitted on the January 2008 DEIR, pages 24 through 72 are expressly adopted here.

Impact Analysis

The Tule, Kaweah and Kings sub-basins are in a "critical condition of overdraft" and have been since 1980, according to the State Dept. of Water Resources. Land subsidence has occurred in Tulare County limiting the storage capacity of the aquifer. The proposed development permitted by the GPU would result in an increased demand on groundwater. Wells have been going dry in the County. Deeper wells lead to increased pumping expenses (and more GHG emissions), impacts to water quality (increased concentration of contaminants) and subsidence which can permanently decrease the storage capacity of the aquifer. Such impacts are not limited to the portions of the basin directly underlying the water user responsible for the overdraft but can impact neighboring users as well. The

County cannot make the assumption that future State mandated water efficiencies will offset increased use of water by a larger population. The County itself refuses to mandate water conservation measures. The County also cannot assume agricultural water conversion to urban uses will create a surplus water supply. It's likely with climate change agriculture will have a higher water demand because of a longer, drier growing season and increased evaporation and transpiration. There is not enough grant money to fund a groundwater management plan.

In the Public Services, Recreation and Utilities Section 3.9 of the RDEIR on page 3.9-17 is the same table (Summary of Domestic Water Supply Conditions for Unincorporated Communities in Tulare County) with exactly the same Domestic Water Service Providers and their Facilities' Ability to serve General Plan Population Growth that appeared in the 2008 DEIR page 4-107, Table 4-5. Supposedly discussions were held with those service providers . . . in order to complete the table" in 2006 and 2007. Carole Clum called the managers and maintenance people of each of these water service providers in January and February of 2008 to fact check their ability to provide adequate water, to find out if they had well water that was not safe drinking water and if they had infrastructure problems (sewer hookup moratorium, leaking pipes, leaking tanks, needed grants to repair infrastructure or drill another well and so on). Carole Clum refuted the conclusions of this table in detail in her comments on the 2008 DEIR. These are substantial environmental concerns. The County has not responded to them. That is a CEQA violation.

If the unincorporated communities are struggling <u>now</u> to serve their residents, how will they cope with large increases in population? Many of these communities are poor.

There are many demands on groundwater in Tulare County now and there will be more in the proposed development. There is heavy groundwater pumping by the 324 Tulare County dairies and those in adjacent Kings, Kern, and Fresno counties. The owner of Consolidated Testing, an industrial well driller, told Carole Clum most of his customers were dairymen who are drilling more and deeper wells. The Supervisors are encouraging industries, including food processors and biofuel plants which are big water users, to locate in Tulare County in the following 25 policies:

General Plan Policy AG-2.5	High-Value-Added Food Processing
General Plan Policy AG-2.6	Biotechnology and Biofuels

General Plan Policy ED-2.11	Industrial Parks
General Plan Policy LU-2.6	Industrial Development
General Plan Policy LU-5.1	Industrial Developments
General Plan Policy LU-5.2	Industrial Park Developments
General Plan Policy C-1.2	Urban Corridor Plans
General Plan Policy C-1.4	Regional Growth Corridor Plans
General Plan Policy C-1.5	Agricultural Enterprises
General Plan Policy C-1.6	Regional Growth Corridor Opportunity Areas
General Plan Policy C-1.7	Highway 99 Valley Corridor
General Plan Policy C-1.8	Commercial and Industrial Highway Growth
General Plan Policy FGMP-1.7	Commercial Recreation
General Plan Policy FGMP-1.9	Light Industrial Uses
General Plan Policy FGMP-1.12	Legally Conforming Commercial Uses
General Plan Policy M-1.10	Mix of Uses
General Plan Policy M-1.2	Plan Guidance
General Plan Policy M-1.15	Commercial Services
General Plan Policy M-1.16	Outlying Commercial Service
General Plan Policy M-1.17	Commercial Design Review
General Plan Policy M-1.18	Low Intensity Recreation
General Plan Policy M-1.26	Recreation-Oriented Uses
General Plan Policy M-1.27	Commercial Strips
General Plan Policy M-1.28	Mountain Service Areas
General Plan Policy M-1.30	Existing Land Use Designation

Mitigating Policies and Implementation Measures

Policies designed to minimize groundwater impacts through the early identification of required infrastructure and the orderly construction and rehabilitation of the facilities needed to serve existing and planned urban areas include the following policies:

WR-1.1 Groundwater Withdrawal

The County will cooperate . . . to help promote . . . (Hogwash. This is deferred mitigation with no true commitment and no measurement standards.)

WR-1.2 Groundwatering Monitoring

The County shall support . . . (This is deferred mitigation with no true commitment and no measurement standards.)

WR-1.3 Water Export Outside County

The County shall regulate the permanent export of groundwater and surface water resources . . . The County shall strive for no net loss." (This is a disastrous policy. Striving for "no net loss" doesn't show a strong commitment. It's not clear the County has control over export of water, permanent or temporary. Clearly we can't afford to lose any water. This is deferred mitigation with no true commitment and no measurement standards.)

WR-1.4 Conversion of Agricultural Water Resources

For new urban development, the County shall discourage the transfer of water used for agricultural purposes (within the prior ten years) for domestic consumption including but not limited to the following:

- The water remaining for the agricultural operation is sufficient to maintain the land as an economically viable agricultural use

- The reduction in infiltration from agricultural activities as a source of groundwater recharge will not significantly impact the groundwater basin.

(The "but not limited to" is worrisome. The Tulare Basin has been in a condition of critical overdraft at least since 1980. Removing water from agricultural land would greatly reduce its value as an agricultural operation. More groundwater pumping would occur, lowering the water table farther, or the land would be good only for dry land wheat farming. Much water in irrigation channels and on the crop land percolates into the aquifer. Remove that water and you remove groundwater recharge. Any loss of that recharge will impact the groundwater basin. Finally, who decides what is a significant impact? What measurement standards will be used? This is deferred mitigation with no true commitment and no measurement standards.)

WR-1.5 Expand Use of Reclaimed Wastewater

. . . The County shall seek opportunities . . . (This is deferred mitigation with no true commitment and no measurement standards.)

WR-1.6 Expand Use of Reclaimed Water

The County shall encourage . . . (There is no Implementation Measure for this. It is clearly another empty promise. This is deferred mitigation with no true commitment and no measurement standards.)

WR-1.7 Collection of Additional Groundwater Information

(This is proceeding at a snail's pace in the Tulare County Water Commission. This is deferred mitigation with no true commitment and no measurement standards.)

WR-1.8 Groundwater Basin Management

The County shall take an active role . . . (This is deferred mitigation with no true commitment and no measurement standards.)

WR-3.2 Develop an Integrated Regional Water Plan

The County will participate with other agencies . . . and implement appropriate Water Management Plans within the County. (This is deferred mitigation with no true commitment and no measurement standards.)

WR-3.6 Water Use Efficiency

The County shall support education programs . . . (This is deferred mitigation with no true commitment and no measurement standards. Why not mandate water use efficiency?)

WR-3.9 Establish Critical Water Supply Areas

The County shall designate Critical Water Supply Areas . . . (This is deferred mitigation with no true commitment and no measurement standards.)

WR-3.10 Diversion of Surface Water

Diversions of surface water or runoff from precipitation should be prevented . . . (This is deferred mitigation with no true commitment and no measurement standards. Even if water available for groundwater recharge is reduced, the best the County can do is "should." This shows a real failure to confront appropriative rights and ditch companies.)

WR-3.4 Water Resources Planning

The County shall continue participating . . . (This is deferred mitigation with no true commitment and no measurement standards.)

WR-3.7 Emergency Water Conservation

The County shall develop an emergency water conservation plan . . . (The County's plan is a list of priorities. This is totally inadequate. This is deferred mitigation with no true commitment and no measurement standards.)

WR-3.8 Education Programs

The County shall encourage the development . . . (This is deferred mitigation with no true commitment and no measurement standards.)

WR-3.11 Policy Impacts to Water Resources

The County shall monitor actions taken at State and federal level . . .

All of the above policies and mitigation measures are weak, unenforceable and ineffective. "No additional feasible mitigation is currently available," page 3.6-47 in the RDEIR.

There are many effective mitigation measures that would conserve water:

1. Complying with AB 162 (creating water recharge basins to catch floodwaters)

2. Mandating drought tolerant landscaping, drip irrigation, and heavy mulching in all new development

3. Enforcing AB 1881 Model Water Efficient Landscape Ordinance (MWELO)

4. Providing incentives to replace lawns in existing development with drought tolerant landscaping and drip irrigation

5. Mandating the most water efficient showerheads, washing machines, dishwashers, toilets and hot water heaters in all new development

6. Providing incentives for replacing water inefficient appliances in older homes, especially in disadvantaged communities

7. Requiring new development to offset their water demand 2:1

Impact
3.6-3

Impact 3.6-3 The proposed project could substantially alter the existing drainage pattern of the area, including the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding.

The Yokohl Ranch Project Initial Study lists the project's impact on altering existing drainage pattern of the site or area, including through the alteration of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site as Potentially Significant.

Impact Summary

Level of Significance Before Mitigation: Less than Significant
Required Additional Mitigation Policies and Implementation Measures: None required
Resultant Level of Significance: Less than Significant

Impact Analysis

Since permeable pavement, driveways, sidewalks, roads and parking lots, bio-swales and all the other Low Impact Development measures recommended by the Department of Water Resources are not mandated for new development which will be permitted all over the County, there will be greatly increased amounts and speed of runoff. The RDEIR does not even consider the runoff created on 30° and greater slopes in the foothills and mountains. Grading for roads, homes, industry, commerce and planned communities loosens soil and leaves it vulnerable to erosion. Cut-and-fill grading creates even steeper slopes. Vegetation including trees will be removed. There will be siltation in streams and reservoirs and increased flooding. Silt will accumulate in Lake Kaweah, Lake Success and other dams and lakes. These bodies of water will not be able to hold as much water when spring rains bring heavier flows due to Climate Change. How can the resultant level of significance be less than significant? It defies reason. What is the RDEIR's threshold for significance?

According to the RDEIR in the Executive Summary on page ES-19, the GPU would have Significant and Unavoidable adverse impacts on 100-year flood risk to people and structures and on dam and levee failure which would expose people or

structures to risk from flood hazards. Where would the floodwaters come from? 80-86% of the precipitation in Tulare County falls in the foothills and mountains. One third of Tulare County is flat valley. Two thirds of the county is foothills or mountains. The valley receives 6-12" of precipitation per year (a valleywide average of 10" of precipitation). The foothills receive an average of 15" of precipitation a year. The mountains receive an average of 50" of precipitation per year. An average of both is 30". By any calculation, 80-86% of the total precipitation falling in Tulare County falls in the foothills and mountains. See attachment 21, NOAA's Western Regional Climate Center data. Since the foothills and mountains comprise 2/3 of the area of Tulare County, the gradient is much steeper, the rainfall far heavier, and the runoff much greater, the impact in the foothills and mountains outweighs the impact in the valley.

As these floodwaters are coursing downslope, they will create erosion and stormwater runoff on slopes "an average of 30°" which have been extensively graded for roads, housing, resorts, industry, commercial recreation and New Towns and which have very extensive impervious surfaces. The siltation carried into the streams and rivers along with pollution from industry, automobiles, gardens, and golf courses will degrade water quality. The stormwater runoff will accelerate across paved areas on slopes and become warmer. Stormwater drainage systems will be overwhelmed. Development on the scale proposed by the GPU will substantially increase polluted runoff. New Town development will alter the existing drainage pattern of the foothills. The Yokohl Ranch project NOP/IS states it intends to alter the channel and course of Yokohl Creek and perhaps other streams. This New Town has planned cut-and-fill grading on slopes initially an average of 30°. How could this not substantially increase erosion, surface runoff, and on-site and off-site flooding? Flooding in the valley and behind dams starts as intense rain on foothill and mountain slopes.

The proposed Yokohl Ranch Project which covers 14,400 acres and will undergo extensive and intensive grading and which will accommodate 29,095 residents accounts for 37% of projected population growth in the unincorporated areas of the county. Its buildout is 20-30 years according to the Yokohl Ranch Project NOP/IS. The Yokohl developers expect to get approval in November or December 2010. So it is potentially entirely within the scope of the GPU 2030. Together with other development proposed for the foothills and mountains, it will account for most of the development in the unincorporated areas. As previously mentioned, the Yokohl Ranch Project NOP/IS considers Potentially Significant its impact on drainage patterns, stream alteration, soil erosion and siltation. How does the

County come up with a Less than Significant finding for this impact? What is your threshold of significance?

Seemingly at the buildout of the GPU stormwater runoff, soil erosion, and siltation would be much less in the valley than in the foothills and mountains. However, a lot of development is proposed in the development boundaries of incorporated cities, unincorporated communities, hamlets, 10 transit corridors, the Rural Valley Lands Plan and valley portions of the Foothill Growth Management Plan. There would be a great increase in impervious ground cover. The RDEIR does not mandate the capture and detention of stormwater runoff, as recommended by the Central Valley Water Quality Control Board's Low Impact Development measures.

Neither Low Impact Development nor any other form of capture and detention of stormwater close to where rain falls is mandated in the RDEIR. In the foothills and mountains building is permitted on "an average of 30° slopes" which could be graded using cut-and-fill techniques which would render the slopes steeper. Serious stormwater runoff, soil erosion, and siltation are inevitable in the foothills and mountains. See attachment 17, Letter to Supervisors.

Climate change has not been taken into account. More intense storms have been predicted. They would create greater stormwater runoff, soil erosion and siltation.

Impact 3.6-1 (Water quality), Impact 3.6-3 (alteration of drainage patterns/ erosion/siltation) and Impact 3.6-4 (polluted runoff or exceeding capacity of drainage) cannot be Less than Significant. It is not logical. It seems a political decision was made here.

In the RDEIR, 3.4 Energy and Global Climate Change, Wildland Fire Hazards page 3.4-19, "Studies indicate that there is a potential for significant increases in the number of fires escaping initial attack, particularly in areas in which the fuels are dominated by grass and brush. These studies indicate that subtle shifts in fire behavior of the sort that might be induced by the climate changes anticipated for the next century are of sufficient magnitude to result in an increase in the number of fires in areas where brush fuels dominate . . ." These areas are the foothills of Tulare County. Wildfire in the foothills would result in denuded slopes which during intense storms predicted by Climate Change would erode and produce increasing peak runoff volumes.

What are the criteria for finding the GPU's impact on soil erosion and siltation Less than Significant? This finding flies in the face of common sense.

FGMP-8.2 Development of Drainage Patterns

The County shall assure that drainage patterns of foothill developments are designed to prevent contamination and sedimentation due to soil erosion.
(This policy references the 1981 FGMP which will be superseded by the 2010 FGMP. The County has given a promise here with no standards for achieving it. This shows no true commitment and is deferred mitigation.)

Implementation Measure 29

The County shall require submission of a drainage plan with development projects in conjunction with site plan review.
(Where are the standards to be complied with? It should be capture and detention of stormwater on-site as close to where rain falls as possible. This is a lame implementation measure.)

FGMP-8.6 Development in the Frazier Valley Watershed

The County shall ensure that projects proposed in the Frazier Valley watershed portion of the Tule River Development Corridor do not aggravate the downstream flooding problem by generating additional runoff from the project site.
(This policy could be improved by requiring capture of all runoff from the project site. Obviously flooding was a problem downstream of Frazier Valley in 1981 when this policy was written for the 1981 Foothill Growth Management Plan. By not allowing runoff from a project's site, that would decrease the amount of runoff post construction, therefore decreasing potential for flooding.)

Implementation Measure 24

Drainage plans shall be required for all projects within the "Foothill Mixed Use" areas of Frazier Valley . . .
(There should be measurement standards and Low Impact Development measures required.)

HS-5.9 Floodplain Development Restrictions

The County shall ensure that riparian areas and drainage areas within 100-year floodplains are free from development that may adversely impact floodway capacity or characteristics of natural/riparian areas or natural groundwater recharge areas.
(What is the County's definition of adverse impact in this case? Any development in a floodplain can divert floodwaters in an unpredictable way. Every structure built in a floodplain will displace floodwaters and raise the base elevation of the flood. There need to be measurement standards now.)

No Implementation Measure

PF-5.2 Criteria for New Towns

(This is a very long policy we do not intend to copy. It requires a drainage plan as part of the master infrastructure plan but there are no standards, no threshold of significance for erosion or siltation. As such it is deferred mitigation with no true commitment.)

No Implementation Measure

PFS-1.3 Impact Mitigation

The County shall review development proposals for their impacts on infrastructure (for example, sewer, water, fire stations, libraries, streets, etc. New development shall be required to pay its proportionate share of the costs of infrastructure improvements required to serve the project to the extent permitted by State law. The lack of available public or private services or adequate infrastructure to serve a project, which cannot be satisfactorily mitigated by the project, may be grounds for denial of a project or cause for the modification of size, density, and/or intensity of the project.
(The County intends to review projects for impact mitigation. What standards will they use? Will on-going operating expenses or maintenance (of roads, fire stations, sheriff's stations, libraries, etc.) be included when impact fees are developed? Who makes the decision? There are no impact fees for infrastructure now. For over three years the County has said they are working on it. Recently, the Supervisors said they would be spelled out in the General Plan Update. Guess

what? They're not. This is deferred mitigation with no true commitment and no measurement standards.)

No Implementation Measure

PFS-4.1 Stormwater Management Plans

The County shall consider the preparation and adoption of stormwater management plans for communities and hamlets to reduce flood risk, protect soils from erosion, control stormwater, and minimize impacts on existing drainage facilities, and develop funding mechanisms.
(How can this be merely a consideration? It is all important to control stormwater runoff on site considering the magnitude of development and its inevitable impervious surfaces proposed by this GPU. This is deferred mitigation with no true commitment and no measurement standards. Adopt Low Impact Development measures for all new development.)

Implementation Measure 8

The County shall consider financial tools to prepare and implement drainage plans such as drainage acreage fees . . .
(Instead of considering financial tools, mandate capture and retention on-site of all rainfall as a condition for a development permit.)

PFS-4.2 Site Improvements

The County shall ensure that new development in UDBs, UABs, Community Plans, Hamlet plans . . . includes adequate stormwater drainage systems. This includes adequate capture, transport, and detention/retention of stormwater.
(What is "adequate"? What are the measurement standards? In Tulare County stormwater is directed to irrigation channels, stream beds, and water retention basins. Polluted runoff is entering groundwater and irrigating crops. Why not capture it where it falls, infiltrate it into the ground in vegetated swales, filtering it through the roots and recharging the groundwater? LID measures are cost effective and eliminate stormwater runoff and soil erosion.)

Implementation Measure 3

The County shall develop and adopt an impact fee program for new development to provide financing mechanisms to ensure the provision, operation, and on-going maintenance of appropriate public facilities and services.
(We guess this pertains to stormwater treatment plants. There are none in Tulare County at this time. Why not mandate Low Impact Development measures for all new development? Then the new development would not have to pay for storm drains or a stormwater treatment plant.)

PFS-4.3 Development Requirements

The County shall encourage project designs that minimize drainage concentrations and impervious coverage, avoid floodplain areas, and where feasible, provide a natural watercourse appearance.
("Shall encourage" needs to be replaced by "shall require." "Where feasible" needs to be eliminated. The point of preserving pre-construction hydrological patterns of drainage is successful drainage and recharge. "A natural watercourse appearance" may not achieve that. There is no true commitment here to curtail stormwater runoff and soil erosion.)

No Implementation Measure

PFS-4.7 NPDES Enforcement

The County shall continue to monitor and enforce provisions to control non-point source water pollution contained in U.S. EPA National Pollution Discharge Elimination System (NPDES) program.
(Who monitors non-point sources? Where do they monitor and with what frequency? What constitutes enforcement? Since there is no Implementation Measure it's hard to know how effective this promise is.)

PFS Implementation Measure 7

The County shall consider in 2010-2015 amendments to the Subdivision Ordinance to restrict the number of lots allowed with septic tank and leach line systems, and review and upgrade the standards for such systems.
(It's hard to believe the County is serious about this. First, the words "shall consider" and "in 2010-2015" sounds like deferred mitigation. The fact that almost

every house, business, and industry in the unincorporated areas of the County is on a septic tank and leach field because there are almost no wastewater treatment plants makes this mitigation highly unlikely.)

WR-1.9 Collection of Additional Surface Water Information

The County shall support the additional collection of water quality and flow information for the County's major drainages as part of project approvals.
(The County needs to require this and impose strict standards for the information gathering. Better yet, the County should pay for this to be done. Surely the Kaweah Water Conservation District which covers much of the valley portion of Tulare County could collect this information. The Tule Irrigation District is a natural choice too. In the foothills the Three Rivers CSD and in Springville the utility district (SPUD) could do the work. Sequoia and Kings Canyon National Parks as well as Sequoia National Forest are probably already collecting this information. What is the County waiting for?)

WR-2.1 Protect Water Quality

All major land use and development plans shall be evaluated as to their potential to create surface and groundwater contamination hazards from point and non-point sources. The County shall confer with other appropriate agencies, as necessary, to assure adequate water quality review to prevent soil erosion; direct discharge of potentially harmful substances; ground leaching from storage of raw materials, petroleum products, or wastes; floating debris; and runoff from the site.
(What a weak, weaselly policy. There is no true commitment here. If all development were required to capture and retain all stormwater close to where it falls using DWR recommended Low Impact Development measures there would be almost no runoff or soil erosion.)

Implementation Measure 12

Development projects involving drainage alterations shall be constructed to minimize soil erosion and silt transport.
(Change "minimize" to avoid." Otherwise we are left to guess what "minimize" means. There is no true commitment here.)

Implementation Measure 14

Groundwater and soil conditions shall be identified prior to subdividing or road and building construction and such development properly engineered to control or avoid potential landslides in areas of unstable soil, as well as to prevent unnecessary substantial amounts of soil erosion.
(Talk about setting low standards. Yokohl Ranch project proposes to build housing on a large landslide according to the GEOCON engineering report (Report of Geotechnical Evaluation for Environmental Impact Report Yokohl Ranch, Tulare County, California August 20, 2007). Do you think this implementation measure is designed to accommodate that New Town? The County should require new development avoid all soil erosion. Take care of the residents and farmers downslope and downstream.

WR-2.2 National Pollutant Discharge Elimination System Enforcement

The County shall continue to support the State in monitoring and enforcing provisions to control non-point source water pollution contained in the U.S. EPA NPDES program . . .
(How will the County support this program? The only Implementation Measure for this policy is the miserably inadequate Implementation Measure 14 which we critiqued immediately above. There is no true commitment and no measurement standards.)

WR-2.3 Best Management Practices (BMPs)

The County shall continue to require the use of feasible BMPs and other mitigation measures designed to protect surface water and groundwater from the adverse effects of construction activities and urban runoff in coordination with the Water Quality Control Board.
(The County has failed to require BMPs highly recommended (Low Impact Development) by the Regional Water Quality Control Board. This is disingenuous. There is no commitment to this.)

Implementation Measure 12

Development projects involving drainage alterations shall be constructed to minimize soil erosion and silt transport.
(What are the standards of measurement? There is no true commitment here.)

Implementation Measure 14

(We have already commented on this Implementation Measure above.)

WR-2.4 Construction Site Sediment Control

The County shall continue to enforce provisions to control erosion and sediment from construction sites.
(It is already evident from previous policies that standards are indeterminate and weak. Enforcing them will not reduce erosion and sediment flow considering the massive proposed development of the GPU. They will increase.)

Implementation Measures 12, 14

(Inadequate.)

WR-2.5 Major Drainage Management

The County shall continue to promote protection of each individual drainage basin within the County based on the basin's unique hydrologic and use characteristics.
("Shall continue to promote shows little commitment. The County proposes to build with no strict erosion control or sediment flow or commitment to maintain pre-development hydrologic patterns.)

Implementation Measure 6

The County shall avoid destruction of established recharge sites through such means as clustering development to leave such areas in open space, avoidance of lining channels and streams, alteration of existing agricultural practices, or substitutions made of drainage methods that will transport polluted waters away from such sites.
(You avoid destruction and contamination of established recharge sites by NOT developing them. This implementation measure is not clear. It doesn't show true commitment. There are no measurement standards.)

WR-2.6 Degraded Water Resources

The County shall encourage and support the identification of degraded surface water and groundwater resources and promote restoration, where appropriate.
(This is weak and shows no true commitment. It is deferred mitigation. They don't want to know because they want to build everywhere.)

Implementation Measure 17

The County shall amend the well ordinance to require deeper seals in areas of known contaminants.
(Is the County searching for contaminated groundwater? No. Does the County prohibit wells in areas of known contaminants? No. What good will deeper seals be? How deep will these seals be? (This is deferred mitigation with no true commitment and no measurement standards.)

WR-2.7 Industrial and Agricultural Sources

The County shall work with agricultural and industrial concerns to ensure that water contaminants and waste products are handled in a manner that protects the long term viability of water resources in the County.
(What a bunch of bunk. What does "work with" mean? Will ag and industry police themselves? "Handled in a manner that protects the long term viability of water resources in the County" means what? What are the measurement standards? What are the short term contaminants? This worthless policy makes us want to spit tacks.)

No Implementation Measure

WR-2.8 Point Source Control

The County shall work with the Regional Water Quality Board to ensure that all point source pollutants are adequately mitigated (as part of the California Environmental Quality Act review and project approval process) and monitored to ensure long-term compliance.
(The County does little monitoring and enforcement. There is no true commitment here.)

No Implementation Measure

WR Implementation Measures 14, 16, 17

(Already commented on Implementation Measures 14 and 17.)

Implementation Measure 16

The County shall consider expanding the role of the Water Commission to examine contaminant management in cooperation with the agricultural community and industrial interests.
(The Water Commission has accomplished nothing since its inception. Domestic well records are being sought, not agricultural or industrial wells. It's slow going due to The Patriot Act and sloppy data keeping. No results yet. The Water Commission only wants to look at nitrate contamination. The State may force them to consider other contaminants.)

FGMP-8.7 Minimize Soil Disturbances

The County shall encourage cluster-type development, narrower road widths, and minimized cut and fill projects to minimize soil disturbances. New roads in the foothills should, whenever possible, conform to the natural contours of the existing foothill landscape.
(There is no commitment here and no standards of measurement. This policy seems to be written to make development as inexpensive as possible in the steep canyons of the Yokohl Ranch project.

Implementation Measure 25

The developer will be required to phase road construction to correspond with the phases of the development proposal.
(What has phasing of road construction got to do with soil erosion and sediment runoff?)

FGMP-8.8 Erosion Mitigation Measures

The County shall require erosion mitigation measures in new developments to prevent soil loss.
(What are these erosion mitigation measures? What are the standards?)

Implementation Measure 3

The County shall require a grading and slope stabilization plan for that portion of the development exceeding slopes of greater than 15 percent.
(What are the standards of measurement for the plan? Zero runoff and zero erosion? If the plan doesn't seem adequate, will the project be denied? Require Low Impact Development measures. Who will review the plan? No true commitment.)

FGMP-8.12 Vegetation Removal

The County shall prohibit unnecessary removal of native trees on development sites prior to approval of development plans to control erosion, preserve wildlife habitat, and maintain the natural character of developing area.
(The word "unnecessary" sinks this policy. What about removal of native trees after approval of project? This is deferred mitigation with no true commitment and no measurement standards.)

WR-2.3 Best Management Practices

(See comments above.)

FGMP-8.3 Development in the Floodplain

The County shall prohibit development of residences or permanent structures within the 100-year floodway. (Gosh, a real mandatory policy. Does the county think there are no 100-year floodplains in the foothills? Yokohl Creek has a 100-year floodplain. The County allowed homes and a motel in the floodplain in Three Rivers along Highway 198. There is no commitment to enforce this policy.)

No Implementation Measure

HS-1.4 Building and Codes

(Good policy required by State law.)

HS-1.5 Hazard Awareness and Public Education

The County shall continue to promote awareness and education among residents regarding natural hazards, including soil conditions, earthquakes, flooding, fire hazards, and emergency procedures.
(This shows no commitment. Why not prohibit development in hazardous places?)

HS-1.11 Site Investigations

(This is deferred mitigation with no true commitment and no measurement standards.)

HS-5.1 Development Compliance with Federal, State, and Local Regulations

The County shall ensure that all development within the designated floodway or floodplain zones conforms with FEMA regulations and the Tulare County Flood Damage Prevention Ordinance. New development and divisions of land, especially residential subdivisions, shall be developed to minimize flood risk to structures, infrastructures, and ensure safe access and evacuation during flood conditions.

(Chapter 27. Flood Damage Prevention ordinance of Tulare County allows unlimited development in the floodway or floodplain zones of homes and mobilehomes [in existing mobilehome parks or subdivisions] as long as the lowest beam of the lowest floor of the building is at or above peak flood level estimated by FEMA. Imagine a subdivision of homes built on raised aggregate foundations in a floodplain. Surely those foundations would displace a lot of floodwater and raise the water surface elevation of the base flood. Additionally, there are no restrictions on sheds, carports, fencing, vegetation, vehicles, picnic tables, etc. that could form barriers to floodwaters, be swept away onto someone else's property, or divert floodwaters down streets, increasing its velocity, and causing more damage. No one thought of cumulative effects when writing this ordinance. Or they decided to ignore them. Non-residential structures are allowed in the floodplain as long as they are flood-proofed up to the base flood elevation estimated by FEMA by one or more of the following:

(1) Installation of watertight doors, bulkheads, and shutters.
(2) Use of paints, membranes, or mortars to reduce seepage through walls.
(3) Addition of mass or weight to structure to resist flotation.
(4) Armour protection of all fill materials from scour and/or erosion.

There are no restrictions on construction materials.)

HS-5.2 Development in Floodplain Zones

(Part 3 allows development in floodplains of everything but critical facilities. No standards are given for development. Buildings could change flow of floodwaters and create worse flooding elsewhere, produce increased runoff, and soil erosion.)

HS-5.3 Participation in Federal Flood Insurance Program

(Mandatory.)

HS-5.4 Multi-Purpose Flood Control Measures

The County shall encourage multi-purpose flood control projects that incorporate recreation, resource conservation, preservation of natural riparian habitat, and scenic values of the County's streams, creeks, and lakes. Where appropriate, the County shall also encourage the use of flood and/or stormwater retention facilities for use as groundwater recharge facilities.
(Two "shall encourages" and one "where appropriate" show no commitment. This is deferred mitigation with no true commitment and no measurement standards.)

No Implementation Measure

HS-5.5 Development in Dam and Seiche Inundation Zones

The County shall review projects for their exposure to inundation due to dam failure. If a project presents a direct threat to human life, appropriate mitigation measures shall be taken, including restriction of development in the subject area. (Restricting development is only appropriate if there is a direct threat to human life? What are the other appropriate mitigation measures? Suppose there is only a threat of injury or loss of property? Who decides? What standards will he use? This is deferred mitigation with no true commitment and no measurement standards, and a very dangerous policy. "Shall review" does not require projects be examined for their impact on dam or seiche inundation zones.)

No Implementation Measure

HS-5.6 Impacts to Downstream Properties

The County shall ensure that new County flood control projects will not adversely impact downstream properties or contribute to flood hazards. (How will the County ensure this? What are the standards of performance? When does this begin? Who is in charge? The County intends to allow development in floodplains (HS-5.2) and below dams (HS-5.5). Areas that would be inundated by failing levees are not addressed. This is deferred mitigation with no true commitment and no measurement standards.)

No Implementation Measure

HS-5.7 Mapping of Flood Hazard Areas

The County shall require tentative and final subdivision maps and approved site plans to delineate areas subject to flooding during a 100-year flood event. (This is deferred mitigation with no true commitment and no measurement standards. The County must compare the subdivision site plan with its own FEMA 100-year floodplain map and not rely on the developer to do a good job.)

No Implementation Measure

HS-5.8 Road Location

The County shall plan and site new roads to minimize disturbances to banks and existing channels and avoid excessive cuts and accumulations of waste soil and vegetative debris near natural drainage ways.
(To what degree will the County "minimize" disturbances? What are the performance standards? What is the County definition of "excessive?" This is deferred mitigation with no true commitment and no measurement standards.)

No Implementation Measure

HS-5.9 Floodplain Development Restrictions

The County shall ensure that riparian areas and drainage areas within 100-year floodplains are free from development that may adversely impact floodway capacity or characteristics of natural/riparian areas or natural groundwater recharge areas. (Building in a groundwater recharge area blocks absorption of

floodwaters and percolation into groundwater recharge areas. You can't have your cake and eat it too. This is deferred mitigation with no true commitment and no measurement standards.)

HS-5.10 Flood Control Design

The County shall evaluate flood control projects involving further channeling, straightening, or lining of waterways until alternative multi-purpose modes of treatment, such as wider berms and landscaped levees, in combination with recreation amenities, are studied. (Levees don't need to be made wider. They need to be set back to allow enough room for floodwaters. They do need to be made of the proper materials. Consult the Army Corps of Engineers. Very bad policy, allowing further channeling, straightening and lining of waterways would make water flow faster and not allow floodwaters to spread out and percolate into the ground. This is probably the worst policy in this section. Please follow Low Impact Development principles. Could this policy be intended for Yokohl Creek in the Yokohl Ranch development?)

No Implementation Measure

HS-5.11 Natural Design

The County shall encourage flood control designs that respect natural curves and vegetation of natural waterways while retaining dynamic flow and functional integrity. ("Shall encourage" shows no commitment. What does "respect" mean in this context? The County needs to require development to not alter historical drainage patterns and disturb riparian vegetation. This is deferred mitigation with no true commitment and no measurement standards.)

No Implementation Measure

PFS-4.1 Stormwater Management Plans

The County shall consider the preparation and adoption . . . (This is deferred mitigation with no true commitment and no measurement standards.)

Implementation Measure 8

The County shall consider financial tools to prepare and implement drainage plans . . . (This is deferred mitigation with no true commitment and no measurement standards.)

PFS-4.3 Development Requirements

The County shall encourage project designs that minimize drainage concentrations and impervious coverage, avoid floodplain areas, and where feasible, provide a natural watercourse appearance. (This is deferred mitigation with no true commitment and no measurement standards.)

No Implementation Measure

PFS-4.6 Agency Coordination

The County shall work with the Army Corps of Engineers and other appropriate agencies . . . (This is deferred mitigation with no true commitment and no measurement standards.)

PFS Implementation Measures 1, 2, 3

(These are deferred mitigations with no true commitment and no measurement standards.)

Does the County not believe in preventing soil erosion, siltation, and stormwater runoff or does it not want developers to incur additional costs? Does the County think developers will flee to adjacent counties if the cost of doing business is higher here? Low Impact Development as described in detail by the Central Valley Water Control Board is the cure for soil erosion, stormwater runoff and siltation. Mandate it in all new development. It is a feasible and economical mitigation measure. The impact of the GPU will be significant and unavoidable on soil erosion, stormwater runoff and siltation.

Impact
3.6-4

Impact 3.6-4 The proposed project could create or contribute runoff water which would exceed the capacity of existing stormwater drainage systems or provide substantial additional sources of polluted runoff.

The CEQA 2010 Statues and Guidelines wording of this impact is:

"Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

What is the rationale for omitting the words "or planned" from this impact, considering the amount of growth proposed in the Corridors Framework Plan, Hamlets, unincorporated communities, Foothill Growth Management Plan, and Mountain Framework Plan?

Impact Summary

> Level of Significance Before Mitigation: Less Than Significant
> Required Additional Mitigation Policies and Implementation Measures: None required
> Resultant Level of Significance: Less than Significant

What is the threshold of significance given the extensive development planned for the county?

The Tulare County Guidelines which was identified in the RDEIR on page 3.6-36 under Methodology as a guide to establishing criteria and basis for identifying and evaluating impacts has NOTHING to do with establishing thresholds of significance.

Please delineate what your "professional" judgment was in listing this impact as Less Than Significant?

The Yokohl Ranch Project Initial Study listed its impact on substantial additional sources of polluted runoff as Potentially Significant.

Impact Analysis

Much of the new development permitted in the GPU would be on agricultural land in the valley which has almost no existing impervious surfaces and on foothill and mountain areas which have various degrees of slopes and are either cattle ranching and citrus growing areas or forested areas with virtually nil impervious areas. Polluted runoff from automotive, home, and garden uses would greatly increase. There are no stormwater treatment systems in the unincorporated communities or hamlets. They would have to be built at great expense. And finally the GPU does not mandate any of the Low Impact Development techniques that the Central Valley Water Quality Control Board highly recommends. The level of significance before mitigation is very high (Significant). The mitigation measures proposed by the county are weak, ineffective, not mandatory, have no measurable criteria. The resultant level of significance is really Significant and Unavoidable. I have already reviewed all of these proposed mitigation measures. They are empty promises, deferred mitigation, without any true commitment and no measurable criteria. What is the threshold of significance?

The impact analysis for Impact 3.6-4 on page 3.6-50 of the RDEIR says, "Pollution associated with increased stormwater and urban runoff would affect local and regional surface and groundwater quality conditions. . . . Urban runoff flows untreated through the storm drainage system. Anything thrown, swept, or poured into the street or gutter, or a catch basin (the curbside openings that lead to the storm drainage system) flows directly into ponding basins or local channels or creeks or irrigation channels. Pollutant loads can be particularly acute at the beginning of the rainy season, but can be a problem at any time due to improper disposal of products associated with home, garden, or automotive use."

This is a huge water quality problem now and will be far worse if all the development proposed by the GPU actually materializes. And yet, Impact 3.6-1: The proposed project could violate water quality standards or waste discharge requirements, or otherwise degrade water quality is listed as Less Than Significant. Explain that.

At the April 26, 2010 Tulare County Water Commission meeting, County engineer James May informed the Water Commission that an irrigation district had disconnected stormwater pipes dumping into their channels because the pipes were sending polluted water into the irrigation channels. Now those communities have no

outlet for their stormwater runoff. See attachment 20, Jim May's Presentation to Tulare County Water Commission.

Groundwater quality in Tulare County is impaired and can cause serious health effects. The RDEIR's assessment of Less than Significant impact of polluted runoff with no additional mitigation required was made despite:

1) that groundwater "[o]verdraft can lead to . . . water quality degradation . . ." (page 3.14, Volume 1, Bulletin 160-05)

2) the lack of comprehensive information regarding the County's groundwater resources (RDEIR, page 3.9-47)

3) the results of the State Water Resources Control Board's (SWRCB) Groundwater Ambient Monitoring and Assessment Program (GAMA) in Tulare County finding that 75 of the 181 private domestic wells tested in the County had nitrate levels over the maximum contaminant levels (MCL) [enclosure (18) dated 12/12/06 in 2008 GPU comments

4) the pre-applications for funding, enclosure 19 of Peter Clum's 2008 GPU comments, attachment 36 prepared by RMA and Tulare County Environmental Health Department and processed via Tulare County Water Commission and the Tulare County Board of Supervisors in July 2007 to address groundwater contamination from nitrates and other contaminants which note "Tulare County has many public water systems with unsafe drinking water"; "[with] decreasing surface water deliveries to the area groundwater quality and quantity will continue to decline"; "Tulare County has many public water systems with nitrate levels over the Maximum Contaminant Level (MCL) of 45 ppm. Approximately 20% of Tulare County's small public drinking water supplies are unable to meet the nitrate MCL on a regular basis, and another 20% are over half the nitrate MCL. The number of systems effected and the levels continue to increase;" "[the County has extensive groundwater quality issues primarily related to the contaminants nitrate, arsenic, DBCP, and uranium. It is estimated that contamination issues will be exacerbated by land use practices and from overdraft, drought, and the loss of Friant-Kern water due to the San Joaquin River settlement."

The RDEIR's treatment of water quality has resulted in a faulty baseline and a failure to comply with the information disclosure requirement of CEQA by omitting relevant information which precludes informed public participation and intelligent decision making. It almost seems as if there has been deliberate avoidance of groundwater quality issues. There has been no compliance with CEQA Guidelines § 15126.2 (a) which requires an EIR to discuss "health and safety problems caused by the physical changes "that the General Plan Update buildout would precipitate." There is not one word about the correlation of adverse groundwater quality impacts to resulting adverse health impacts. The RDEIR's role "as an environmental 'alarm bell' whose purpose is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return," *County of Inyo v. Yorty* (1973) 32.Cal.App.3d 795, 810, has not been fulfilled.

In the RDEIR, 3.4 Energy and Global Climate Change, Wildland Fire Hazards, page 3.4-19, "studies indicate that there is a potential for significant increases in the number of fires escaping initial attack, particularly in areas in which the fuels are dominated by grass and brush. These studies indicate that subtle shifts in fire behavior of the sort that might be induced by the climate changes anticipated for the next century are of sufficient magnitude to result in an increase in the number of fires in areas where brush fuels dominate . . . " These areas are the foothills of Tulare County. Wildfire in the foothills would result in denuded slopes which during regular rainstorms and during particularly intense storms predicted by climate change would erode and produce increasing peak runoff volumes. Stormwater runoff and siltation would convey pollution and exceed the capacity of existing stormwater drainage systems.

What are the criteria for finding the GPU's impact on runoff water, polluted water and stormwater drainage systems as Less than Significant? This finding flies in the face of common sense.

There is no Conservation Element in the GPU as required by AB 162. There is a short general paragraph under Environmental Resources Management Element on page 8-6, titled Conservation. And there is a table in Part I, page 1-12, "Relations Between Tulare County's General Plan and the State Mandated Elements" which cites three elements and two plans which supposedly serve the function of a Conservation Element. The Flood Control Master Plan dates to 1972 and is not included in the GPU. The Animal Confinement Facilities Plan (ACFP-Phase 1) is not included in the GPU although flooding of feedlots, manure lagoons, alfalfa fields

heavily dosed with liquid manure, and dairy barns would contaminate surface water and groundwater. The Water Quality Element does not address flooding. The Health and Safety Element prohibits critical facilities development in floodplains but does not dictate standards for other construction in the 100-year flood plain. Elsewhere in the GPU, development is allowed in groundwater recharge basins if the development is "clustered."

There is no large FEMA map which covers all of Tulare County in the GPU. There are 50-60 separate FEMA flood maps for small areas that together cover all of Tulare County. They have to be searched for on-line. The flood map in the Background Report on page 8-15 is a composite of USGS, CAL OES, FEMA 08, ESRI, and ESA (consultants) data.

In the Background Report under 100-year Flood Hazard on page 8-14, the county states:

> The flood carrying capacity in rivers and streams has decreased as trees, vegetation, and structures (e.g., bridges, trestles, buildings) have increased along the Kaweah, Kings, and Tule Rivers. Unsecured and uprooted material can be carried down a river, clogging channels and piling up against trestles and bridge abutments that can, in turn, give way or collapse, increasing blockage and flooding potential. Flooding can force waters out of the river channel and above its ordinary floodplain. Confined floodplains can result in significantly higher water elevations and higher flow rates during high runoff and flood events.
>
> Updated channel analyses have not been performed to determine the amount of obstruction posed by vegetation and development in the Kaweah, Kings, or Tule River channels. As such, FEMA maps depicting the 100-year floodplain for the rivers probably do not reflect the true extent and risk of flooding hazards in Tulare County. Figure 8-1 shows areas of the county that fall within FEMA-designated 100-year flood zones. 100-year flood zones are located throughout the western portion of the county from a number of streams and St. Johns River, White River, and Tule River.

Impact 3.6-5 The proposed project would expose people or structures to flood hazards from development within a 100-year Flood Hazard Area or from increased rates or amounts of surface runoff from development.

Level of Significance Before Mitigation: Potentially Significant
Required Additional Mitigation Policies and Implementation Measures: No feasible mitigation
Resultant Level of Significance: Significant and Unavoidable

The Yokohl Ranch Project Initial Study listed its impact on flood hazard risk Potentially Significant.

The Mitigating Policies and Implementation Measures listed in the RDEIR on page 3.6-54 are weak, inadequate, and for the most part unenforceable. We will address them later.

Impact Analysis

First, the Flood Damage Prevention Ordinance dates to 1972 and is out of date. The County must have meaningful mitigation measures that can be measured to reduce impact of the General Plan Update. The FEMA maps are recent (2008) but do not reflect the true risk and extent of flooding because vegetation chokes channels, sections of levees have been removed by property owners, and lands have been graded for development. All rivers, streams, and irrigation channels are subject to flooding during a 100-year event. Flows will be unpredictable because of aforementioned problems.

The Tulare County Chapter 27 Flood Damage Prevention document is not contained in the General Plan. It dates to 1972 and must be requested from the County. We picked up a copy for $3.50. In the 7-27-1002 Findings of Fact on page 1:

> "The flood hazard areas of the County of Tulare are subject to periodic inundation which results in loss of life and property, health and safety hazards, disruption of commerce and government services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare. These flood losses are caused by uses that are inadequately elevated, flood proofed, or protected from flood damage. The cumulative

effect of obstructions in areas of special flood hazards which increase flood heights and velocities also contribute to the flood loss."

On page 7 of the same document obstruction is defined as:

> "Obstruction includes, but is not limited to, any dam, wall, wharf, embankment, levee, dike, pile, abutment, protection, excavation, channelization, bridge, conduit, culvert, building, wire, fence, rock, gravel, refuse, fill, structure, vegetation or other material in, along, across or projecting into any watercourse which may alter, impede, retard or change the direction and/or velocity of the flow of water, snare, or collect debris carried by the flow of water, or is likely to be carried downstream."

The building standards required by this document for homes, mobile homes and other structures are minimal and not sufficient to protect people or structures from damage. They fail to prevent increase in velocity of floodwaters and do not prevent diversion of floodwaters to another area. The standards fail to consider the cumulative effect of development in a floodplain. The bottom lowest floor beam of homes and mobile homes may be built at or above the estimated base flood elevation. Raising the grade homes are built on will increase the flood level. All the auxiliary components of an American lifestyle (carport, shed, fence, landscaping, picnic tables, vehicles) will be obstructions in time of flood. The streets of homes on raised foundations will channel floodwater and increase its velocity and possibly divert floodwaters in a new direction. The septic tanks and leachfields will pollute runoff and groundwater. The usual garden, home, and automotive products will contaminate the floodwaters.

New mobile homes are allowed in existing mobile home parks and subdivisions in the 100-year flood zone. This is crazy. Proper anchoring is not a safe standard for mobile homes in floodways. The policy should be to move these people out of harm's way.

And finally, on pages 22-26, there are variances for these lax regulations (practical difficulties, unnecessary hardships, lot size, the importance of the services provided by the proposed facility, the availability of alternative locations and many more.)

There is no commitment to keep people or structures safe from floods.

What the County needs to do first is inspect the channels and levees, repair and clean them out, set back levees, and provide outlets to undeveloped natural retention basins in times of flooding. Then the county can allow development in the flood plains. If you can't mitigate, avoid. Building in the 100-year floodplain is avoidable. Nobody has a gun to the County's head. The rate of surface runoff can be completely mitigated by following Low Impact Development Standards - Sustainable Storm Water Management advocated by the California Water Quality Control Board on January 20, 2005. Low Impact Development (LID) is a sustainable practice that benefits water supply and contributes to water quality protection. The goal of LID is to mimic a site's predevelopment hydrology by using design techniques that infiltrate, store, evaporate, and detain runoff close to the source of rainfall. LID is a proven approach used in other parts of the country.

LID provides economical as well as environmental benefits. LID practices result in less disturbance of the development area, conservation of natural features, and is less expensive than traditional storm water controls. The cost savings applies not only to construction costs, but also to long-term maintenance and life cycle cost. LID can be applied to a range of lot sizes.

Ten LID Practices:

1. Bioretention and rain gardens
2. Rooftop gardens
3. Sidewalk Storage
4. Vegetation Swales, Buffers and Strips; Tree Preservation
5. Roof Leader Disconnection
6. Rain Barrels and Cisterns
7. Permeable Pavers (for roads, driveways, sidewalks, parking lots
8. Soil Amendments
9. Impervious Surface Reduction and Disconnection
10. Pollution Prevention and Good Housekeeping

The Porter-Cologne Act (California Water Code), federal Clean Water Act, and the U.S. Environmental Protection Agency's National Pollutant Discharge Elimination System (NPDES) govern water quality control and stormwater runoff reduction.

The GPU does not require (or even mention) Low Impact Development techniques. These are proven mitigation measures, feasible mitigation, economical mitigation, according to the Department of Water Resources.

Health and Safety Element

Policies designed to minimize this impact through the preservation of floodplain areas and the management of new development in hazardous areas include the following:

HS-1.2 Development Constraints

The County shall permit development only in areas where the potential danger to the health and safety of people and property can be mitigated to an acceptable level. (You can't mitigate an impact just by saying you are going to mitigate it. What is an "acceptable level"? This is an inadequate mitigation measure.)

No Implementation Measure

HS-1.3 Hazardous Lands

The County shall designate areas with a potential for significant hazardous conditions for open space, agriculture, and other appropriate low density uses. (What are the other appropriate low intensity uses? What is significant? What hazardous conditions? Is the 100-year floodplain considered hazardous by the County? This policy is vague and has no time frame for completion.)

No Implementation Measure

HS-1.11 Site Investigations

The County shall conduct site investigations in areas planned for new development to determine susceptibility to contamination and/or flooding. (Since there is no time frame for doing this and no implementation measure, it's hard to take this policy seriously.)

HS-1.12 Addressing

The County shall seek to expand the Street Names and House Numbering Ordinance to all areas of the County, including private roads. ("Shall seek" does not show a strong commitment. The Implementation Measure says it's planned to

be accomplished in the 2015-2020 time frame. How is having a County-authorized street number going to avoid, minimize, rectify, reduce, eliminate a flood risk or compensate for flood damage? Inadequate policy.)

Implementation Measure 7

The County shall develop standards for numbering buildings on private driveways to assist emergency service personnel in locating structures. It shall be done 2015-2020. (Why would this take so long to figure out?)

HS-5.1 Development Compliance with Federal, State, and Local Regulations

The County shall ensure that all development within the designated floodway or floodplain zones conforms with FEMA regulations and the Tulare County Flood Damage Prevention Ordinance. (Who will be assigned this task? Why isn't this ordinance in the GPU?)

Implementation Measure 14

The County shall maintain and annually update a Countywide database of FEMA floodplain maps to evaluate projects and provide to County residents, businesses, and developers. (Real estate agents need these maps. They should be required to disclose flood risk to potential buyers in-County and from outside the county.)

HS-5.2 Development in Floodplain Zones

- Critical facilities shall not be permitted (Agreed)
- Passive recreational activities are permissible (Agreed)
- New development and divisions of land, especially residential subdivisions shall be developed to minimize flood risk to structures, infrastructure and ensure safe access and evacuation during flood conditions [ERME IV-C; Urban Expansion; Recommendation 2; Pg. 11].
  (This citation refers to the 1964 General Plan. It doesn't exist in this document. There are no standards in this document for building in the flood plain. This is inadequate. Even worse, this policy allows houses, schools, landfills, gas stations, wastewater treatment plants, hazardous waste generation, storage, and treatment plants, industry with toxic chemical storage, feedlots, dairy barns, and manure lagoons in the flood plain. The contamination that would spread to surface water and groundwater if the

floodplain were inundated would not be easy or cheap to remediate. The County hasn't given this policy serious consideration. This policy is dangerously inadequate.)

Implementation Measure 14.

(See comment on preceding policy. How does keeping the floodplain map updated annually keep the unfortunate people in the floodplain safe? Are you going to erect levees to keep their homes safe from the contaminated floodwaters? What's going to happen to their well water? When floodwaters cover leach fields, water quality suffers and a public health problem is created.)

HS-5.3 Participation in Federal Flood Insurance Program

The County shall continue to participate in the National Flood Insurance Program (NFIP).

No Implementation Measure

HS-5.4 Multi-Purpose Flood Control Measures

The County shall encourage multipurpose flood control projects . . . where appropriate, the County shall also encourage the use of flood and/or stormwater retention facilities for use as groundwater recharge. ("Shall encourage" and "where appropriate" are inadequate wording for a policy. It shows no commitment to mitigation.)

No Implementation Measure

HS-5.5 Development in Dam and Seiche Inundation Zones

The County shall review projects for their exposure to inundation due to dam failure. If a project presents a direct threat to human life, appropriate mitigation measures shall be taken, including restriction of development in the subject area. (What are the appropriate mitigation measures? How about a threat to livestock and human injury? The County should allow only passive recreational activities below a dam, especially considering climate change.)

No Implementation Measure

HS-5.6 Impacts to Downstream Properties

The County shall ensure that new County flood control projects will not adversely impact downstream properties or contribute to flooding hazards. (How will the County accomplish this and when? Who will be responsible?)

No Implementation Measure

HS-5.7 Mapping of Flood Areas

The County shall require tentative and final subdivision maps and approved site plans to delineate areas subject to flooding during a 100-year flood event.

(The County must provide up-to-date 100-year flood maps to the developer and not rely on the developer.)

No Implementation Measure

HS-5.8 Road Location

The County shall plan and site new roads to minimize disturbance to banks and existing channels and avoid excessive cuts and accumulations of waste soil and vegetative debris near natural drainage ways. (The County must follow Low Impact Development techniques and keep all runoff on-site using vegetated swales, berms, whatever necessary. Who is in charge of writing standards? When does this program begin? What are the performance standards?)

No Implementation Measure

HS-5.9 Floodplain Development Restrictions

The County shall ensure that riparian areas and drainage areas in the 100-year floodplains are free from development that may adversely impact floodway capacity or characteristics of natural/riparian areas or natural groundwater recharge areas. (Who is in charge? Who sets the standards? What is the setback from riparian areas for development? When does this program begin? There should be no runoff from the development to add to floodwaters.)

No Implementation Measure

HS-5.10 Flood Control Design

The County shall evaluate flood control projects involving further channeling, straightening, or lining of waterways until alternative multipurpose modes of treatment, such as wider berms and landscaped levees, in combination with recreation amenities, are studied. (It is not acceptable to do further channeling, straightening and lining of waterways. This is not the Low Impact Development technique. Design flood control properly. Do it right the first time. You'll save money. The levees need to be set further back to allow the stream/canal/river to overflow but be contained. The idea is to allow the floodwaters to infiltrate the soil and recharge the groundwater. How can that happen if the channel is lined? Straightening the channel causes the water to flow faster. Get a civil engineer with flood control experience to design this. It is clearly over the planner's head.)

No Implementation Measure

HS-5.11 Natural Design

The County shall encourage flood control designs that respect natural curves and vegetation of natural waterways while retaining dynamic flow and functional integrity. [ERME; Water; Issue 4; Recommendation 2] [ERME; Pg 28] (This reference is to the 1964 General Plan. It doesn't exist in this document. "Shall encourage" is weak and inadequate. Replace it with "mandate." I refer you to Low Impact Development techniques. Who will do the flood control designs? When will this be implemented? Have you set money aside to do it? What are the performance standards?)

There is no policy under the Health and Safety Element to remediate 100-year flood risks to development already existing in 100-year floodplains. Where is the commitment and urgency to clean and enlarge streams, channels, irrigation ditches which will carry the floodwaters? The levees need to be set back, and suitable water retention land purchased or put in easement for diversion of floodwaters. Already developed 100-year floodplains should be top priority for flood control management.

Policies designed to minimize this impact through the continued coordination with service providers, implementation of emergency response plans, and emergency training programs include the following:

HS-1.1 Maintain Emergency Public Services

No comment.

HS-7.1 Coordinate Emergency Response Services with Government Agencies

No comment.

HS-7.2 Mutual Aid Agreement

No comment.

HS-7.3 Maintain Emergency Evacuation Plans

No comment.

HS-7.7 Joint Exercises

The County shall encourage fire, law enforcement, emergency medical services, resource management . . . (If you don't mandate joint exercises, they will never happen. It's not until you try to execute joint exercises that you find out where the glitches are, like radio communication. They should be held regularly. Inadequate policy.)

No Implementation Measure

Implementation Measures designed to minimize this impact:

Implementation Measure 1

(How often will the training take place?)

Implementation Measure 2

No comment.

Implementation Measure 3

No comment.

Implementation Measure 5

No comment.

Implementation Measure 9

No comment.

Implementation Measure 17

No comment.

Implementation Measure 19

No comment.

Public Facilities and Services Element

Policies designed to minimize this impact through adherence to appropriate levels of stormwater infrastructure planning.

PFS-4.1 Stormwater Management Plans

The County shall consider the preparation and adoption of stormwater management plans for communities and hamlets to reduce flood risk, protect soils from erosion, control stormwater, and minimize impacts on existing drainage facilities, and develop funding mechanisms. ("Shall consider" is inadequate. "Mandate" is the proper verb. The State Water Quality Control Board has urged local agencies to adopt Low Impact Development techniques I have cited earlier in these Flood Hazard Risk comments. What are the performance standards?)

Implementation Measure 8

("Shall consider" must be replaced with "shall prepare." Inadequate.)

PFS-4.2 Site Improvements

(Sounds good. Who is in Charge? When does this begin?)

No Implementation Measure

PFS-4.3 Development Requirements

The County shall encourage project designs that minimize drainage concentrations and impervious coverage, avoid floodplain areas, and where feasible, provide a natural watercourse appearance. ("Shall encourage" is inadequate. Replace it with "shall require." Once again, I cite Low Impact Development techniques. It is not a natural watercourse appearance that matters. It's retaining pre-development drainage patterns.)

PFS-4.4 Stormwater Retention Facilities

The County shall require on-site detention/retention facilities when necessary to maintain existing (pre-development) storm flows and velocities in natural drainage systems. The County shall encourage the multi-purpose design of these facilities to aid in active groundwater recharge. (Water retention/detention are always necessary. The County must require stormwater retention on site. Low Impact Development techniques infiltrate, filter, evaporate, and detain runoff close to the source of rainfall. Stop "encouraging" and start "requiring.")

No Implementation Measure

PFS-4.6 Agency Coordination

No comment.

In the RDEIR on page 3.6-53 in paragraph 2 we read, "The County of Tulare has a flood management ordinance . . . that substantially complies with the new requirements" of FEMA. "However, the new laws do require updating emergency response programs based on new FEMA and DWR flood maps, flood data, and flood management requirements. Until the County has implemented needed updates of its land use maps with current flood information, and met Safety Element

provisions as now defined in Government code 65302(g), flood related impacts of the proposed project will be significant." and unpredictable. (added by us).

What excellent reasons for avoiding development in the 100-year flood plain until these deficiencies are resolved.

FLOOD POTENTIAL IN TULARE COUNTY DUE TO LEVEE FAILURE BASED ON THE PRESENTATION BY TULARE COUNTY CIVIL ENGINEER JAMES MAY AT JULY 22, 2009 TULARE COUNTY WATER COMMISSION

With Global Climate Change more intense precipitation events (with increased direct run off and snowmelt run off) are predicted for the future. Both Lake Success and Lake Kaweah have silted in since the construction of their dams. Potential increases in the frequency and intensity of wildland fires due to climate change will cause more soil erosion, increased sediment loads, and more flooding. Lake Success's dam heightening has been stalled for many years by an Army Corps of Engineers (Corps) seismic study. The fuse gates of Terminus Dam on Lake Kaweah have been raised 20 feet. Phil Deffenbaugh of the Corps at Terminus Dam estimates 8000 acre feet of water capacity at Lake Kaweah has been lost since its construction in 1959. This is only an estimate. The last depth study of capacity was done in 1980. The Corps has requested another depth survey in fiscal year 2010 but it is not certain it will be approved because a depth survey costs $150,000 -$200,000. Mr. Deffenbaugh thinks Lake Kaweah will hold 185,000 acre feet when full. Meanwhile, silt accumulates every day. There was major siltation during a storm in 1997. The more silt fills Lake Kaweah and Lake Success, the less capacity they have to hold flood waters, increasing flood potential in Tulare County's rivers and irrigation canals. Global Climate Change will likely cause more flooding in late winter and early spring because of more intense storms and early melting of snow.

The Department of Water Resources (DWR) states that as peak flows and precipitation change over time, historical models for flood risk will not be accurate. Planners will need to factor a new level of safety into the design, operation, and regulation of flood protection such as dams, floodways, bypasses, and levees, as well as the design of sewers and storm drains. Despite higher flood potential in the future, there are no Tulare County water retention basins for the unincorporated areas of the county. The county has not identified potential basins

to receive floodwaters and recharge the aquifer. The basins must be close to stream beds or irrigation channels, be permeable, have adequate capacity, and not overlay contaminated groundwater. On the other hand, local irrigation and conservation districts have created recharge basins. The county has not identified potential basins to receive floodwaters and recharge the aquifer. The basins must be close to stream beds or irrigation channels, be permeable, have adequate capacity, and not overlay contaminated groundwater. There is no land set aside for water retention basins, no ordinances preventing development in potential water retention basins, no funds to purchase land, no impact fees on development in order to build a fund, and no plan for flood control. Tulare County is totally unprepared for floods. The Flood Control Master Plan adopted by the Tulare County Board of Supervisors in 1972 was not included ion the General Plan Update 2030. It can be found on-line.

On the other hand, Tulare Irrigation District and the Kaweah Delta Water Conservation District have created recharge basins.

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, Frazier Creek, Yokohl Creek, Sand Creek, Strathmore Creek, Tule River.)

All levees in Tulare County are primitive. They do not meet FEMA or Corps standards. The county does no maintenance on levees.

New FEMA flood maps were published in 2008. In the City of Visalia, there were 15,000 changes in the Flood map. In Tulare County near North Visalia, there were 867 changes in the flood map. There were no changes in flood maps elsewhere in the county. The City of Visalia hired Northwest Hydraulic Engineering Company to determine which properties were in danger of flooding. They surveyed land and used GPS to determine elevation. The City of Visalia was shocked at preliminary results and tried to terminate the study. The Bureau of Reclamation insisted the study be completed. (The previous major FEMA study was done in 1986.)

The County sets aside approximately $350,000 in property taxes annually for the Tulare County Flood Control District. The majority of the money is put in a reserve fund and used to pay for feasibility studies on rivers and on actual construction by the Corps. These studies are very expensive. There is no money left over for maintenance. The costs for the three stages of bringing levees up to standard are:

1. Reconnaissance study	Conducted by Corps County pays nothing	3-6 years
2. Feasibility study	25% paid by county 25% paid by state 50% paid by federal gov't	4 years
3. Actual construction	17 ½% paid by county 17 ½% paid by Dept. of Water Resources 65% paid by Corps	? (there are lulls in federal funding.)

Recent feasibility studies on White River and Deer Creek cost the county $500,000 apiece.

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 levees were not constructed of proper materials, not built high enough, and are not continuous. No maintenance is performed on channels.

In the General Plan Background Report under 100-Year Flood Hazard on page 8-14, the county states:

> "The Flood carrying capacity in rivers and streams has decreased as trees, vegetation, and structures (e.g. bridges, trestles, buildings) have increased along the Kaweah, Kings, and Tule Rivers . . .
>
> Updated channel analyses have not been performed to determine the amount of obstruction posed by vegetation and development in the Kaweah, Kings, or Tule River Channels. As such the FEMA maps depicting the 100-year floodplain for the rivers probably do not reflect the true extent and risk of flooding hazards in Tulare County . . ."

Groundwater overdrafting and consequent land subsidence will increase flood depths. Less water is conveyed from Northern California because of Delta smelt

and Chinook salmon judicial decisions. Also a recent Biological Opinion decreased surface water conveyance. These water losses will cause farmers to pump even more groundwater. Tulare Lake Basin has been critically overdrafted for decades. Overdrafting of groundwater leads to land subsidence. The U.S. Geologic Service (USGS) studied land subsidence in Tulare County in 2009. Since the 1960's Visalia has subsided one foot (unevenly); the city of Tulare has subsided four feet. This sinking of the land will cause deeper flooding. On the west side of the Central Valley there will be much more overdrafting of groundwater. There is worry of massive subsidence and seismic instability, possible causing a rupture of the San Andreas fault.

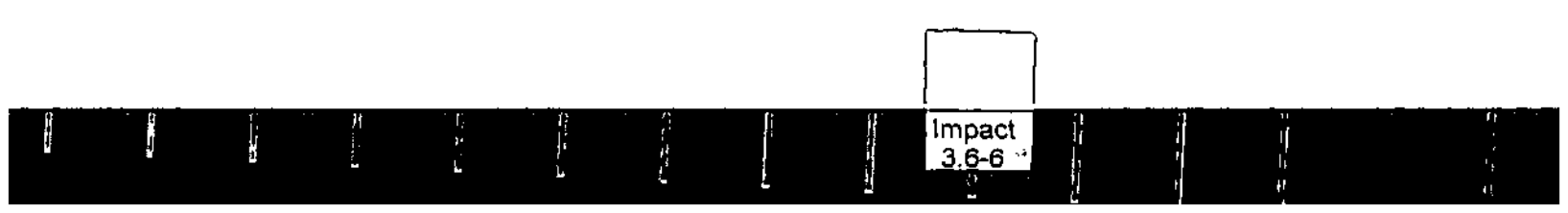
Since the 1986 FEMA flood study more homes have been built in the area of the St. John's levees. Over 1000 property owners adjoin the south levee of the St. John's River. Flood insurance is very expensive. A property owner can avoid flood insurance on a new home if it is built high enough off the ground and gets a conditional letter of FEMA map revision. Tax Levy Districts 1 and 2 on the St. John's River dissolved many years ago. Taxes had been collected for maintenance of the north and south levees. Now no money is collected from property owners adjoining the two levees.

The Corps takes a green approach now. They will build NO more dams, only water retention basins. Obviously it takes a very long time to reduce flood potential. Corps is now underfunded and undermanned.

The valley portion of Tulare County is dominated by cropland, dairies, and orchards. The foothills are dominated by cattle ranches. Almost all the residences in unincorporated Tulare County (except downtown Springville) are on septic systems. Flooding would cause failure of the septic systems. As flood waters recede, they would carry with them fecal coliform bacteria from septic fields, dairies, and cattle ranches and fertilizers, pesticides, fungicides, and herbicides from agricultural land. The inundation of contaminated water would raise the risk of typhoid, bacterial infections, and cancer.

Because Tulare County cannot afford to bring our levees up to safe standards, maintain channels, or create water retention basins to capture floodwaters, Tulare County should ban development in flood prone areas. The appropriate place for this is the Land Use Policies of the General Plan Update, as recommended in the 2009 California Climate Adaptation Strategy and the 2008 DWR's Managing An Uncertain Future: Climate Change Adaptation Strategies for California's Water.

The General Plan Update does not fully comply with AB 162 which requires a FEMA or DWR flood zone map for the whole county, a conservation element that covers flood control, and a safety element that provides protection against subsidence and dam failure.


Impact
3.6-6

Impact 3.6-6 The proposed project would expose people or structures to flood hazards from failure of a levee or dam.

Impact Summary

Level of Significance Before Mitigation: Potentially Significant
Required Additional Mitigation Policies and Implementation Measures: No feasible mitigation
Resultant Level of Significance: Significant and Unavoidable

The Yokohl Ranch Project Initial Study listed its impact of exposing people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam as Potentially Significant.

Impact Analysis

Increased development in foothills and mountains would increase soil erosion, stormwater runoff and siltation. Runoff would be far greater than historical pre-development conditions. Siltation behind dams would reduce their capacity and could cause overtopping or dam failure and substantial flooding.

The RDEIR Impact Analysis states levees typically fail in one of two ways: overtopping and structure failure. Not mentioned are the facts that the levees are not set back far enough from the channels to contain floodwaters and they have been breeched by property owners who bulldozed them to gain access to the river. Schools and homes are behind these decrepit levees.

See attachment 22, Flood Potential in Tulare County.

The RDEIR's Impact Analysis on page 3.6-55, first paragraph, states, "Although dam failure can result from numerous natural or human activities, such as earthquakes, erosion, improper siting, rapidly rising flood waters and structural and design flaws, the likelihood for this to happen remains minimal.

Success Dam on the Tule River in 1983 was found to have structural flaws and an inadequate spillway during testing and assessment of the dam. If a seismic event occurs of a certain size (8.0 on the Richter scale) on the San Andreas Fault and the event lasts a certain length of time, the thick layer of unconsolidated alluvial material that the dam rests on (sand, rock, and gravel) would liquefy, allowing the dam to settle and cause

rupture of the core of the dam. It would fail. To be safe, the dam must stand up to the worst anticipated conditions. Another problem with the dam is spillway inadequacy (not wide enough). In a maximum flood event, there is a risk of overtopping which would erode the dam and cause it to fail. This information was obtained from Calvin Foster, Southern Area Manager for the Army Core of Engineers, located in Porterville, on April 19, 2010.

Sand Creek, Bravo Lake and Larson Dams are maintained by irrigation districts. They are not inspected by the Army Corps of Engineers. Pine Flat dam is in Fresno County, but if it failed, it would inundate the northeastern valley portion of Tulare County. The dam on Lake Isabella has multiple problems: seepage, built on unconsolidated alluvium, on an active earthquake fault, and with spillway inadequacy. If it failed, it would inundate part of Kern, Kings, and southwestern Tulare County (the old Tulare Lake).

All of these potential inundation areas must not be developed.

For the past five years, the Army Corps of Engineers has sought federal funding to finance expansion and raising of Success Dam. The project has not been funded yet. Remediation for seismic and seepage problems will cost $500 million, according to Calvin Foster, Southern Area Manager of the Army Corps of Engineers on May 13, 2010. He also said it would cost $10 million to purchase 125 acres of real estate below the dam, relocate the people, survey, do an environmental analysis and deal with hazardous material issues. An employee of R.L. Schafer and Associates, also on May 13, 2010, said raising the spillway was estimated at $30 million five years ago. Meanwhile, Success Dam can only be filled to 2/3 capacity because of seismic problems. Only 28,000 acre feet of water can be held behind the dam, hurting the farmers in the Tule Irrigation District, according to the Schafer and Associates employee.

The RDEIR lists 32 Mitigating Policies and Implementation Measures. I have reviewed all of them more than once in other hydrology, water quality and drainage impact analyses and I have found them to be ineffective, discretionary, deferred mitigation with no true commitment and no standards of measurement, except the few mandated by the federal or state government.

Low Impact Development – Sustainable Storm Water Management techniques adopted by the State Water Resources Control Board on January 20, 2005, are recommended to all local agencies. The 10 techniques would reduce stormwater runoff and flooding and subsequent potential failure of levees and dams.

We agree that this GPU would have very Significant and Unavoidable impacts on levees and dams.

Impact
3.7-1

Impact 3.7-1 The proposed project could result in substantial soil erosion or the loss of topsoil.

Impact Summary

Level of Significance Before Mitigation: Less than Significant
Required Additional Mitigation Policies and Implementation Measures: None required
Resultant Level of Significance: Less than Significant

Impact Analysis

The RDEIR's impact analysis of the causes of soil erosion are "precipitation, running water and wind." Page 3.7-17. It overlooks degree of slope, amount, duration and intensity of rainfall, and looseness of soil as the prime causes of soil erosion. Grading for roads and buildings removes vegetation coverage and the roots which hold the soil. It loosens the soil which is then very vulnerable to erosion until it is fully vegetated, a matter of years. Foothill and mountain slopes often have a thin layer of topsoil over rock. Once it's gone, it's gone for good. The Foothill Growth Management Plan Development Standards allows construction (and presumably the roads to it) on slopes greater than 30° (standard #3), cut-and-fill grading (standard #7), and detaining as much water as possible but sets no performance standards (Standard #18) on pages 3-29 and 3-30, Part II Area Plan Policies.

Next to be considered is climate change which is predicted to bring more intense storms and consequently more soil erosion. The Impact Analysis also played down the greatly increased percentage of impervious pavement which would result from the proposed development. In the foothills and mountains this would make a huge difference in the velocity of the water coursing downslope. The Yokohl Ranch project proposes to develop 14,400 acres, some of it on steep slopes. Ten thousand homes, three hotels, a resort, a convention center, biking and hiking trails, a regional sports facility, commercial development, water treatment plant, wastewater treatment plant, sidewalks, roads, two fire stations, community center, two reservoirs, police station, library and God knows what else will result in a heck of a lot of impervious surfaces.

The Yokohl Ranch Project NOP/IS finds this impact Potentially Significant for good reason. In Three Rivers, a foothill community, soil erosion is a chronic

problem for landowners. Road shoulders and road gutter lines need repair after heavy rains. Ubiquitous pocket gophers and ground squirrels exacerbate soil erosion. Gravel roads must be regraded at least once every Spring. Gullies which have formed in swales during rains must be repaired before they become ravines and carry soil into streams and rivers. People dump chunks of recycled concrete into ravines to hold soil. Road culverts must be cleared of mud and rocks. Rock retaining walls slump downslope and must be repaired at great expense. One Tulare County road maintenance person works almost full time in Three Rivers and can't keep up with road maintenance needs. See attachment 23, Three Rivers Town Hall Meeting.

This is the soil erosion situation now in three Rivers, where according to the 2000 U.,S. Census, there were 1,217 homes and few public and commercial buildings and four churches concentrated in a small area. The General Plan proposes aggressive development throughout the County. Consider the soil erosion which would result from the Yokohl Ranch Project's 10,000 homes, three hotels, resort, commercial center, regional sports facility, convention center, infrastructure buildings and roads on 14,400 acres.

Does the County require Low Impact Development-Sustainable Storm Water Management, which is highly recommended by the State Water Resources Board? No. Rainwater needs to be captured and detained as close to the site where it falls as possible.

The General Plan Update promotes aggressive development in the foothills, mountains and Rural Valley Lands Plan. There will be significantly increased soil erosion in the whole county, but it will be far worse in the foothills and mountains. If this plan gets adopted, we will find our topsoil in the streams and reservoirs. It is inconceivable how the County found this impact Less than Significant.

The policies and implementation measures are weak and non-enforceable. There are no measurable performance standards.

Impact
3.8-6

Impact 3.8-6 The proposed project would expose people or structures to a significant risk of loss, injury, or death involving wildland fires.

CEQA Appendix G Environmental Checklist Form wording for this impact is:

Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

What is the rationale for the 2010 RDEIR change of wording, other than to favor major development in the wildland/urban interface (Yokohl Valley project)?

Impact Summary

Level of Significance Before Mitigation: Less Than Significant
Required Additional Mitigation Policies and Implementation Measures: None
Resultant Level of Significance: Less than Significant

Impact Analysis

The RDEIR assesses the impact of the General Plan on risk of wildland fire impacts as "Less Than Significant" for all plan areas (Corridor, Framework, Rural Valley Lands, Foothill Growth Management Plan and Mountain Framework) and requires no additional Mitigation Policies, resulting in "Less Than Significant" impact overall. How can there be wildland fires in the valley?

This is not true. Development on the scale proposed by the GPU places people and property on 30° or more slopes on poorly maintained roads in remote areas to be protected by the Tulare County Fire Department which is under funded, under staffed, lacking facilities to house equipment, needing new stations and not meeting required response times today. "The creation of residential parcels in this (foothill) area has compounded the potential for property damage from fires and has significantly complicated firefighting efforts. Foothill and mountain subdivisions have also virtually eliminated prescribed burning as a means of fire suppression." See Background Report, page 8-21. A "Less Than Significant" finding flies in the face of common sense.

In the Public Services, Recreation and Utilities Section 3.9 pages 3.9-25 through 3.9-26 under Fire Prevention and Suppression, the RDEIR states: "Public protection classifications are designated by the Insurance Services Office (ISO). The ISO bases its classifications on a number of factors, including fire department location, equipment, staffing, water supply, and communication abilities. Ratings range from 1 to 10, with 1 being the best fire protection, and 10 being the worst. The ISO ratings in the incorporated areas of the county range from 5 to 8 with unincorporated areas receiving an average rating of 8." It's safe to assume remote foothill and mountain areas have ratings of 9 or 10. How can the under funded, understaffed Tulare County Fire Department serve a much larger population, especially residents in foothills and mountains who live in Very High Wildfire Threat Areas?

The GPU allows building on an average of 30° slopes, cantilevered structures, structures on stilts as long as the horizontal surfaces are fire resistant. Imagine these structures stacked on horizontal roads on cut-and-fill steep slopes and remember that houses burn hotter than trees and most fires are caused by human activities involving motor vehicles and equipment, arson, and debris burning. See GPU Goals and Policies Report Part III FGMP 3.12 Development Standards on pages 3-29 through 3-34; Standard 3; Standard 7; Standard 47; Standard 48; Standard 50; and Standard 51. Standard 7 (Land Alternative Grading) says, "The maximum steepness of exposed cuts and fills shall meet the standards established in the Improvement Standards of Tulare County." We purchased the Improvement Standards of Tulare County on May 12, 2010 from RMA for $10.00 There is nothing in the 117 page document pertaining to cut and fill standards.

What is the rationale for using minimal wildland/urban building standards on such steep slopes, if not to keep the construction costs down for the proposed 10,000 home New Town in Yokohl Valley? The homes will be adjacent to wildland and interspersed among trees, brush, and grasses in steep canyons. There seems to be minimal consideration for the health and welfare of the foothill and mountain residents on-site and off-site.

The County needs to follow the recommendations of the 2009 California Climate Adaptation Strategy document released by the California Natural Resources Agency.

See attachment 24, California's Firefighters' Mission; attachment 25, Builders Criticized for Raising Fire Risk; attachment 26, Wildfires Speeding Up Global Warming Pace.

Many, many patches of chaparral exist in the foothills of Tulare County. The "extreme" fire threat rating applies to chaparral areas. See the foldout map, Figure 3.11-1 (Habitat) page 3.11-7 RDEIR for locations of chaparral.

What is the threshold of significance for risk of loss, injury, or death involving wildfires?

What the county should do is avoid building in these very high wildland fire threat areas. The laws that directly regulate wildfire hazards tend to be focused on code compliance, offer only the minimum standard of protection to people and structures and do almost nothing to protect biological resources. CEQA requires that wildfire hazards be disclosed, fully analyzed, and mitigated when feasible.

If the county refuses to avoid development in the foothills and mountains, real, effective mitigation measures must be mandatory.

The California Fire Code authorizes local jurisdictions to impose more stringent standards than those contained in the state code. See CAL FIRE Code §101.8. Steep slopes, chaparral, oak woodlands, cut-and-fill grading (which increases the grade) and roads stacked horizontally require stricter standards. CAL FIRE and the Tulare County Fire Department must develop enhanced Fire Protection Plans for the highest fire risk projects. The plan must mandate non-combustible building materials and ember proof vents.

According to Capt. Paul Marquez of CAL FIRE, on April 18, 2010, building standards in wildland fire zones like the foothills of Tulare County, which is classified as very high fire hazard are determined by the State of California. Public Residential Code 4290. Fire hazard severity zone. That doesn't mean the county couldn't impose stricter standards. On steep slopes (greater than 30°) building standards should be even stricter. Such as: non flammable roof, ember proof vents, no abutting wood walkways, decks or fences, no homes on stilts or cantilevered out over steep slopes. See Health and Safety Element, Policy HS-6.2 Development in Fire Hazard Zones which "promotes" the use of fire resistant materials and says "Special consideration shall be

given to the use of fire-resistant-materials and fire-resistant-construction in the underside of eaves, balconies, unenclosed roofs and floors, and other similar horizontal surfaces in areas with steep slopes". See this policy on page 10-10 of the Goals and Policies Report. According to the Background Report on page 3-21, "Steeper terrain in these areas increase the threat of wildland fires." On page 8-22 in the Background Report ". . . Many of the (fire station) facilities (are) identified as inadequate for housing fire equipment. In addition, response times in the county have increased due to rapid growth without a correspondent growth in fire protection facilities and staffing. Therefore, as the county continues to grow, the risks of injury, loss of life, and property damage will also increase." The Tulare County Fire Department's Capital Improvement Plan identifies "the lack of funding as the main obstacle to improving fire protection."

According to the Background Report on page 8-22, "The Fire Department currently has minimal staffing to meet the requirements set forth under NFPA 1720-1721 for a rural area. This consists of one full time person per station per shift with either intern fire fighters (from a local community college, etc.) or paid on-call firefighters. However, while this is sufficient to meet the basic needs of the County in an emergency, this level of staffing often results in an elevated fire loss value when compared with other departments with more staff."

Homes built in areas at risk for wildfire is a major factor in the state's growing wildfire problem. Assembly Member Dave Jones, of Sacramento says because counties approve construction in wildfire areas, "more firefighters are placed in jeopardy and more homeowners have lost their homes as new subdivisions have been built in high-risk areas without adequate fire protection.

Human activity is by far the leading cause of wildland fires, accounting for at least 70% of the fires in CAL FIRE jurisdiction from 2000-05, agency figures show.

"Any time we put more people in the wildland, it puts more risks on the firefighters," said CAL FIRE deputy Director Ken Pimlott. "Our first priority is to protect life and property."

CAL FIRE is forced to fight fires more aggressively when houses are nearby. The presence of homes also limits the agency from using controlled burns and aerial firefighting.

Interestingly enough, Tulare County thinks controlled burns on road buffers in the mountains and foothills are a viable option. See Part I, Goals and Policies Report, HS-6.11 Fire Buffers.

There is agreement that development increases wildfire risks. Since Tulare County's foothills and mountains are now classified by CAL FIRE as Very High Hazard zones for wildfires, greatly increased development facilitated by the GPU would raise our foothill/mountain wildfire risk to extreme.

In years past California's wildfire season arrived like clockwork in late summer and ended in early fall. But recently, the spread of housing into fire-prone regions has turned the threat into a nearly year-round problem.

In 2008, a record 1.6 million acres burned in California. Ten of the 20 biggest wildfires in California's recorded history have happened since 2000. 2007 and 2008 were classified as "siege years," with abnormally high incidents of wildfires.

Tulare County's foothills and mountains are State Responsibility Areas (SRA). The State is required to fight wildfires in SRAs. Firefighting costs weigh heavily on California budget.

Meanwhile local fire departments have had to trim their budgets in the recession. They can't afford to spare resources to support other jurisdictions via mutual aid agreements to the same extent as in the past. Pushing development into the foothills and mountains put it and existing development at risk due to limited firemen, fire trucks, and longer response times.

Climate change will bring a significant increase in wildland fire risk. Longer, hotter summers, drier vegetation, and increased winds that throw embers do not bode well for those living in the foothills and mountains in homes that are merely fire resistant. Building materials must be non-combustible. No wood walkways, decks or fences may abut homes. Ceiling sprinklers must be required for every building. Homes must be tightly clustered (townhouses

are a good example) with 100' buffer areas around them. There must be a sufficient supply of water nearby and adequate pressure to fight a wildfire. There must also be sufficient available water for any proposed fire safety strategies, such as interior sprinkler systems and wetting down landscaping. The water should be stored in tanks, not ponds which dry up, get clogged with vegetation or are otherwise not maintained. The Tulare County Fire Department must be fully funded to meet the demands of a larger population in remote areas, with an adequate number of fire stations located within or close to housing development, staffed with an adequate number of fire fighters and with sufficient equipment in order to meet the response time required by law.

Another way to reduce risk of wildfire consuming a home is to ban highly flammable landscape materials such as eucalyptus, pampas grass, bamboo, and pine trees. This ban could be included in the Fire Protection Plan.

Wildfires that ravage California and other major forested areas around the world are speeding up the pace of global warming as they pump more and more greenhouse gases into the atmosphere, according to an international team of fire specialists from six nations. See attachment 26, Wildfires Speeding Up Global Warming Pace.

The County should refrain from permitting building in the Very High Fire Hazard zones or create and enforce a Fire Protection Plan requiring non-combustible construction materials.

The mitigating policies and implementation measures listed in the RDEIR on pages 3.8-34 and 3.8-35 will not mitigate the risk of building industry, commercial buildings, resorts, planned communities and housing in the foothills and mountains in very high wildfire threat areas. Our comments regarding them follow.

PF-5-2 Criteria For New Towns (Planned Communities)

This policy omits the need for New Towns to pay for staffing of new infrastructure. It requires each development pay its fair share.

In the Goals and Policies Report, General Plan Framework Component, Value Statements on page A-1, the fifth Value Statement is Growth will pay its own way providing sustainable, high quality infrastructure and services.

PFS-1.3 Impact Mitigation says "New development shall be required to pay its proportionate share of the costs of infrastructure improvements required to serve the project to the extent permitted by State law.

This is inconsistent. Explain the true intent of the GPU.

Each development must pay all its infrastructure costs. Each planned community must demonstrate a 20 year water supply for full build-out. Adequate and sustainable water supplies must be proved, not just documented. Infrastructure must include a transit center. Planned communities must not cause any conversion of Prime Farmland, period, no exceptions. Indeed no farmland, even grazing land, may be converted to Planned Communities. They can be located as infill.

No Implementation Measure.

PFS-1.3 Impact Mitigation

The County shall review development proposals for their impacts on infrastructure (for example, sewer, water, fire stations, sheriff's stations, libraries, streets, etc.) New development shall be required to pay its proportionate share of the costs of infrastructure improvements required to serve the project to the extent permitted by State law. The lack of available public or private services or adequate infrastructure to serve a project, which cannot be satisfactorily mitigated by the project, may be grounds for denial of a project or cause the modification of size, density, and/or intensity of the project. (The development should pay all of the costs of infrastructure improvements. If adequate infrastructure cannot be provided, the project must be denied.)

No Implementation Measure.

PFS-2.1 Water Supply

The County shall work with agencies providing water service to ensure that there is an adequate quantity and quality of water for all uses, including water for fire protection, by, at a minimum, requiring a demonstration by the agency providing water service of sufficient and reliable water supplies and water management measures for proposed urban development. (A will serve notice or equivalent must be provided for 20 years at project build out water demands.) (The County shall require agencies providing water service . . .)

No Implementation Measure.

PFS-7.1 Fire Protection

The County shall strive to expand fire protection . . . (The County shall expand fire protection . . .)

No Implementation Measure.

(This shows no true commitment.)

PFS-7.2 Fire Protection Standards

The County shall require all new development to be adequately served by water supplies, storage, and conveyance facilities supply adequate volume, pressure, and capacity for fire protection.
Implementation Measure 2 The County shall review and incorporate, as appropriate, the recommendations provided by CDF and Tulare County Fire Department Review Committee relative to fire protection. (The County shall incorporate the recommendations . . .)

PFS-7.3 Visible Signage for Roads and Buildings

The County shall strive to ensure all roads are properly identified . . . (If the County can't properly identify all roads, no building shall occur on them.

No Implementation Measure.

PFS-7.4 Interagency Fire Protection Cooperation

The County shall continue to promote cooperative fire protection agreements . . . (This is a weak commitment.)

No Implementation Measure.

PFS-7.5 Fire Staffing and Response Time Standards

The County shall strive to maintain fire department staffing and response time goals . . . (Not nearly good enough to keep residents safe.)

Implementation Measure 14.

The County shall maintain a map identifying the urban, suburban, rural and remote areas set forth in Policy PFS-7.5.

Implementation Measure 3.

The County shall develop and adopt an impact fee program for new development to provide funding mechanisms to ensure the provision, operation, and ongoing maintenance of appropriate public facilities and services (2010-2015). (This is deferred mitigation with no true commitment.)

PFS-7.6 Provision of Station Facilities and Equipment

The County shall strive to provide sheriff and fire station facilities, equipment (engines and other apparatus), and staffing necessary to maintain the County's service goals. . . . (Striving is not nearly good enough. Meet the service goals or stop development.)

No Implementation Measure.

PFS-7.7 Cost Sharing

The County shall require new development to pay public facility fees associated with new sheriff/fire station facilities and equipment necessary to maintain the County's service standards in that area. (Will these fees pay

all of the costs?) New development may also be required to create or join a special assessment district, or other funding mechanism, to pay the costs associated with the operation of a sheriff/fire station.

No Implementation Measure.

PFS-7.11 Locations of Fire and Sheriff Stations/Sub-stations

The County shall strive to locate fire and sheriff sub-stations in areas that ensure the minimum response times to service calls. (The County shall locate . . .)

No Implementation Measure.

FGMP-10.2 Provision of Safety Services

The County shall ensure that development is located in areas of the foothills that can be adequately served by existing Tulare County fire stations and the Sheriff's department unless new facilities are proposed or required for the development. (Tulare County residents in the foothills and mountains are getting bare bones coverage now and delays in response times. The new development shall pay all the costs of building and maintaining fire and sheriff facilities.)

No Implementation Measure.

FGMP-10.3 Fire and Crime Protection Plan

The County shall require that fire and crime protection plan considerations; including financing, be incorporated into all proposed developments to ensure adequate emergency services are available and able to serve new development. (Each proposed development must require a Fire Protection Plan (FPP), not just considerations.

No Implementation Measure.

HS-1.4 Building and Codes

Except as otherwise allowed by State Law, the County shall ensure that all new buildings intended for human habitation are designed in compliance with the latest edition of . . . California Fire Code . . . (The California Fire Code requires minimum standards. In some projects planned on steep slopes higher standards must be required in the Fire Protection Plan.)

Implementation Measure 7

The County shall develop standards for numbering buildings on private driveways to assist emergency service personnel in locating structures in 2015-2020. (How long does it take to develop a numbering system based on distance from the nearest fire station?)

HS-1.5 Hazard Awareness and Public Education

The County shall continue to promote awareness and education among residents regarding natural hazards, including . . . fire hazards . . . (This is weak.)

Implementation Measure 4

The County shall create a program that trains volunteers to assist . . . fire . . . personnel how to perform effectively after a natural or human-made disaster, ongoing

HS-1.6 Public Safety Programs

The County shall promote public safety programs, . . . including prevention of fire hazards . . . (How will the County do this?)

Implementation Measure 4

See above.

HS-1.8 Response Times Planning in GIS

The County shall utilize its Geographic Information Systems (GIS) technology to track fire . . . response times and provide technical assistance to fire . . . enforcement agencies.

Implementation Measure 10

The County shall work with other local agencies within the County to develop coordinated GIS planning . . . from 2015-2020

Implementation Measure 11

The County shall maintain a fire hazard severity map based on inputs from CAL FIRE and local fire districts in the County. The County shall use this map to determine if additional fire safety conditions should be applied as conditions of approval. . . . Ongoing (Very high hazard and extreme hazard wildfire areas require additional fire safety conditions.)

HS-1.9 Emergency Access

The County shall require, where feasible, road networks (public and private) to provide for safe and ready access for emergency equipment and provide alternate routes for evacuation. (Safe and ready access for emergency equipment and alternate routes must be mandatory.)

Implementation Measure 9

The County shall pre-identify and periodically review evacuation routes in anticipation of an emergency . . . (This does not ensure an alternate route.)

HS-1.10 Emergency Services Near Assisted Living Housing

In approving new facilities, such as nursing homes . . ., to the extent possible, the County shall ensure that such facilities are located within reasonable distance of fire stations. (Not good enough, what is a reasonable distance? Remove "to the extent possible.")

No Implementation Measure.

HS-1.12 Addressing

The County shall seek to expand the Street Names and House Numbering Ordinance to all areas of county, including private roads for emergency 911 purposes. (Weak policy.)

Implementation Measure 7

The County shall develop standards for numbering buildings on private driveways to assist emergency service personnel in locating structures 2015-2020.
(Too late.)

HS-6.1 New Building Fire Hazards

The County shall ensure that all building permits in urban areas, as well as areas with potential for wildland fires, are reviewed by the County Fire Chief.

Implementation Measure 15

CAL FIRE has 3 designations of wildfire risk in foothills and mountains-high, very high, and severe. For some reason, Tulare County has chosen to use the classification Extreme, Moderate, and Minimum. FIX THIS. Despite the inconsistent classification, in Extreme Hazard areas the County says "extreme caution should be used in allowing development, particularly critical facilities." (Well, well, well. If this weren't so serious, it would be funny. How can you approve housing and schools in Extreme Hazard areas, under any conditions? Issue NOMEX suits, fire shelters, etc.?) (2010-2015)

Implementation Measure 16

The County shall work with the Fire Chief to develop a natural hazard disclosure statement for wildland fires to be recorded along with all development approvals in all moderate and extreme hazard areas. (2015-2020) (It's a little late to issue this statement after approval of a

development.) The high and very high hazard designations have been omitted from this implementation measure.)

HS-6.2 Development in Fire Hazard Zones

This policy must include limited, moderate, high, very high, and extreme fire hazard zones. "Steeper terrain in these areas increases the threat of wildland fires." Page 8-21 Background Report. Steep slopes in Very High Fire Threat areas equates with Extreme threat. Cut-and-fill grading on average of 30° slopes increases the gradient radically.

The County must not "promote" use of fire resistant materials, it must mandate them to comply with the California Fire Code. "Special consideration shall be given to the use of fire-resistant-materials and fire-resistant construction in the underside of eaves, balconies, unenclosed roofs and floors, and other similar horizontal surfaces in areas with steep slopes." (This is not acceptable fire protection on steep slopes. All building materials must be non-combustible. Floors should not be exposed to fire from below. No homes on crawl spaces, or on stilts, or cantilevered out can be allowed in very high or extreme fire hazard zones.)

Implementation Measure 15

See comments above.

HS-6.3 Consultations with Fire Service Districts

The County shall consult the appropriate fire service district in areas identified as subject to high and extreme fire hazard, for particular regulations or design requirements prior to issuance of a building permit or approval of subdivisions. (Include the Very High fire hazard category. Consulting is not enough. Add "and follow the recommendations of fire service district.")

Implementation Measure 16

The County shall work with the Fire Chief to develop a natural hazard disclosure statement for wildland fires to be recorded along with all development approvals in all moderate and extreme hazard areas.

(What happened to high and very high hazard areas? What good is a natural hazard statement recorded along with development approvals? It doesn't lower the fire risk. This Implementation Measure doesn't kick in until 2015-2020. This is an inadequate, deferred mitigation with no true commitment.)

HS-6.4 Encourage Cluster Development

The County shall encourage cluster developments in areas identified as subject to high or extreme fire hazard . . . (What good does encouraging do? Mandate cluster development. Define cluster development. How many units per acre? Add very high fire hazard category to this policy.)

No Implementation Measure.

HS-6.5 Fire Risk Recommendations

The County shall encourage the County Fire Chief to make recommendations to property owners regarding hazards associated with the use of materials . . . (The County Fire Chief should be making recommendations to the Board of Supervisors, not property owners, regarding standards of construction, etc.)

No Implementation Measure.

HS-6.6 Wildland Fire Management Plans

The County shall require the development of wildland fire management plans for projects adjoining significant areas of open space that may have high fire loads. (Who determines what size area is significant? Who determines a high fire load? What are the standards? This is deferred mitigation with no true commitment and no standards of measurement.)

No Implementation Measure.

HS-6.7 Water Supply System

The County shall require that water supply systems be adequate to serve the size, and configuration of land developments, including fire flow

requirements. (Include grade of land. Greater slopes mean faster wildfire movement. More water supply will be needed to cope.)

No Implementation Measure.

HS-6.8 Private Water Supply

The County shall require separately developed dwellings with individual private water supply to provide an acceptable guaranteed minimum supply of water for fire safety, in addition to the amount required for domestic needs. (What is an acceptable minimum - 4000 gallons, 5000 gallons, 10,000 gallons? It must be in a tank. Ponds go dry or get clogged with vegetation, frogs, and trash.)

No Implementation Measure.

HS-6.9 Fuel Modification Programs

The County shall actively support fuel modification and reduction programs on public and private lands throughout the County. (The County needs to "require" not "support" this. Where will the manpower come from to monitor public and private lands throughout the County? The County does not monitor or enforce anything now.)

No Implementation Measure.

HS-6.10 Fuel Breaks

(Good policy. Who will monitor compliance with fuel breaks regulations?)

No Implementation Measure.

HS-6.11 Fire Buffers

The County shall strive to maintain fire buffers along heavily traveled roads within high and extreme hazard zones by thinning, disking, or controlled burning . . . (Add "very high hazard" zone. What is the definition of heavily traveled road? Who decides? Controlled burning is out of the question. It creates GHG emissions and makes our air quality worse. Burning greenwaste

is a hazard to public health. There isn't enough funding or manpower in Tulare County's road maintenance division to maintain fire buffers. There has been 20 years of deferred road maintenance in Tulare County which has caused accelerated deterioration of our county roads. Disking won't work in foothills or mountains where granite boulders exist above ground and below ground. This policy is a pipe dream. Striving isn't good enough. If Tulare County can't mitigate the fire risk, it shouldn't allow development in high, very high, and extreme hazard zones.)

HS-6.12 Weed Abatement

The County shall continue to encourage weed abatement programs throughout the County in order to promote fire safety. (How will the County encourage weed abatement? Is any money set aside? This is another empty promise.)

No Implementation Measure.

HS-6.13 Restoration of Disturbed Land

The County shall support the restoration of disturbed lands resulting from wildfires. (How will the County support this restoration? Has any money been set aside? People designated to come up with a plan?)

No Implementation Measure.

HS-6.14 Coordination With Cities

The County shall coordinate with cities to develop cohesive fire safety plans with overlapping coverage. (Who is tasked to do this? How often do they meet with the eight incorporated cities? When does this begin?)

No Implementation Measure.

HS-6.15 Coordination of Fuel Hazards on Public Lands

The County shall work with local and Federal agencies to support efforts to reduce fuel related hazards on public lands. (Who is tasked to do this? When does it start?)

No Implementation Measure.

HS-7.1 Coordinate Emergency Response Services with Government Agencies

(Good policy and Implementation Measure.)

HS-7.2 Mutual Aid Agreement

(Good policy except for "where necessary and appropriate" clause. Who decides this?)

No Implementation Measure.

HS-7.3 Mountain Emergency Evacuation Plans

(Good policy except wildfire was not included. Evacuation on poorly maintained sub-standard roads is going to be a huge problem.)

Implementation Measure 19

This is required by state law.

HS-7.4 Upgrading for Streets and Highways

The County shall evaluate and upgrade vital streets and highways to an acceptable level for emergency services. (This is great for valley residents. It does not help residents in high, very high, and extreme wildfire threat areas of the foothills and mountains where poorly maintained, substandard roads are low priority for maintenance. What is an acceptable level?)

No Implementation Measure.

HS-7.5 Emergency Centers

(Good policy. Are there any in foothills and mountains?)

No Implementation Measure.

HS-7.6 Search and Rescue

The County should continue to provide search and rescue operation capabilities for the Tulare County Sheriff's Department in mountainous areas . . .
(Does "should continue" mean you will or you won't? What about all that development encouraged in remote mountain areas (mountain service centers)? Are you going to rescue those folks in the event of a wildfire surrounding a planned community or dude ranch or some other resort facility? What if some dude wanders off and gets lost?)

No Implementation Measure.

HS-7.7 Joint Exercises

The County shall encourage . . . (Encouraging shows no commitment. The County does not have the money or manpower to do this. This is an inadequate and deferred mitigation measure.)

No Implementation Measure.

Implementation Measures #15 and #16 are flawed. See my comments above.

Does this RDEIR consider the exacerbating efforts of climate change on wildfire hazards? The answer is "no." Does it consider the cumulative impacts relating to development in the Wildland/Urban Interface? "No," again.

Would multiple planned communities change the characteristics of wildfire (e.g., making it burn hotter or spread more quickly, resulting in significant effects on biological resources? Yes.

Emergency response plans or other disaster preparedness plans need to be developed before each planned community is approved, not deferred until later.

This GPU proposes merely to comply with existing fire codes. Compliance with the California Fire Code is not adequate mitigation because foothill and mountain areas in Tulare County are located in Very High wildfire risk areas and cut-and-fill grading on slopes averaging 30° for housing will end up with steeper grades which raises wildfire risk to extreme.

The Yokohl Ranch NOP on page 1 listed the wildfire risk impact after development as "Significant." Explain how the RDEIR for the GPU rates the risk as "Less Than Significant."

The first step in assessing the potential to comment on wildfire-related impacts of a project is to determine whether the project's impacts are potentially significant. Appendix G of the CEQA Guidelines includes several checklist questions, including the following:

> Section IV(a)-(f): Would the project have a substantial adverse impact on special status species, a sensitive natural community or wetlands? Would it interfere with the movement of any native resident or migratory fish or wildlife species? Consider not just the footprint of the structures and infrastructure, but also any defensible space or fuel treatment zone requirements proposed to mitigate fire risks.
>
> Section VII (h): Would the project "expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residents are intermixed with wildlands?"
>
> Section XIII: Would the project "result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service rations, response times or other performance objectives?" In other words, would developing in a remote wildland/urban interface (WUI) area require the construction or addition of fire stations, water delivery systems or other infrastructure?
>
> Section XV(e): Would the project result in inadequate emergency access? Consider traffic levels on existing roads, condition of roads, and the number of ingress and egress points from the development.
>
> Section XVI(d): Would the project have sufficient water supplies available at buildout to serve the project from existing entitlements and resources, or are new and expanded entitlements needed? The lead agency should consider whether the project has sufficient water available for emergency fire-

fighting purposes, in addition to providing water for any proposed fire safety strategies, such as landscaping and interior sprinkling systems. There has been no hydrologic study of groundwater capacity in the foothills or mountains.

Section XVII (b): Does the project have impacts that are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects")? Is your county considering and/or developing several projects in the WUI? Consider the cumulative impacts on water supply, biological resources, wildfire hazards, traffic, soil erosion, sedimentation, water quality.

Section XVII (c): Does this project have "environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?" Note that this threshold requires the adverse effects on human beings to be tied back to environmental effects.

The California Fire Code contains provisions specific to WUI fire areas in Chapter 47. The Fire Code's WUI fire area provisions are intended to "provide minimum standards to increase the ability of a building to resist the intrusion of flame or burning embers being projected by a vegetation fire and contributes to a systematic reduction in conflagration losses through the use of performance and prescriptive requirements." CAL Fire Code §4701.2.

Following are pages 8-18 through 8-20 of the Background Report, 8.4 Fire Hazards, including Existing Conditions, Fire Hazard Severity, and Fire Prevention and Suppression.

8.4 Fire Hazards
Introduction
Both urban and wildland fire hazards exist in Tulare County, creating the potential for injury, loss of life, and property damage. Urban fires primarily involve the uncontrolled burning of residential, commercial, or industrial structures due to human activities. Wildland fires affect grass, forest, and brushlands, as well as any structures on these lands. Such fires can result from either human-made or natural causes. The type and amount of fuel, topography, and climate are the primary factors influencing the degree of fire risk. Vegetation fires comprised the majority of fires in Tulare County according to the California Department of Forestry and Fire Protection (CDF). Most of the fires are caused by human activities involving motor vehicles and equipment, arson, and debris burning.

Methods

Information in this section was provided by the Tulare County Fire Department, the California Department of Forestry, and Tulare County staff.

Key Terms

- Fire Prevention and Suppression. Public protection classifications are designated by the Insurance Services Office (ISO). The ISO bases its classifications on a number of factors, including fire department location, equipment, staffing, water supply, and communications abilities. Ratings range from 1 to 10, with 1 being the best possible fire protection, and 10 being the worst.
- State Responsibility Area (SRA). These are areas classified by the State Board of Forestry and Fire Protection as being the primary financial responsibility of the State for preventing and suppressing fires. These lands include: lands covered wholly or in part by timber, brush, undergrowth or grass, whether of commercial value or not; lands that protect the soil from erosion, retard run-off of water, or accelerated percolation; lands used principally for range or forage purposes; lands not owned by the Federal Government; and lands not incorporated. Lands are

removed from SRA when housing densities average more than three units per acre over an area of 250 acres.

Regulatory Setting

State Regulations

- Public Resources Code Section 4290. Public Resources Code Section 4290 sets minimum fire safety standards for development in State Responsibility Areas. These minimum fire safety standards identify:
  - Road standards for fire equipment access.
  - Standards for signs identifying streets, roads, and buildings.
  - Minimum private water supply reserves for emergency fire use.

  Standards for fuel breaks and greenbelts.
  -

Local Regulations

- Fire Construction Standards. Tulare County established the Fire-Safe Regulations and Road Standards (Ordinance No. 542), which address requirements for signage and building addresses, zoning, water, parcel map, the subdivision ordinance, and road standards to comply with the Public Resources Code 4290. The ordinance includes the following requirements, which are implemented by the county Resource Management Agency and the Tulare County Fire Department during plan review of new projects:
  - Emergency access shall be ensured by minimum 18-foot road widths with surface accommodating conventional vehicles and 40,000-pound loads, grades not exceeding 16 percent, curve radii of at least 50 feet, dead ends meeting maximum length requirements with turnouts and turnarounds, and roadway structures and gate entrances that do not obstruct clear passage of authorized vehicles.

– Signing and building numbering shall facilitate locating a fire and avoiding delays in response time by being sufficiently visible, nonduplicative, and indicative of location and any traffic access limitations.
– Emergency water sources shall be available and accessible in adequate quantities to combat wildfire with labeled hydrants meeting uniform specifications.
– Fuel modification shall be practiced to reduce the intensity of a wildfire by reducing the volume and density of flammable vegetation adjacent to structures and in the general vicinity of development.

Existing Conditions

The following information provides the existing conditions of fire hazards in Tulare County. The following section describes urban fire hazards, wildland fire hazards, fire prevention measures, and construction standards in Tulare County.

The ISO ratings in the incorporated areas of Tulare County range from 5 to 8 with unincorporated areas receiving an average rating of 8. Response times in addition to more information regarding fire protection services for Tulare County are described in more detail in Chapter 7, Public Services and Utilities.

Urban Fire Hazards

Urban fires primarily involve the uncontrolled burning of residential, commercial, and industrial structures due to human-made causes. Factors that exacerbate urban structural fires include substandard building construction, highly flammable materials, delay in response time, and inadequate fire protection services.

The Tulare County Fire Department currently reviews development plans and building permits for compliance with the Uniform Building Code. Until recently, minimal enforcement of structural fire codes (for example, building codes requiring interior sprinkler systems and firesafe building materials) has taken place. As a result, many of the structures in Tulare County that were built prior to 1987 may be substandard in terms of fire safety. There is not an existing program for retrofitting such structures (with the exception of those structures that legally require inspection, such as institutional buildings).

Wildland Fire Hazards

Throughout California, communities are increasingly concerned about wildfire safety as increased development occurs in the foothills and mountain areas, and subsequent fire control measures have affected the natural cycle of the ecosystem. Suppression of natural fires allows the understory to become dense, creating the potential for larger and more intense wildland fires. Wind, steepness of terrain, and naturally volatile or hot-burning vegetation contribute to wildland fire hazard potential.

The threat of wildland fires also increases as the terrain in the county becomes increasingly steep in the foothills and mountains. Where human access exists in wildland areas, such as the Sierra Nevada Mountains and foothills, the risk of fire increases because of a greater chance for human carelessness and historic and current fire management practices. Human activities such as smoking, debris burning, and equipment operation are the major causes of wildland fires.

Although the total number of fires in the oak savannah portions of the lower Sierra foothills may have increased with five-acre lot subdivision activity, the size and duration of fires appears to have been reduced in this area due to firebreaks created by driveways and roads, reduced fuels and "checkerboard" fuel patterns through individual safe area

vegetation clearance (PRC 4291); increased vigilance fostering early fire reporting; and early intervention (fire suppression) efforts by individuals and fire companies.
On the other hand, the creation of residential parcels in this area has compounded the potential for property damage from fires and has significantly complicated firefighting responsibilities in the area. Wildland firefighting strategies have become similar to municipal firefighting efforts. Foothill and mountain subdivisions have also virtually eliminated prescribed burning as a means of fire suppression.

Fire Hazard Severity
According to Fire and Resource Assessment Program (FRAP) Fire Threat data, Fire Threat is a combination of two factors:

1. Fire frequency, or the likelihood of a given area burning, and
2. Potential fire behavior (hazard). These two factors are combined to create the following threat classes:

.. Little or No Threat
.. Moderate
.. High
.. Very High
.. Extreme

Within the county, over 1,029,130 acres (33% of the total area) are classified as "Very High" fire threat and approximately 454,680 acres (15% of the total area) are classified as "High" fire threat. The portion of the county that transitions from the valley floor into the foothills and mountains is characterized by high to very high threat of wildland fires. Steeper terrain in these areas increases the threat of wildland fires. These areas are shown on Figure 8-2. The western portion of the county has little or no threat of wildland fires (CDF, 2006).

Fire Prevention and Suppression
Since July 1, 2007, Tulare County fire protection has been provided by the Tulare County Fire Department. Prior to July 1, 2007 fire protection was provided by the California Department of Forestry (CDF). CDF is also responsible for providing fire protection to the State Responsibility Area (SRAs). SRAs are areas in which the State Board of Forestry has determined that the state has the financial responsibility for fire prevention and suppression. In the Sequoia National Forest, the U.S. Forest Service is the responsible fire agency.
The Tulare County Fire Department's Capital Improvement Plan (CIP, 1991) addresses current and future fire protection needs in the county, establishes priorities, sets level of service standards based on land uses, and establishes a long-range plan for fire prevention and protection. According to the CIP, conditions of the county's 16 fire stations, operated by CDF and Tulare County, range "from excellent to poor," with many of the facilities identified as inadequate for housing fire equipment. In addition, response times in the county have increased due to rapid growth without a correspondent growth in fire protection facilities and staffing. Therefore, as the county continues to grow, the risks of injury, loss of life, and property damage will also increase. The CIP identifies the lack of funding as the main obstacle to improving fire protection. The Fire Department is currently preparing an updated CIP to present to the Board of Supervisors for approval. In the future, the Fire Department plans to update the CIP every three to five years.
The Tulare County Fire Department has 28 stations that are situated throughout the County in the most densely populated areas. The Fire Department currently has minimal staffing to meet the requirements set

forth under NFPA 1720-1721 for a rural area. This consists of one fulltime person per station per shift with either intern firefighters (from a local community college, etc.) or paid on-call firefighters. However, while this is sufficient to meet the basic needs of the County in an emergency, this level of staffing often results in an elevated fire loss value when compared with other departments with more staff. In addition to more staff, some of the Department's facilities need repairs, replacements, or relocations. Currently, relocations are planned for the South Visalia and Alpaugh fire stations. Additional fire stations in need of relocation include West Olive, Tulare, and Dinuba fire stations (Mendoza, 2009).

Wildfire-Safe
New Construction Tips

Roofs: The single most important issue of fire safe construction is using a fire-resistant roofing material. Class-A fiberglass, cement-tile or metal roof coverings should be used in designated high-hazard areas on all new construction, additions or repairs. Eave-end gaps in tile roofs should be fire-stopped with cement mortar or metal bird stops, which are available at most roofing-supply stores.

Exterior walls: The best case is a concrete wall system such as an insulating Concrete Form (ICF) wall, where a solid flat wall of concrete is sandwiched between two layers of EPS foam. A 6" layer of concrete provides a building shell with a wall fire rating of greater than 3 hours. (A 2x4 wall is a matter of a few minutes by comparison).

Siding or cladding: Claddings made with cement or stone are the most common fireproof siding. Examples are stucco, stone, brick or fiber-cement siding (such as Hardie Plank). These claddings can be applied over either a wood frame or over a concrete ICF wall system. Stucco should be a minimum of 7/8-inches thick and a "three coat system" is preferred from a fire safe point of view.

- If wood, vinyl or fiber exterior siding is used, it should be applied directly over standard 5/8-in. type-X gypsum wallboard, a gypsum-core panel laced with chemical additives and glass fibers that are commonly used in one-hour fire-rated walls that are between attached garages and living areas.

Soffits: Enclose eaves and rafter tails with a soffit of fireproof material. This can either be a fiber-cement board product or stucco.

Vents:

- Attic vents in all cases should be covered with a metal screen with a small grid size to prevent wind borne embers from penetrating into attic spaces. Required individual venting at gable ends and on roofs should not exceed 144 sq. in. and should be covered with 1/4-in. mesh screen.

- Venting should not be located in roof eaves or cornices or in the underside or on exposed edges of decks.

Decks:

- Use a fire proof or fire resistant material for decks. Best case is a concrete deck over a steel frame. Many modern synthetic materials are more resistant to fire than natural wood products.

- Skirt decks with solid sides such that flying embers or a grass fire can't get under the deck.

- Wood deck and trellis members should be a minimum 2x4 dimension; wood beams, floor joists and stair stringers a minimum 4x6 dimension; and posts a minimum 6x6 dimension.

- All such wood should be UBC-approved fire-retardant material or cement plastered.

All projections, such as roof overhangs, balconies, decks, exterior stairs, carports or patio covers, should be protected on their undersides and on exposed edges with cement plaster. Or they should be protected with a continuous wall, most likely cinder block, around the perimeter of the projection from the underside down to the existing grade; or with UBC approved fire-retardant wood specially treated with fire-retardant chemicals (*such as Dricon by the Hickson Corporation* www.dricon.com; 404-801-6600).

Roof sprinklers: Most experts agree these exterior sprinklers are ineffective in a wildfire and a waste of money. Don't bother with them. (Interior sprinklers are a different issue).

Glass in exterior openings should be dual-glazed and resistant to transmission of radiant heat from direct flame. Though there is no industry-approved uniform fire rating for dual-glazed windows, windows with an insulating-air-gap feature have proved their worth under actual fire conditions. The task force also recommends certain newly developed heat-reflective single-pane windows, which actually reflect heat back to the source at the same time that they keep the inside cool, such as the windows that are sold by O'Keefe Inc. (75 Williams Ave., San Francisco, Calif. 94124-0443; 800-227-3305). The windows are of a calcium silica-based float glass with a lab-tested 60-minute fire-resistance rating. The glass is also stronger than normal glass.

Propane tanks. Locate at least 30 feet away from the structure.

Defensible space and fire resistant materials. The same practices that apply to existing structures should be planned in for new construction.

There are numerous sources of further information on Firesafe construction tips for new construction on the web.

Some useful sites include:

http://www.firewise.org/

http://www.firesafecouncil.org

http://www.firewise.org/co/construction.html

Prepared by Amvic-Pacific
Distributors of Amvic Insulating Concrete Forms
Nevada City California
530-265-9085

Impact
3.9-1

Impact 3.9-1: The proposed project would require new or expanded water supplies, facilities and entitlements

The 2008 DEIR wording of this impact is:

> The General Plan Update would require or result in the construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

The CEQA 2010 Statute and Guidelines wording of this impact is:

> Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environment effects.

What is the rationale for simplifying this impact so much that the public cannot grasp that water treatment or wastewater treatment plants might need to be built or existing ones expanded at the risk of significant environmental effects, if not to obscure the ramifications?

Impact Summary

> Level of Significance Before Mitigation: Potentially Significant
> Required Additional Mitigation Policies and Implementation Measures: No feasible mitigation
> Resultant Level of Significance: Significant and Unavoidable

Impact Analysis

"Overall, it is important to note that Tulare County lacks a comprehensible water supply assessment and approach, and implementation strategy to address complex, regional water supply issues. RDEIR PFS page 3.9-47.

"Uncertainty over long-term availability of water supplies and the lack of direct County jurisdiction over public water purveyors results in a level of unpredictability about the adequacy of future water supply availability (including long-term sustainability) in some of the unincorporated areas throughout the County." RDEIR PFS page 3.9-49. Even if the County had direct jurisdiction over public water

purveyors, that would NOT ensure abundant, reliable, and safe drinking water. See Enclosure 9 of attachment 39.

"The Kings, Tule, and Kaweah basins were among 11 basins identified by DWR in 1980 as being in a "critical condition of overdraft." Appendix G, page 25. This happens "when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts." DWR Bulletin 118-2003, p. 98.

The issues affecting water supplies are:

1. Groundwater overdraft
   a) increased pumping expenses
   b) impacts to water quality
   c) land subsidence
   d) stealing water from neighboring wells (cone of depression or lowering the water table)

2. San Joaquin River Settlement

3. Population growth in or near Tulare County
   a) increased demand for groundwater
   b) more impervious ground cover = less groundwater recharge

4. Declining groundwater levels in adjacent counties

5. Groundwater adjudication

6. Water transfers and exchanges (i.e. export of groundwater or surface water out of County resulting in a net loss of water) See attachment 27, Farm Water Transfers.

7. Delta supply restrictions on export of water

8. Climate change.
   a. Even in wet years when most reservoirs have more than normal capacity, Lake Oroville, the principal reservoir for the State Water Project may be only 71 percent of normal. See attachment 28, State Water Project.

DWR has said it will deliver just 40 percent of requested State Water Project water to cities and farms this year (2010).

b. Increased difficulty of balancing flood control and water storage.
c. Increased demand for water and higher evapo-transpiration rates.
d. Capturing increased runoff during intense storms will be difficult, leading to less groundwater recharge.

9. Potential groundwater management laws.

10. Regulations on allowed MCLs in drinking water are tightening.

11. Potential legal requirement that all new development must prove it has a 20 year supply of water at buildout.

12. The Tule River and the Kaweah River which is a tributary to the Tule are over-allocated.

The preceding threats to water supply are daunting. Development must proceed with caution requiring proof of adequate water supply, offsetting water use 2:1 and requiring the Best Management Practices in water conservation and water efficiency, all of which our county has failed to do.

How are the County's water treatment and wastewater treatment plants going to handle the increased demand for safe drinking water and process all the wastewater? What damage will be wreaked on the amount and quality of our groundwater? It will be a disaster.

"The recent enlargement of Success Reservoir" is touted as a benefit for water supply in the RDEIR Public Services and Facilities, Regional Water Supply and Entitlements on page 3.9-39. In fact, the spillway was never raised because serious structural flaws were found at the base of the dam. First, seismic retrofit (expansion of dam base) must be accomplished, then the spillway can be raised. The federal government has not funded this yet. It will be many years before more water storage is achieved at Success Dam. Meanwhile, the Corps of Engineers will not allow Success Lake to fill more than two thirds due to the dam's structural flaws.

All the policies designed to minimize this impact through the early identification of required infrastructure and the orderly construction and rehabilitation of the

facilities needed to serve existing and planned urban areas in the RDEIR on page 3.9-49 would have mitigated the impact if they were required, were strict, were funded, had performance standards and were not deferred.

PF-2.3 UDB and Other Boundaries

The County shall work with special districts, school districts, and other service providers when evaluating the expansion of a Community's UDB.

Implementation Measure 5

The County shall delineate and maintain UAB's, HDBs, and UDBs on the County's General Plan Land Use Diagram for reference purposes.

Implementation Measure 9

The County shall prepare a community plan that prioritizes the order in which community plan updates and their associated environmental impact reports shall be programmed as part of the budget process . . . (What good does that do? Concerned residents of Three Rivers have been trying to get the County to cooperate on creating a new community plan for 12 years. Supposedly Three Rivers is at the top of the list. There is no commitment to do this.)

Implementation Measure 10

When prioritizing community plan updates the County shall give weight to factors, including . . . (So what? No community plans are being written. No EIRs are being written. No funding has been provided. How can the communities expand sustainably?)

PF-2.4 Community Plans

The County shall ensure that community plans are prepared, updated, and maintained for each of the communities. These plans shall include the entire area within the community's UDB and shall address the community's short and long term ability to provide necessary urban services. (This is NOT happening. The most recent community plans were Ivanhoe (1990), Poplar-Cotton Center (1996), Pixley (1997) and Terra Bella-Ducor (2004). See Part I, Planning Framework, page 2-4.

Twelve communities have plans. Some date to 1978, 1980. There are 21 unincorporated communities. This is not a high priority.)

Implementation Measure 10

(See Comments above.)

Implementation Measure 11

Performance measures shall be included in all community plans to be used to measure and evaluate the success of the plan in achieving its goals. . . . (This is listed as a New Program and listed as On-going.)

Implementation Measure 12

Uniform Improvement Standards for communities will be developed for use in their community plans. . . . as funding allows. (This is listed as a New Program and On-going.)

PF-2.5 Collaborative Community Planning Partnerships

The County should encourage establishment of collaborative partnerships for preparation of community plan updates where one or more applicants are willing to fund the update, regardless of the position of the community on the community plan priority list. Requirements for a new town development shall be utilized to guide such public/private joint planning efforts. ("Should encourage" shows no commitment. The County seems to want someone else, anyone else, to pay for this planning. This policy most likely was written for the proposed Yokohl Ranch project. The rest of us can wait in line forever.)

No Implementation Measure

PF-2.6 Land Use Consistency

The County shall require all community plans, when updated, to use the same land use designations . . .

No Implementation Measure

PF-3.3 Hamlet Plans

The County shall ensure that Hamlet Plans are updated and maintained for each of the identified hamlets. . . . New Policy. The County plans to start doing this 2015-2020. (So, none of the eleven hamlets have a plan. There is no policy for funding these future plans. This is an empty promise.)

Implementation Measure 18

The County, led by the Planning Commission, (in 2015-2020) shall conduct a citizen outreach effort in Tulare County hamlets to prepare guidelines for the preparation of hamlet plans . . . (This is a promise to reach out and start thinking about the plans in 5-10 years. Will the County ever find this to be high enough priority to fund? One of the Supervisors, Phil Cox, said a few years ago that the hamlets were so poor and had such poor drinking water, etc., they should be allowed to wither away. Is this the way for a hamlet to prosper? The fourth value statement in the Goals and Policies Report, page A-1 is "Every community will have the opportunity to prosper from economic growth. So, no economic growth, no prosperity? The County sure isn't going to help you. How can a hamlet with unpaved streets and unsafe drinking water attract business?)

PF-6.5 Regional Planning Coordination

The County shall coordinate with adjacent counties and their cities, regional councils of governments, and State agencies to ensure coordination on infrastructure efforts and funding in the region. (Did the County cooperate or go along with the Blueprint Process? No. They stubbornly said they would go their own way. That was an 8-county anti-sprawl movement.)

No Implementation Measure

ED-1.6 Develop Public/Private Partnerships

The County shall pursue partnerships to encourage the development of public facilities and infrastructure improvements that benefit communities. (This seems aimed at New Towns like the proposed Yokohl Ranch Project.)

No Implementation Measure

PFS-1.7 Coordination with Service Providers

The County shall work with special districts, community service districts, public utility districts, mutual water companies, private water purveyors, sanitary districts and sewer maintenance districts to provide adequate public facilities. (Nice long list. We are not impressed by "shall work with." You want to shove all the new growth on unincorporated communities with no wastewater treatment plants, beleaguered water companies and you are not going to provide money to upgrade their systems? This is a bad faith policy. There aren't "adequate" facilities now with the present population.)

No Implementation Measure

(No surprise here.)

PFS-1.8 Funding for Service Providers

The County shall encourage special districts, including community service districts and public utility districts to:

- Institute impact fees and assessment districts to finance improvements
- Take on additional responsibilities for services and facilities within their jurisdictional boundaries up to the full extent allowed under State law, and
- Investigate feasibility of consolidating services with other districts and annexing systems in proximity to promote economies of scale, such as annexation to city systems and regional wastewater treatment systems.

(All the County can do is "encourage;" it can't force and it certainly isn't funding improvements. It's rich of the County to suggest these special districts institute impact fees when (1) the County hasn't imposed impact fees on new development; (2) maybe the communities don't want new development (3) the improvements the special districts are financing now are simply to keep the present systems functioning. Does the County want to take on additional responsibilities, especially financial responsibilities? Yet the County wants the special districts to foot the bill for water and wastewater for new development. In most cases in this rural county, especially in the foothills and mountains, there is no nearby district to annex or consolidate with. This is a pipedream. Is the County trying to create a

fiction that the unincorporated areas are capable of absorbing 313,000 new people?)

PFS-1.14 Capital Improvement Plans

No comment.

PFS-1.16 Joint Planning Efforts

The County will promote joint planning efforts between communities, hamlets, and cities . . . (This is weak, not likely to happen and has no true commitment. The County is understaffed and underfunded. There is no innovation. There is no plan here. It is just rhetoric.)

No Implementation Measure

PFS-2.1 Water Supply

The County shall work with agencies providing water service to ensure that there is an adequate quantity and quality for all uses, including water for fire protection, by, at a minimum, requiring a demonstration by the agency providing water service of sufficient and reliable water supplies and water management measures for proposed urban development. (Ah, if only wishing for adequate and clean water would make it happen. See Enclosure 9 of attachment 39)

FGMP-9.1 Infrastructure Capacity

In reference to water needs (domestic and firefighting) and wastewater generation, the County shall not allow new development to exceed the maximum physical holding capacity (based on water availability and soils) of the parcel in question.
(What are the performance standards? Almost all development in unincorporated county is on septic systems. The County grants building permits before a well is drilled. How is this going to work? See attachment 29, Improving Water Quality in Mattheny Tract.)

Implementation Measure 27

No comment.

FGMP-9.2 Provision of Adequate Infrastructure

The County shall require evidence, prior to project approval, which (1) describes a safe and reliable method of wastewater treatment and disposal; and (2) substantiates an adequate water supply for domestic and fire protection services. (Elsewhere in this document the County is considering reducing the number of septic system permits. Since there are very few wastewater treatment plants, if any, in the unincorporated areas, where exactly will the future 313,000 people dispose of their waste? What is an adequate domestic water supply? At some point the new wells are going to adversely impact, by lowering the water table or by their cones of depression, the existing wells. What then?)

No Implementation Measure

WR-1.3 Water Export Outside County

The County shall regulate the permanent export of groundwater and surface water resources allocated to users within the County to cities and service providers outside the County to the extent necessary to protect public health, safety and welfare. The County shall strive for no net loss where there may be water exchanges serving a public purpose.
(The County has no control over water transfers so it can't regulate it. Water will become more expensive as population grows and industry's water demand increases. A water market will emerge. The entity willing to pay the highest price per acre foot or able to drill the deepest well will gain control of the water. Farmers are the most vulnerable since they can't afford to pay as much for water. Richer cities like Los Angeles and San Diego can afford to pay more per acre foot than Porterville, Visalia, or Farmersville. They also have more political clout. The Metropolitan Water District stole water from Owens Valley. Tulare and Kern Counties are the next water banks to be raided. Water exchanges and transfers are complex. Our County staff isn't up to combating the complexity, the politics, or the subterfuge of powerful entities that want our water. Our cities, communities and hamlets are vulnerable to loss of water supply. "Shall strive for no net loss" shows no true commitment. "If locally generated water resources are allowed to transfer outside the County, an impact to the overall availability and reliability of water for County needs could result." RDEIR PFS page 3.9-41.

No Implementation Measure

WR-3.1 Develop Additional Water Sources

The County shall encourage, support and, as warranted, require the identification and development of additional water sources through the expansion of water storage reservoirs, development of groundwater banking for recharge and infiltration, and promotion of water conservation programs, and support of other projects and programs that intend to increase the water resources available to the County and reduce the individual demands of urban and agricultural users.
(This is one of the most disingenuous policies in the GPU. This policy is a continuation of past water management practices. In order to accommodate 313,000 more people and a lot more industry and commercial development, more water supplies need to be found. Water conservation and water efficiencies must be required in this GPU. They are not. Instead, in this policy the County promotes, encourages, and supports water conservation, groundwater recharge and hopes the California public will vote to pay for Temperance Flat dam, a peripheral canal, groundwater recharge basins and other potential dams. The County must take responsibility for assuring adequate water supplies. The County owns and operates several small water districts. The connections are not metered. Customers are charged a flat rate for water which does not encourage water conservation. The County doesn't require water conservation in its buildings. The County wants the development but will not fund the necessary measures (dedicated water recharge basins), mandate strict water conservation, enforce AB 1881, or concentrate 95% of future population growth in the eight incorporated cities where infrastructure exists, water metering is underway, and, if necessary, strict water budgets can be imposed on residents. The County has no control over the amount of water used by agriculture. Why pretend it does?)

The remaining policies and implementation measures intended to mitigate this impact (WR-3.2 through WR-3.13 and Implementation Measures 17, 18, and 27) contain the following language, "shall review," "shall continue participation," "shall encourage," "shall identify," "shall support," "shall develop," "appropriate," "shall designate," "shall consider," "should be prevented," "shall monitor actions," "will work with," and "shall work cooperatively." This is a lot of variety of verbiage, but no true commitment or performance standards. Most of the policies are deferred to 2010-2015 or 2015-2020. What a sorry, ineffective bunch of policies and implementation measures which are not enforceable. If they had been mandatory and strong, they would have been feasible, effective mitigation.)

No real attempt was made to mitigate this impact.

Impact
3.9-5

Impact 3.9-5 The Proposed Project would increase the need or use of fire protection services in the County

CEQA Appendix G Environmental Checklist Form wording for this impact is:

"Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: Fire protection? Police protection? Schools? Parks? Other public facilities?"

What is the rationale for the 2010 RDEIR change of wording, other than to downplay the scope and magnitude of this impact?

Impact Summary

Level of Significance Before Mitigation: Potentially Significant
Required Additional Mitigation Policies and Implementation Measures: Revised Public Facilities and Implementation #3
Resultant Level of Significance: Less Than Significant

The County has not developed or adopted PFS Implementation #3. The time frame is 2010-2015. It may never happen. It cannot be considered as mitigation for this GPU.

An impact fee would provide a one time infusion of money to build a fire station or buy equipment but it would not provide on-going operating expenses.

Impact Analysis

"The population increase in the mountain areas has caused increased wildland urban interface problems as well. Structures are being built throughout wildland areas wherein vegetation fires can spread rapidly. Providing adequate fire protection to those structures has become a major undertaking." Page 3.9-59 in RDEIR, Public Services, Recreation and Utilities Section 3.9.

In Fire Prevention and Suppression page 3.9-25 of RDEIR we find this statement, "Public protection classifications are designated by the Insurance

Services Office (ISO). The ISO bases its classifications on a number of factors, including fire department location, equipment, staffing, water supply, and communications abilities. Ratings range from 1 to 10, with 1 being the best possible fire protection, and 10 being the worst. The ISO ratings in the incorporated areas of Tulare County range from 5 to 8 with unincorporated areas receiving an average rating of 8." This is why our homeowner's insurance is so expensive despite having a house with a concrete tile roof, stucco walls, no wood deck, fencing or walkway and a 5000 gallon firefighting tank. Our homeowners insurance went up when fire protection was transferred from CDF to Tulare County Fire Department.

"Implementation of the proposed project would increase overall demand on fire protection services to the County. . . . New fire facilities, vehicles, equipment, and personnel will be required in order to provide adequate response times to serve future growth. Therefore, the County's costs to maintain equipment and facilities and to train and equip personnel would also increase. Additionally, growth in existing rural areas would also increase the demand for fire protection services in those areas." RDEIR Public Services, Recreation and Utilities, Section 3.9, page 3.9-59.

"However, the additional personnel and materials costs would be offset through increased revenue and fees, generated by future development. In addition, future projects will be reviewed by the County on an individual basis and will be required to comply with requirements (i.e., impact fees, etc.) in effect at the time building permits are issued". (Same page as above quote.)

There are assumptions being made in the previous paragraph. First, that impact fees will be adopted by the Board of Supervisors. The Tulare County Citizens for Responsible Growth has been urging the Supervisors to adopt adequate impact fees for more than three years. Second, the impact fees, if imposed, would actually cover all the costs of fire protection for new development. Third, there will be "increased revenue" net gain from new development despite the huge costs of new infrastructure in rural, foothill and mountain areas. Fourth, what are these "new requirements . . . in effect at the time building permits are issued."?

Fifth, where does that leave those of us in the foothills, mountains, and rural areas with poor response times and only one fireman on duty at a time in off season. We need better coverage now.

This is deferred mitigation with no true commitment or performance standards.

Please refer to Background Report, Section 8 Safety pages 8-20 through 8-22 (Wildland Fire Hazards, Fire Hazard Severity, and Fire Prevention and Suppression.)

What is the threshold of significance for the need or use of fire protection services in the County?

On page 8-22 of the Background Report is the following statement:

> "The Tulare County Fire Department's Capital Improvement Plan (CIP 1991) addresses current and future fire protection needs in the county, establishes priorities, sets levels of service standards based on land uses, and establishes a long-range plan for fire prevention and protection. According to the CIP, conditions of the county's 16 fire stations, operated by CDF and Tulare County, range "from excellent to poor," with many of the facilities identified as inadequate for housing fire equipment. In addition, response times in the county have increased due to rapid growth without a correspondent growth in fire protection facilities and staffing. Therefore, as the county continues to grow, the risks of injury, loss of life, and property damage will also increase. The CIP identifies the lack of funding as the main obstacle to improving fire protection. The Fire Department is currently preparing an updated CIP to present to the Board of Supervisors for approval. In the future, the Fire Department plans to update the CIP every three to five years.
>
> The Tulare County Fire Department has 28 stations that are situated throughout the County in the most densely populated areas. The Fire Department currently has minimal staffing to meet the requirements set forth under NFPA 1720-1721 for a rural area. This consists of one full-time person per station per shift with either intern firefighters (from a local community college, etc.) or paid on-call firefighters. However, while this is sufficient to meet the basic needs of the County in an emergency, this level of staffing often results in an elevated fire loss value when compared with other departments with more staff. In addition to more staff, some of the Department's facilities need repairs, replacements, or relocations. Currently, relocations are planned for the South Visalia and Alpaugh fire stations. Additional fire stations in need of relocation include West Olive, Tulare, and Dinuba fire stations (Mendoza, 2009)."

The mitigating policies and implementation measures have all been reviewed and commented on by me in Impact 3.8-6, except the following Implementation Measures:

Implementation Measure 1 in Public Facilities and Services element

The County shall prepare capital improvement programs for all County-owned and operated facilities and services to ensure consistency with the General Plan in order to maintain an adequate level of service.
(Preparing a capital improvement program and being able to fund it are two separate things. Libraries should be high priority, higher than purchasing railroad lines.)

Implementation Measure 2 in Public Facilities and Services element

The County shall annually review fees related to County-owned and operated facilities and County-provided services to ensure funding levels are both affordable and adequate to sustain these facilities/services long-term.
(What fees? This is deferred mitigation with no true commitment and no performance standards.)

Implementation Measure 3 in Public Facilities and Service element.

The County shall develop and adopt an impact fee program for new development to provide financing mechanisms to ensure the provision, operation and on-going maintenance of appropriate public facilities and services.
(This is supposed to happen in 2010-2015. This is deferred mitigation with no true commitment and no performance standards. There is no guarantee that new development will fully pay for its own fire protection. If not, funding will be taken from existing fire stations. This implementation measure provides a one time infusion of money and no money for on-going operating expenses.)

What is the effect on public health of not having good fire protection?

Does this situation satisfy the General Plan's first value statement to protect and enhance the health and welfare of the county's residents? Should the county allow more development in the foothills and mountain areas in light of present inadequate fire protection?

The county has a $7 million estimated shortfall this year. Supervisor Allen Ishida told residents at the Three Rivers Town Hall Meeting on April 5, 2010 that some county Health and Human Services employees would probably be laid off if the state did not forward the money to support several programs. Also, there might be a small reduction in fire department and sheriff funding. 95% of future development needs to be directed to incorporated cities where residents will receive adequate fire protection and other infrastructure benefits. Sprawl along the foothill corridor, the ten transit corridors, and in the "mountain service centers" will exacerbate our already bare bones fire protection.

Since the county cannot mitigate inadequate fire protection coverage because it does not and will not have the money, it must avoid this danger by choosing the Healthy Growth Alternative put forth by the Tulare County Citizens for Responsible Growth.

Impact
3.9-8

Impact 3.9-8 The proposed project would increase the need or use of libraries and other community facilities.

CEQA Appendix G Environmental Checklist Form wording for this impact is:

"Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: Fire protection? Police protection? Schools? Parks? Other public facilities?"

What is the rationale for the 2010 RDEIR change of wording, other than to hide the scope and magnitude of this impact?

Impact Summary

Level of Significance Before Mitigation: Potentially Significant
Required Additional Mitigating Policies and Implementation Measures: Revised Public Facilities and Services Implementation Measure #3
Resultant Level of Significance: Less than Significant

The County has not developed or adopted PFS Implementation Measure #3. The time frame is 2010-2015. It may never happen. It cannot be considered as mitigation for this GPU impact.

Impact Analysis

The County assumes impact fees, not yet adopted, generated from future development will offset the County's costs to build and maintain new facilities, purchase new books and periodicals, and hire new personnel. According to Jeff Scott, Tulare County Deputy Librarian, on April 23, 2010, impact fees on new development would provide money to build new libraries but no money for continuing operating expenses (maintenance, salaries, book purchases). Tulare County libraries are primarily funded by annual property taxes (cents on a thousand dollars). The many foreclosed homes which were sold by banks for substantially reduced prices has caused a decrease in total property tax revenue. Libraries were hit hard in 2009. They expect a 4% decrease in the library budget for 2010. This has led to furlough days, fewer days of operation and deferred maintenance.

In the RDEIR there is a list of 14 libraries and one main branch. Eight of these libraries are in incorporated cities. Presently there are 21 unincorporated communities, many of which are disadvantaged and don't have a library. A successful argument can be made that the poor communities need the libraries the most since the residents cannot afford books or computers, don't have high school educations, and don't understand the value of a good education. The parents speak English as a second language and often both parents work. A local library children could walk to after school that has an adequate book and periodical budget, plenty of internet access, meeting rooms and a safe quiet place to do their homework would be a boon to these children and their parents. Adult education could take place in the libraries at night. It could curtail gang recruitment. Gang participation is on the rise in Tulare County. The Tulare County library staff wants to serve the many unserved, disadvantaged communities. Tulare County needs more libraries, especially in poor communities, a bigger budget for books/newspapers/magazines, more staff, more open days (Monday through Friday).

According to Jeff Scott, Tulare County has applied for a $300,000 Department of Agriculture stimulus grant for disadvantaged communities in order to purchase a book machine for Cutler and a bookmobile to serve Ivanhoe and Earlimart.

New planned communities with libraries could take money away from existing libraries if <u>all</u> the costs of running a library are not paid by the new development.

Tulare County had an unemployment rate of 19.4% in March 2010. Tulare County has the second lowest median income in California (Imperial County has the lowest). The education level in Tulare County is among the lowest in California. We desperately need more and better libraries. The unincorporated areas of the county are underserved by libraries.

New development would have a significant impact on existing libraries, and would create new communities needing libraries.

<u>Mitigation Policies and Implementation Measures</u>

<u>ERM-5.5 Collocated Facilities</u>

The County <u>shall encourage</u> . . . . . and <u>shall encourage</u> joint-use agreements <u>whenever possible</u>

(Nothing in this weak, inadequate policy speaks to funding of libraries.)

LU-6.1 Public Activity Centers

The County shall encourage the development of centrally located public activity centers that include parks, schools, libraries, and community centers in communities via accessible, multiple modes of travel.
(This is deferred mitigation with no true commitment and no performance standards.)

PF-5.2 Criteria for New Towns

(Libraries are not specifically mentioned in the New Town criteria. The New Town should be "prepared to . . . "pay their Fair share" which is not defined, and definitely not all of the public services costs.)

PFS-1.3 Impact Mitigation

The County shall review development proposals for their impacts on infrastructure, sewer, water, fire stations, libraries, streets, etc.) New development shall be required to pay its proportionate share of the costs of infrastructure improvements required to serve the project to the extent permitted by State law . . . may be grounds for denial of a project . . .

(I commented on the inadequacies of this policy in Impact 3.9-5. The Proposed Project would increase the need or use of fire protection services in the county.)

PFS-8.4 Library Facilities and Services

The County shall encourage expansion of library facilities and services as necessary to meet the needs (e.g. internet access, meeting rooms, etc. of future population growth.

(The expansion of library facilities and services are necessary now. This is deferred mitigation with no true commitment and no performance standards.)

PFS - Implementation Measures 1, 2, & 3

(These have all been reviewed earlier. They are implementation measures with no true commitment or performance standards.)

Section III

Section III

Farmland Conversion

If the County does allow the conversion of agricultural land to urban use (potentially violating proposed Land Use Policy LU-2.1), then the Plan should include a goal to offset the conversion of agricultural land to urban use. Specifically, the Plan should require the use of permanent farmland conservation easements to preserve agricultural land elsewhere. The California Department of Conservation recommends this approach (see, for example, the Department of Conservation letter of July 31, 2007, on the Tulare Motor Sports Complex and the May 25, 2006, scoping letter on this project).

Agencies elsewhere have mandated farmland conversion mitigation that includes conservation easement requirements. For example, both Kern County and the City of Bakersfield routinely impose a farmland conversion condition that requires one-to-one mitigation. We attach a page from a current Kern County DEIR with such a measure. Attachment 44.

A number of projects in California have agreed to fund agricultural conservation easements as partial mitigation for such conversion (e.g., West Ming project in Bakersfield, Rosedale Ranch in northwest Bakersfield, Old River Ranch in southwest Bakersfield, the Blackhawk project, SV Investments project in Kern County, Lent Ranch in Elk Grove). We attach the Rosedale Ranch - Sierra Club agreement as evidence. Thus, mitigation for farmland conversion is feasible and practical. Attachment 45.

The Plan should include a performance standard that specifies the ratio of preserved mitigation farmland to converted farmland. In order to ensure that CEQA requirements for future projects are met, the Plan should include a policy that the ratio be higher than one-to-one; i.e., that more than one acre of equally good, equally at risk farmland be preserved via conservation easements for every acre of farmland converted.

The Plan should include a performance standard that specifies the quality of the preserved replacement mitigation land. There is little point in placing an unnecessary conservation easement on farmland that is so far away from urban areas that there is little or no development pressure on it. Preserving farmland

that does not need to be preserved, that is under no development pressure and will almost certainly remain farmland even without a conservation easement, does not compensate for the loss of currently producing farmland. The Plan should require that replacement land have similar conservation easement value as that of the converted farmland.

The Plan should include a policy that requires that a need for the project be demonstrated and that substantial evidence for this need demonstration be given when farmland is converted to urban use.

The Plan should include a policy that requires converted farmland to be contiguous to existing urban use and services.

In order to reduce overall per capita land consumption, the Plan should include goals, policies, and specific implementation measures that would increase the efficiency of development and thereby reduce the pressure to convert farmland to non-agricultural uses. While moving in this direction, Policies LU-1.4 and LU-3.3 only ask the County to "support" and "encourage" compact and high-density development and Land Use Implementation Measure #3 only asks the County to "consider" densification incentives. These policies should be strengthened so as to require increased development efficiency, and implementation measures should require specific performance standards and incentives to this end.

Agricultural Preservation Policy AG-1.6 as revised in the RDEIR states,

> "The County may develop an Agricultural Conservation Easement Program (ACEP) to help protect and preserve agricultural lands (including "Important Farmlands"), as defined in this Element. This program may require payment of an in-lieu fee sufficient to purchase a farmland conservation easement, farmland deed restriction, or other farmland conservation mechanism as a condition of approval for conservation of important agricultural land to nonagricultural use. The ACEP may be used for replacement lands determined to be of statewide significance (Prime or other Important Farmlands), or sensitive and necessary for the preservation of agricultural land, including land that may be part of a community separator as part of a comprehensive program to establish community separators. The in-lieu fee or other conservation mechanism shall recognize the importance of land value and shall require equivalent mitigation."

We have several comments and questions about this proposed policy:

1. Does this policy replace AG-1.6 as stated in the General Plan 2030 Update?
2. This policy is so vague as to be meaningless. It leaves open the real possibility that the County may not develop an Agricultural Conservation Easement Program (ACEP). The General Plan should contain a detailed ACEP with specific performance criteria.
3. This policy is so vague that the EIR should not consider it to be effective mitigation.
4. What would replace the ACEP if it were not developed?
5. If the County does decide to develop an ACEP, when will it take effect?
6. What farmland conversion policy, if any, will be in effect in the meantime before an ACEP is adopted?
7. If the County does decide to develop an ACEP, the program "may be used for" some sort of unspecified mitigation, an in-lieu fee or other conservation mechanism; then again it may not. The General Plan should contain a detailed ACEP with specific performance criteria.
8. In the possibility that mitigation of some sort is required, the policy requires this mitigation to "recognize the importance of land value". What specific performance criterion does this statement imply?
9. In the possibility that mitigation of some sort is required, the policy requires this mitigation to be "equivalent". What specific mitigation would be "equivalent"? What specific mitigation would be inequivalent?
10. Agricultural Implementation Measure #1 only commits the County to work with cities and TCAG to establish an agricultural land mitigation program in the indefinite future. There is no requirement to work toward any specific performance standards. When will this program be implemented and what will be included in this program?
11. Agricultural Implementation Measure #15 does not seem to be included in the General Plan proper, only in the RDEIR. Will this measure be part of the General Plan?
12. Agricultural Implementation Measure #15 states that the County "shall consider the implementation" of an ACEP. According to this, the County will have the option of not implementing an ACEP depending upon where its future considerations lead it. Mitigation for significant farmland conversion is required by CEQA. The General Plan should contain a detailed ACEP with

specific performance criteria and implementation measures that commit the County to these performance criteria.

13. Performance criteria for an ACEP should include a standard that specifies the ratio of preserved mitigation farmland to converted farmland and a requirement that preserved replacement farmland be of similar conservation easement value as that of the converted farmland.
14. This policy violates CEQA's prohibition against deferral. As we noted above, it is clearly feasible and practical to formulate specific performance criteria to guide conversion of farmland to urban use since other agencies have done so and since individual development projects elsewhere have agreed to such mitigation. Without specific performance criteria, it is impossible for the public and the decision-makers to evaluate the effectiveness of this policy. The General Plan should contain a detailed ACEP with specific performance criteria and implementation measures that commit the County to these performance criteria.

Agricultural Preservation Policy AG-1.17 Agricultural Water Resources states,

> "The County shall seek to protect and enhance surface water and groundwater resources critical to agriculture."

1. We find no implementation measures for this policy. How will this policy be implemented?
2. This policy is so vague that the EIR should not consider it to be effective mitigation.
3. Global warming may lead to lower levels of spring runoff from the Sierra Nevada. The EIR should address the effect of global warming on the implementation of this policy.

Land Use Policy LU-2.1 Agricultural Lands states,

> "The County shall maintain agriculturally-designated areas for agriculture use and shall direct urban development away from valuable agricultural lands to cities, unincorporated communities, hamlets, and planned community areas where public facilities and infrastructure are available."

We have several comments and questions about this proposed policy and its relationship to other parts of the Plan:

1. Does this policy mean that the County will not allow urban development on agricultural land?
2. To which specific areas does this policy apply? Does it apply to areas under agricultural production within UDBs, UABs, and HDBs?
3. This policy seems to conflict with Policy RVLP-1.1 which only requires the County to "limit" farmland conversion outside of UDBs, UABs, and HDBs. Which policy prevails?
4. Policies PF-2.1 and PF-3.1 limit urban development to within UDBs and HDBs. Does this imply that LU-2.1 does not apply within UDBs and HDBs?
5. Policies PF-2.2 and PF-3.2 make it fairly easy to expand UDBs and HDBs so as to include, among other things, proposed non-agricultural projects on farmland. Expanding boundaries to include proposed projects, as has recently occurred with the Tulare Motor Sports Complex, would lead to more farmland conversion and would emasculate Policy LU-2.1. The Plan should incorporate strengthened policies so as to preclude this prospect.
6. The relative ease with which urban boundaries might be expanded under the proposed Policies PF-2.2 and PF-3.2 will almost certainly lead to more sprawl and to the adverse impacts associated with sprawl, including farmland conversion, as it has in the past. The EIR should address these potential impacts, including a determination of the amount of expansion of existing urban boundaries necessary to accommodate predicted growth.

Agricultural Preservation Policy AG-1.12 Ranchettes states,

> "The County shall discourage the creation of ranchettes in areas designated Valley Agriculture and Foothill Agriculture."

We have several comments and questions about this proposed policy:

1. American Farmland Trust (AFT), in its recent study *Paving Paradise,* considers the spread of rural ranchette development to be one of three "key issues" involved in California farmland conversion. They argue that ranchette development (i) is inefficient, (ii) makes "agricultural production more difficult and expensive", and (iii) creates "an additional market demand for rural land that in many regions is inflating its price to a level above what commercial agriculture can pay and still remain economically viable." It is important, therefore, that an effective program be in place to "discourage" ranchette development.

2. There are no implementation measures to explain how the County will "discourage" ranchette development. Without specific implementation measures, neither the public nor the decision-makers can judge the effectiveness of this policy. The Plan should include specific implementation measures for this policy.
3. This policy is so vague that the EIR should not consider it to be effective mitigation.
4. American Farmland Trust has a policy proposal to address ranchette development at the website http://www.farmland.org/programs/states/ca/documents/Ranchettes_San_Joaquin_Valley_May31_06.pdf.
   The Plan should incorporate these action items as implementation measures.
5. The EIR is deficient in that it does not address the impact of ranchette development allowed by the General Plan Update on farmland conversion in Tulare County.

Foothill Growth Management Policy FGMP-5.1 Protect Agricultural Lands states,

> "The County shall maintain and preserve extensive and intensive agricultural uses in the foothills, whenever possible."

We have several comments and questions about this proposed policy:

1. The phrase "whenever possible" leaves its applicability up to the whim of the decision-makers and the political situation surrounding any particular project. Therefore we cannot determine the effectiveness of this policy unless we understand the circumstances under which it will be applied. Under what specific conditions will it be "possible" to apply this policy? Under what specific conditions will it be impossible to apply this policy?
2. This policy is so vague that the EIR should not consider it to be effective mitigation.
3. The phrase "whenever possible" should be deleted from this policy.
4. How will the County "maintain and preserve" agricultural uses? In order to guide future development, the Plan should list specific performance criteria for this policy. In the case of agricultural land conversion, the Plan should require performance standards as noted above, including permanent conservation easements on similar agricultural land elsewhere as mitigation for the conversion of agricultural land.

5. Implementation measures 12, 17, and 18 attempt to address this policy through minimum parcel sizes. What are the existing minimum parcel sizes in the proposed development corridors? What are the existing minimum parcel sizes for the proposed Yokohl Ranch project? How can these parcel sizes be changed?
6. Implementation Measure 19 states that the County "may require" a proposed development project to remain in agricultural use if "an inadequate amount of water or improper soils for waste water disposal exists." This seems to leave open the possibility that the County will approve a project even under these negative circumstances and conflicts with Policy FGMP-9.1. The phrase "may require" in this measure should be changed to "will require".
7. Implementation Measure 32 requires the County to "work with landowners and developers to promote coordinated master plans for multiple purposes." If such a development were proposed on agricultural land, the County would be required to "promote" the conversion of agricultural land to urban use. This is inconsistent with Goal FGMP-5, "To maintain and preserve extensive and intensive agricultural uses in the foothills." Implementation Measure 32 should be deleted.

We remark that Sequoia Riverlands Trust, an existing Tulare County land trust, can serve as a holding agency for farmland conservation easements. We suggest involving Sequoia Riverlands Trust in new Policy AG-1.18 and in work on Agricultural Implementation Measure #5, since they have experience and expertise in establishing agricultural conservation easement location criteria.

There are a number of additional feasible mitigation measures available for the impact of the project on farmland conversion; we attach a listing of such measures developed by the California Department of Conservation. Attachment 46. While adopting additional feasible mitigation measures may not reduce the impact on farmland conversion to a level of insignificance, these measures can reduce or compensate for the impact. The EIR should address these measures.

Air Quality

According to the American Lung Association report *State of the Air 2010,* Tulare County and the cities of Tulare County have some of the most polluted air in the nation (see http://www.stateoftheair.org/2010/assets/SOTA2010.pdf). We attach tables from this report that list Tulare County as numbers 3, 4, and 9 and Visalia-Porterville as numbers 3, 3, and 8 in the nation in various air pollution categories. Attachments 47 and 48. Given the seriousness of the air pollution problem in Tulare County, it is critical that the EIR adequately quantify the project's expected air emissions and require all feasible mitigation and alternatives to address the criteria pollutants.

The report referenced above lists Kern County and Bakersfield as even more polluted than Tulare County and its cities. Kern County is downwind of Tulare County, and it is likely that air pollution from Tulare County contributes heavily to the air pollution in Kern County. The EIR should investigate Tulare County's air pollution impact on Kern County and should identify and recommend feasible mitigation measures for this adverse impact. This investigation should include an environmental justice component for disproportionately burdened cities like Arvin with predominantly low-income residents and particularly dirty air.

Air Quality Policy AQ-1.5 California Environmental Quality Act (CEQA) Compliance states,

> "The County shall ensure that air quality impacts identified during the CEQA review process are consistently and reasonable (sic) mitigated when feasible."

We have several comments and questions about this proposed policy:

1. This is listed as a "New Policy". Since this policy only commits the County to follow state law and since the County is already required to comply with CEQA, what is "new" about this policy?
2. The one and only implementation measure for this policy, Implementation Measure #4, states that the County "shall consider standard methods for determining and mitigating project air quality impacts." What are these "standard methods"?
3. Since the County would presumably comply with CEQA even without this policy and since the Plan contains no innovative implementation measures,

only "standard methods", the EIR should not consider this policy to be effective mitigation for the General Plan's adverse impact on air quality.

4. The emphasis on "standard methods" could lead to a bias against evaluating and implementing creative, new methods for addressing air quality impacts. Since the southern San Joaquin Valley has some of the poorest air quality in the nation, the County should actively seek new and innovative mitigation measures, and the Plan is defective in not including innovative measures and not requiring such creativity.
5. What is the difference between feasible mitigation and consistent and reasonable mitigation?
6. A number of southern San Joaquin Valley developers (including the West Ming project, the Stockdale Ranch project, the Rosedale Ranch project, and the Old River Ranch project, all in Bakersfield) have agreed to participate in an Emissions Reduction Program above and beyond Rule 9510 through the SJVAPCD. Through this program, developers contract with the SJVAPCD to completely offset the emissions associated with their project through onsite design features and offsite pollution reduction projects. The General Plan should include an implementation measure for Policy AQ-1.5 that would require new development to sign an agreement with the SJVAPCD to completely offset the air pollution associated with their project.
7. The EIR should evaluate requiring new development to participate in an Emissions Reduction Program as described in the above paragraph. Participation in such a program has been shown to be clearly feasible and effective in reducing air quality impacts to zero, both project-specific impacts and, hence, cumulative impacts, since zero project-specific impact could not add to the cumulative impact.

<u>Policies AQ-2.2, AQ-4.2, AQ-4.3, and AQ-4.4</u> all commit the County to enforcing various rules of the SJVAPCD, rules with which new development already must comply.

1. Would the County not enforce SJVAPCD Rules 9510, 8061, 4901, and Regulation VIII if the General Plan did not contain these policies?
2. If the County would enforce these SJVAPCD rules and regulations even without the proposed policies above, the EIR should not consider these policies to be effective mitigation for the General Plan's adverse impact on air quality.

Policies AQ-1.6, AQ-2.3, AQ-2.4, AQ-2.5, AQ-3.1, AQ-3.3, AQ-3.4, AQ-3.5, AQ-3.6, and AQ-4.5 are weakened by the inclusion of words like "encourage", "study", and "promote". Moreover, the Plan lacks strong implementation measures for these feeble policies.

1. For lack of resources due to inadequate funding or in the service of political expediency or for other reasons, these policies can be and likely will be ignored. Because they are so vague, neither the public nor the decision-makers can understand their effect, and the EIR should not consider these policies to be effective mitigation for the General Plan's adverse impact on air quality.
2. These policies should be upgraded by replacing the words "encourage", "study", and "promote" by "require".
3. Implementation measures should be strengthened and expanded.

Air Quality Policy AQ-3.4 states,

> "The County shall encourage the use of ecologically based landscape design principles . . .".

AB 1881 requires Tulare County to adopt and implement a water efficient landscape ordinance by January 1, 2010.

1. Has Tulare County adopted a water efficient landscape ordinance to satisfy AB 1881?
2. How does Policy AQ-3.4 complement Tulare County's water efficient landscape ordinance?
3. The Plan should include performance standards to indicate how this measure will be implemented.

Air Quality Policy AQ-3.5 states,

> "The County shall encourage all new development, including rehabilitation, renovation, and redevelopment, to incorporate energy conservation and green building practices to maximum extent feasible."

The word "encourage" in this measure makes it so vague that it is impossible for the public and decision-makers to determine the effectiveness of this measure.

1. The word "encourage" should be replaced by the word "require".
2. The phrase "to maximum extent feasible" weakens the policy so as to make it impossible to understand how effective it will be. This phrase should be deleted.
3. The EIR should not consider this policy to be effective mitigation.
4. The Plan should include performance standards to indicate how this measure will be implemented.

Air Quality Implementation Measure 12 states,

> "The County shall encourage LEED and LEED- ND certification for new development or similar rating system that promotes energy conservation and sustainability."

The word "encourage" in this measure makes it so vague that it is impossible for the public and decision-makers to determine the effectiveness of this measure.

1. The word "encourage" should be replaced by the word "require".
2. Land Use Implementation Measure #24 violates CEQA's prohibition against deferral. In a settlement with the Sierra Club and the California Attorney General, the City of Stockton agreed to specific green building standards. In another settlement with the Sierra Club, the Rio Bravo Ranch mixed use project in Bakersfield agreed to LEED Silver standards for commercial buildings and to 90 points on the *Build It Green* checklist for residential buildings. Thus, it is clearly feasible and practical to formulate specific performance criteria to implement a green building policy.
3. The Plan should include performance standards to indicate how this measure will be implemented.

The RDEIR fails to quantify construction related air pollution in Tulare County and admits on page 3.3-19 that "it is reasonable to assume that some large-scale construction activity would exceed SJVAPCD adopted thresholds over the next 21 years and would potentially increase health risks associated with criteria pollutant exposure . . . ". It nevertheless concludes without substantiation and quantification

that because of SJVAPCD regulations, construction related air pollution impacts would be less than significant. The RDEIR is deficient in this regard.

Table 3.3-5 of the RDEIR lists annual operational emissions for Tulare County. It seems not to have included many area source and stationary source emissions (for example, particulate emissions from the timber processing plant in Terra Bella) and other commercial and industrial emissions. It purports to be quantifying criteria air pollutants, but it does not include construction emissions, emissions that will be ongoing throughout the life of the Plan. Why does the EIR not quantify all emission sources in Tulare County?

New research indicates that dairies are responsible for a far greater portion of ozone production than previously thought. According to the article *Reactive Organic Gasses from Livestock Feed Contribute Significantly to Ozone Production in Central California* by Howard, Kumar, and others, "Ozone production calculations based on feed consumption rates, ROG emissions rates, and OFP predict that animal feed emissions dominate the ROG contributions to ozone formation in the SJV with total production of 25 ± 10 t O_3 day^{-1}. The next most significant ROG source of ozone production in the SJV is estimated to be light duty vehicles with total production of 14.3 ± 1.4 t O_3 day^{-1}." The article can be found at http://pubs.acs.org/doi/abs/10.1021/es902864u?prevSearch=&searchHistoryKey=. The EIR should use this information to incorporate ROG emissions from livestock feed into Tulare County emissions totals.

The RDEIR considers Impact 3.3-2 (The proposed project would result in a cumulatively considerable net increase of criteria air pollutants that result in a violation of an air quality standard) to be significant and unavoidable. We agree. There are, however, feasible mitigation measures described below that would lessen the severity of this impact. The RDEIR errs in stating, "No additional feasible mitigation measures are available."

A number of southern San Joaquin Valley developers (including the West Ming project, the Stockdale Ranch project, the Rosedale Ranch project, and the Old River Ranch project, all in Bakersfield) have agreed to participate in an Emissions Reduction Program above and beyond Rule 9510 through the SJVAPCD. Through this program, developers contract with the SJVAPCD to completely offset the

emissions associated with their project through onsite design features and offsite pollution reduction projects. The General Plan should include an implementation measure for Policy AQ-1.5 that would require new development to sign an agreement with the SJVAPCD to completely offset the air pollution associated with their project.

The EIR should evaluate requiring new development to participate in an Emissions Reduction Program as described in the above paragraph. Participation in such a program has been shown to be clearly feasible and effective in reducing air quality impacts to zero, both project-specific impacts and, hence, cumulative impacts, since zero project-specific impact could not add to the cumulative impact. While adopting additional feasible mitigation measures may not reduce the impact on air quality to a level of insignificance, this measure can reduce or compensate for the impact. The EIR should address this measure.

Table 3.3-4 of the RDEIR lists Impact 3.3-3 as LTS (less than significant) whereas on page 3.3-23 this same impact is listed as significant and unavoidable. Table 3.3-4 is in error.

It is a goal of SB 375 to reduce vehicle miles traveled (VMT), and AB 170 requires the Plan to incorporate vehicle trip reduction measures among other air quality improvement strategies.

1. Why does the Plan not include specific feasible standards and implementation measures to reduce VMT?
2. How does the Plan satisfy AB 170?

Air Quality Impacts 3.3-2, 3.3-3, and 3.3-4 are all considered to be significant and unavoidable. In a settlement with the Sierra Club and the California Attorney General, the City of Stockton agreed to monitor VMT as a key indicator of growth and jobs/housing goals and to keep the increase in VMT to an annual rate less than the population growth rate. Given that transportation is a major contributor to air pollution, such a restriction on the annual VMT increase would serve as an additional mitigation measure for the Plan's adverse impact on air quality. The Plan should include a policy and an implementation measure to this end. While adopting and effectively implementing such a policy may not reduce the impact on air quality to a level of insignificance, this measure can reduce or compensate for the impact. The RDEIR errs in stating, "No additional feasible mitigation measures are available." The EIR should address such a measure to restrict VMT.

Energy Resources Goal ERM-4 commits the County

> "To encourage energy conservation in new and existing developments throughout the County."

The RDEIR considers this goal and the six policies that follow to be mitigating measures for the Plan's air quality impact.

1. Why does the Plan contain no implementation measures for this goal and for Policies ERM-4.1 through ERM-4.6?
2. The Plan should include specific performance standards to indicate how this measure will be implemented.
3. This goal and its policies are so vague that without specific implementation measures, neither the public nor the decision-makers can understand or judge their effectiveness as air quality mitigation. The EIR should not consider it to be effective mitigation.
4. The word "encourage" should be replaced by the word "require".

Land Use Implementation Measure #3 states, "the County shall consider appropriate incentives to encourage smart growth implementation . . . ".

1. What specific incentives will be both appropriate and considered?
2. How will the County determine which of the considered and appropriate incentives will be adopted, if any?
3. This implementation measure and the policies it implements are so vague that, without specific performance standards, neither the public nor the decision-makers can understand their effect, and the EIR should not consider them to be effective mitigation.

U.S. EPA maintains an extensive Smart Growth web page with links to examples, literature and technical assistance, and financial resources. See http://www.epa.gov/smartgrowth/index.htm. The Plan should evaluate and incorporate performance standards and incentives to develop an active program for smart growth implementation.

Traffic

Traffic and Circulation Policy TC-1.16 'County Level Of Service (LOS) Standards' states,

> "The County shall strive to develop and manage its roadway system (both segments and intersections) to meet a LOS of "D" or better in accordance with the LOS definitions established by the Highway Capacity Manual *[New Policy]*."

Of the 172 roadway segments listed in Table 3.2-7 of the RDEIR, only 23 operate currently at level of service less than LOS C. Why is the County willing to accept lower than currently existing LOS on 87% of listed roadways?

On page 3.2-32, the RDEIR states that there are "no additional technologically or economically feasible mitigation measures" available to reduce Impact 3.2-1 (that the General Plan Update "would result in a substantial increase in vehicular traffic") to less than significant. While we agree that the impact will likely remain significant, measures that would require the effective implementation of a number of proposed General Plan policies would reduce the impact, and CEQA requires feasible measures to this end. For example,

1. Policy LU-1.1 (Smart Growth and Healthy Communities) directs the County to "discourage sprawl" and "encourage infill". These vague notions make it impossible for the public to ascertain the effectiveness of this policy. Were this policy to be reworded, strengthened, and effectively implemented, Impact 3.2-1 would be reduced.
2. Policy LU-1.4 (Compact Development) only commits the County to "actively support" compact development that would "reduce travel distances". Were this policy to be reworded, strengthened, and effectively implemented, Impact 3.2-1 would be reduced.
3. Policy LU-1.8 (Encourage Infill Development) only directs the County to "encourage and provide incentives for infill development." Were this policy to be reworded, strengthened, and effectively implemented, Impact 3.2-1 would be reduced.
4. Policy AG-1.6 (Conservation Easements) only states that the County "may develop" a conservation easement program to preserve farmland. Were the County to actually commit to and implement a strong ACEP, development would be directed towards existing infrastructure and infill. Were this

policy to be reworded, strengthened, and effectively implemented, Impact 3.2-1 would be reduced.

5. Policy AG-1.7 (Preservation of Agricultural Lands) only commits the County to "promote" such preservation. Were this policy to be reworded, strengthened, and effectively implemented, new development would be directed toward existing development and Impact 3.2-1 would be reduced.
6. Policy AQ-1.7 (Support Statewide Climate Change Solutions) only commits the County to "support" statewide efforts. SB 375 works toward reduction in vehicle miles traveled (VMT), and other entities are arriving at targets for VMT reduction. If the County were serious about such support, and if this policy were to be reworded, strengthened, and effectively implemented, Impact 3.2-1 would be reduced.
7. On page 3.4-28, the RDEIR lists policies designed to reduce VMT. As we note elsewhere, these policies are so weakened by words like "encourage" that their effectiveness cannot be accurately ascertained. Effective VMT reduction would reduce Impact 3.2-1. The RDEIR is defective in not requiring strong performance standards for VMT reduction.
8. Traffic Implementation Measure #2 requires the County to develop a traffic impact fee program. This measure should be strengthened to allocate a significant fee amount to public transportation so as to reduce VMT and Countywide traffic impacts.
9. Other implementation measures to address increased funding for improved and more effective public transportation should be included.

As they stand, these and other policies are so vague and ineffectively worded and implemented that neither the public nor the decision-makers can understand or judge their effectiveness as traffic mitigation. Were they to be strengthened so as to be effective, their implementation could serve as feasible mitigation measures for reducing Traffic Impact 3.2-1. The RDEIR is defective in not requiring strong enforceable performance standards and in not evaluating the effectiveness and feasibility of strengthening and implementation of these policies.

Below are two Transportation and Circulation policies:
TC-1.18 Balanced System
The County shall strive to meet transportation needs and maintain LOS standards through a balanced transportation system that provides alternatives to the automobile *[New Policy].*

TC-1.19 Balanced Funding

The County shall promote a balanced approach to the allocation of transportation funds to optimize the overall County transportation system *[New Policy]*.

1. The Plan should specify the balance in these balanced approaches. What percentage of transportation funding will be allocated to alternatives to the automobile?
2. The California Attorney General recommends that the Plan "Give funding preference to investment in public transit over investment in infrastructure for private automobile traffic." How will the County implement and interpret this funding preference?
3. Without specific performance standards, the commitment of the Plan and the RDEIR to the Attorney General recommendations is shallow and compromised. , The RDEIR is defective in that it does not present substantial evidence that the Plan's measures in Table 3.4-5 actually address the Attorney General's recommendations.

Global Warming

There are several websites with important information about global warming/climate change and the California Environmental Quality Act (CEQA):

The draft Climate Action Team 2009 report at http://www.energy.ca.gov/2009publications/CAT-1000-2009-003/CAT-1000-2009-003-D.PDF concludes that some climate change effects could be more serious than previously thought.

The State of California regards reducing global warming emissions to be a statewide priority. The Attorney General website, http://ag.ca.gov/globalwarming/ceqa.php, contains much useful information, including lists of potential mitigation measures and modeling tools.

The California Air Pollution Control Officers (CAPCOA) website, www.capcoa.org, contains a White Paper entitled *CEQA and Climate Change.* This 155-page document from January 2008 is subtitled *Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act.*

Recent scientific assessments have outstripped the predictions issued by the Nobel Prize-winning U.N. Intergovernmental Panel on Climate Change in 2007 according to a recent report by the United Nations Environment Program. The report can be found at http://www.unep.org/compendium2009/.

Climate change will mean that California will have less water, experience a loss of cropland and see soaring wildfire rates, as documented by an August, 2009, CEC research paper at the website http://www.energy.ca.gov/2009publications/CEC-500-2009-014/CEC-500-2009-014-F.PDF.

The Environmental Protection Agency has recently issued a finding that greenhouse gasses endanger public health and welfare. See the website http://epa.gov/climatechange/endangerment.html.

Global climate change will likely lead to water resource shortfalls. According to the CEC document referenced above, "there is a disquieting preponderance of simulations that become significantly drier during the twenty-first century." Also, "The incidence of years with very low spring snowpack and associated low soil moisture in late spring and early summer occur much more frequently." According to the CEC document *Using Future Climate Projections to Support Water Resources Decision Making in California* at http://www.energy.ca.gov/2009publications/CEC-500-2009-052/CEC-500-2009-052-F.PDF, "The 30-year trend indicates that the fraction of annual runoff occurring from April through July decreases from about 35% for the historical base scenario (historical conditions with no increase in air temperature) to about 15% for the +4°C scenario."

These websites and the information they contain make it all the more critical that this project's adverse global warming impact be fully addressed.

The RDEIR considers the adverse impact of the Tulare County General Plan Update on global climate change to be significant (page 3.4-39).

- CEQA requires that "public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects." The County should require all feasible global climate change mitigation measures.
- CEQA requires that agencies "mitigate or avoid the significant effects on the environment of projects that it carries out or approves whenever it is feasible to do so." Pub. Res. Code §21002.1(b).
- Without substantial supporting evidence, the County's draft Climate Action Plan (CAP) sets a 26.2% reduction target for development related greenhouse gas (GHG) emissions. The document contains no argument that the precise 26.2% value is the cutoff point between mitigation feasibility and infeasibility. How does the County justify a 26.2% cutoff point if mitigation beyond that value is feasible?
- CEQA requires that "the EIR must propose and describe mitigation measures that will minimize the significant environmental effects that the EIR has identified." *Napa Citizens for Honest Gov't v. Napa County Bd. Of Supervisors*, 91 Cal.App.4th 342, 360 (2001).

- Substantial federal funding is available by the U.S. Department of Energy through Energy Efficiency and Conservation Block Grants to reduce fossil fuel emissions, reduce total energy use, and improve energy efficiency so that implementation of greenhouse gas mitigation measures is economically feasible.

We include a list of potential climate change mitigation measures below.

Given the seriousness of the global warming issue, the County should be addressing the issue with specific feasible, enforceable GHG performance standards and mitigation measures. There are a number of potential feasible mitigation measures, including:

- Green building measures might include:
  - A requirement that buildings be at least 35% more energy efficient than Title 24 standards current when permits are pulled.
  - A requirement that new commercial and industrial buildings satisfy LEED standards. The Rio Bravo Ranch project in Bakersfield has agreed to LEED Silver standards on commercial buildings.
  - A requirement that new residential buildings achieve at least 90 points on the BuildItGreen checklist, also part of the Rio Bravo Ranch agreement.
- Design features to reduce Vehicle Miles Traveled (VMT). New project features might include transit-oriented development such as adjacent bus stops and/or other public transportation. Environmental documents should determine the amount of such transit-oriented building that would make public transportation economically feasible, and it should determine GHG reductions associated with such transit-oriented development. Similar considerations are built into the recent agreement between the City of Stockton and the Sierra Club and Attorney General.
- A requirement that solar photovoltaics (PV) and solar water heating be built into new structures. The Rio Bravo Ranch project in Bakersfield will build solar PV into 25% of the new residences. Every kilowatt of solar PV power offsets about a ton per year of global warming gasses that would have otherwise been produced by a fossil fuel-fired power plant (according to Environment California Research and Policy Center in a publication entitled *The Economics of Solar Homes in California*).
- A transfer fee requirement of new projects that would be applied at each sale of a building or business in the future. Transfer fee monies could go to

SJVAPCD or some other appropriate entity to fund projects that would offset GHG emissions.

- A requirement of new projects for partial funding of an area energy efficiency program creating equivalent reductions in carbon emissions.
- A requirement that new projects partially subsidize public transportation in order to reduce area VMT.
- A requirement that the developer of a new project retrofit solar PV on existing area facilities. Retrofitting existing area facilities with solar PV would effectively offset emissions associated with this project in much the same way as the SJVAPCD uses ISR funds to fund offsite projects to offset criteria pollutants associated with development projects. The Rio Bravo Ranch project in Bakersfield has agreed to fund a 200 kW solar PV system to be used in agricultural operations.
- A condition that new parking lots be covered and that parking lot roofs contain solar PV.
- A requirement that the developer of a new project contribute funding for area solar PV incentives. Most solar PV incentive programs use funding rebates to encourage PV construction. The City of Lemoore has such a program.
- A requirement that the developer of a new project contribute a GHG fee to the San Joaquin Valley Air Pollution Control District to be used to fund projects that would reduce GHG emissions elsewhere. This could be built in to a criteria pollutant Emissions Reduction Agreement with the SJVAPCD as the Air District has suggested in the past.
- A requirement that dairies construct anaerobic digesters to capture methane emissions from manure.
- An aerobic composting of manure requirement for dairies.
- A requirement that the developer of a new project purchase high quality, reliable carbon offsets to make up for remaining CO_2e emissions. There are a number of issues regarding the quality of carbon offsets that should be addressed. See *A Consumer's Guide to Retail Carbon Offset Providers.* Clean Air-Cool Planet, 2006.
- The Bay Area Air Quality Management District (BAAQMD) has assembled a list of potential general plan policies and mitigation measures, many of which have not been included in the proposed Tulare County General Plan Update. These may be found in the following document between pages 98 and 110 at the website

http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/Draft_BAAQMD_CEQA_Guidelines_May_2010_Final.ashx.

The County should address each of these measures in order to determine its feasibility and effectiveness in reducing or offsetting the GHG emissions associated with this project.

According to the RDEIR on page 3.4-32, CO_2e emitted in Tulare County will increase from 5.2 million tons per year in 2007 to 6.1 million tons per year in 2030, an increase of 897,420 metric tons per year. This 17% greenhouse gas (GHG) increase is in stark contrast to the massive and difficult statewide reductions necessary to address the impact of global warming and to meet 2020 and 2050 goals. The RDEIR admits that this increase "places the proposed project in conflict with the (2020) goal of the State to reduce up to 174 million metric tons CO2e/yr." There are feasible mitigation measures that the rest of the state will have to adopt in order to reach these goals. Why should Tulare County not only not do its share of reductions but also make it more difficult, because of its excess, for the rest of the state to achieve its goals?

Air Quality Policy AQ-1.7 Support Statewide Climate Change Solutions states,

> "The County shall monitor and support the efforts of Cal/EPA, CARB and the SJVAPCD, under AB 32 (Health and Safety Code §38501 et seq.), to develop a recommended list of emission reduction strategies. As appropriate, the County will evaluate each new project under the updated General Plan to determine its consistency with the emission reduction strategies."

Assuming that this wording supersedes the wording of AQ-1.7 in the General Plan Update document, we have several comments and questions:

1. Under what conditions will it be "appropriate" to evaluate new projects for consistency?
2. How is it that increasing CO_2e emissions from 5.2 million tons per year in 2007 to 6.1 million tons per year in 2030 is supporting statewide climate change solutions?
3. There are many potential emission reduction strategies available for evaluation now. Why does the County have to wait for the State to devise a list of specific emission reduction strategies?

4. A Climate Action Plan should include specific, quantifiable, and enforceable performance standards and strategies to reduce CO_2e emissions.
5. For example, the California Solar Initiative and the Million Solar Roofs Bill are statewide climate change initiatives included in the CARB Scoping Plan (see page 3.4-7 of the RDEIR), the sort of solutions to which AQ-1.7 commits the County. The Plan should contain specific measures that would implement these statewide climate change solutions.

The introductory statement to the Draft Climate Action Plan states,

> "As an implementation measure to the Tulare County General Plan 2030 Update (General Plan Update), the County will consider the adoption of a Climate Action Plan in close proximity and subsequent to the adoption of the General Plan Update."

This vague commitment to addressing global climate change at some uncertain future time is repeated in the RDEIR's new policy AQ-1.8 and AQ Implementation Measure #16.

1. How will the County address global climate change in the interim until a Climate Action Plan (CAP) is approved?
2. What is the status of the draft CAP included with the General Plan Update documents?
3. What performance standards will be required of this future CAP?
4. What options to achieve these performance standards will be available?
5. How much commitment to mitigation for the impact of these emissions can we expect?
6. Under these conditions, deferring a CAP until some unspecified later date is inconsistent with the requirements of CEQA.
7. Because these measures are so vague, neither the public nor the decision-makers can understand their effect, and the EIR should not consider these policies to be effective mitigation for the General Plan's adverse impact on global climate change.

The RDEIR contains a long list of proposed General Plan policies and implementation measures that purport to mitigate the Plan's impact on global climate change. In addition, Chapter 5 of the draft Climate Action Plan contains 86 of these proposed General Plan policies that purport to fulfill "many sustainability and greenhouse gas reduction objectives." Of these 86, 33 are compromised by the use of the word "encourage", 12 are weakened by the use of the word "support", 9 commit the County only to "work with" other agencies in some nonspecific way, and 21 others are diluted by the use of phrases like "consider", "strive", "promote", "seek opportunities", "coordinate", "where feasible", "as appropriate", "develop", "create", and "examine the feasibility". Of the remaining few, several only commit the County to follow existing laws and regulations (e.g. utilize design standards required by the Streets and Highways code, comply with the California Fire Code).

1. Because these policies are so vague and feeble, neither the public nor the decision-makers can understand their effect, and the EIR should not consider these policies to be effective mitigation for the General Plan's adverse significant impact on global climate change.
2. Section 15183.5 of the CEQA Guidelines requires the County to "specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level."
3. The General Plan Update, the RDEIR, and the potential Climate Action Plan should include specific, quantifiable, and enforceable performance standards and strategies to reduce CO_2e emissions.
4. These measures should be supported by quantification and substantial evidence for their effectiveness.

In the event that the County actually considers the draft CAP included with the General Plan Update, we have a number of comments:

On page 10, the draft Climate Action Plan (CAP) states, "Dairy and feedlots will have their own target set through a separate process. On January 26, 2010, the Tulare County Board of Supervisors approved a General Plan Initiation (GPI10-001) for a general plan amendment to the Animal Confinement Facilities Plan and Program EIR. During this process, a CAP specific to dairies and feedlots will be developed."

1. Emissions from dairies and feedlots account for 63% of all GHG emissions in Tulare County according to Table 1 of the Climate Action Plan and Table 3.4-2 of the RDEIR. It is impossible to judge the effectiveness of mitigation for the impact of the Plan on GHG emissions without consideration of emissions from dairies and feedlots. Why are essential impact and mitigation studies for this major portion of GHG emissions deferred until a later CAP?
2. What performance standards will be required of this future CAP?
3. What options to achieve these performance standards will be available?
4. How much commitment to mitigation for the impact of these emissions can we expect?
5. Under these conditions, deferring a CAP specific to dairies and feedlots until some unspecified later date is inconsistent with the requirements of CEQA.

On page 12 the draft CAP states,

> "The BAAQMD also proposes a 26-percent reduction requirement for CAPs that focus on land use sector emissions. This is the approach that Tulare County has used in this CAP."

The Bay Area Air Quality Management District (BAAQMD) is currently adopting CEQA Guidelines.

1. The CAP errs in that the 26% reduction from business-as-usual (BAU) referenced in the CAP comes from an earlier draft version of a BAAQMD document. The current May 2010 BAAQMD document contains no such proposal.
2. The May 2010 BAAQMD CEQA Guidelines document contains no reference whatsoever to reductions from BAU as potential GHG impact significance thresholds for General Plans. The County should not use this BAAQMD reference as justification for the use of controversial "reduction from BAU" protocol.
3. Section 15183.5 of the CEQA Guidelines requires the County to present "substantial evidence" for the 26% GHG emissions level, "below which the contribution to greenhouse gas emissions from activities covered by the plan would not be cumulatively considerable". The CAP and the RDEIR are defective in that no such evidence has been presented.

The notion of significance determination based on comparing hypothetical BAU with the proposed project is inconsistent with the mandates of CEQA. The California Attorney General, in a November 4, 2009, letter to the SJVAPCD opined that such an approach "will not withstand legal scrutiny and may result in significant lost opportunities for . . . local governments to require mitigation of greenhouse gas (GHG) emissions." The AG's letter can be accessed at http://ag.ca.gov/globalwarming/pdf/comments_SJVAPCD_threshold_proposal.pdf.

Comparisons to hypothetical projects that represent the maximum extent of potential development frustrate CEQA's informational purpose by encouraging gaming and incentivizing "project proponents to artificially inflate the hypothetical project to show that the proposed project is, by comparison, GHG-efficient." (Attorney General Letter to SJVAPCD, page 4.)

Determining significance based on comparison to hypothetical BAU violates CEQA. The California Attorney General, in a December 8, 2009, letter to San Diego County available at
http://ag.ca.gov/globalwarming/pdf/comments_Merriam_Mountains_Specific_Plan.pdf
states, "The appropriate baseline under CEQA is not a hypothetical future project, but rather existing physical conditions." CEQA requires significance determination to be made by comparing the project's impact to existing conditions, conditions that, in the case of global climate change, do not allow the atmosphere to absorb additional greenhouse gasses without risking catastrophic long-term consequences. Even small GHG emissions should be considered cumulatively significant.

The draft CAP sets a target 26.2% CO_2 emission reduction from business-as-usual presumably to be consistent with 2020 emission reduction targets in AB 32. The emission reduction targets set forth in AB 32 mark only a first and interim step toward avoiding dangerous climate change. By myopically focusing on AB 32, the project ignores the long-term emission reductions necessary to stabilize the climate. These reductions are significant and simply cannot be achieved if developments continue to be built in locations far from jobs and meaningful public transit.

The planning horizon for this project extends to 2030, 10 years beyond the 2020 goal for which the measure is tailored. Greenhouse gas emission reduction targets also extend beyond 2020 and are much larger than the 2020 target; Executive Order S-3-05 sets an 80% reduction of GHG from 1990 levels in 2050 as a goal. In order to achieve GHG emission reduction goals beyond 2020, the County should require feasible mitigation measures that would reduce development related GHG emissions beyond the 26.2% below BAU 2020 requirement.

The AB 32 GHG emission reduction goal would require an across-the-board 29% reduction by 2020. The draft CAP focuses only on reductions from new projects. If emissions from existing sources are not also reduced by 29%, the AB 32 goal cannot be reached. How will the Tulare County General Plan achieve these reductions from existing sources?

Energy

The RDEIR considers Impact 3.4-1: "The proposed project could result in the wasteful, inefficient, or unnecessary consumption of energy by residential, commercial, industrial, or public uses associated with increased demand due to anticipated population growth in the County" to be less than significant. As mitigation, it lists a number of proposed policies and implementation measures on page 3.4-28.

1. The RDEIR presents no substantial evidence that, even before mitigation, this impact is less than significant.
2. As we noted earlier, most of these policies are weakened by the use of words like "encourage" and " consider". Because these policies are so vague and feeble, neither the public nor the decision-makers can understand their effect, and the EIR should not consider these policies to be effective mitigation for the General Plan's adverse significant impact on global climate change and energy.
3. The RDEIR presents no substantial evidence that these policies mitigate the Plan's energy impacts to less than significant.
4. We don't understand why the RDEIR refers to minimizing "impacts to bicycle and pedestrian facilities and opportunities" in this context.

Energy Resources Goal ERM-4 commits the County

> "To encourage energy conservation in new and existing developments throughout the County."

The RDEIR considers this goal and the six policies that follow to be mitigating measures for Impact 3.4-2: "The proposed project could result in the wasteful, inefficient, or unnecessary consumption of energy in the construction and operation of new buildings."

5. Why does the Plan contain no implementation measures for this goal and for Policies ERM-4.1 through ERM-4.6?
6. The Plan should include specific performance standards to indicate how this measure will be implemented.
7. This goal and its policies are so vague that without specific implementation measures, neither the public nor the decision-makers can understand or

judge their effectiveness as air quality mitigation. The EIR should not consider it to be effective mitigation.

8. The word "encourage" should be replaced by the word "require".

The RDEIR considers Impact 3.4-2 to be less than significant.

1. The RDEIR presents no substantial evidence that, even before mitigation, this impact is less than significant.
2. As we noted earlier, most of the policies reputed to mitigate the impact are weakened by the use of words like "encourage" and " consider". Because these policies are so vague and feeble, neither the public nor the decision-makers can understand their effect, and the EIR should not consider these policies to be effective mitigation for the General Plan's impact on global climate change and energy.
3. Although new policy ERM-4.8 is entitled "Energy Efficiency Standards", it fails to set any standards whatsoever. As is the case with many other policies, it incorporates the word "encourage", and it dilutes the policy even more with the phrase "when feasible". This policy is so vague and weak that it should not be considered to be effective mitigation for the General Plan's adverse impact on global climate change and energy.
4. The RDEIR presents no substantial evidence that these policies, lacking in performance standards, mitigate the Plan's energy impacts to less than significant.

Section IV

Section IV

Carole Clum's comments submitted on April 14, 2008 on the 2008 DEIR pertained to unreasonably high population projections, groundwater overdrafting, groundwater contamination, inadequacy of the water supply (both surface and groundwater) to serve the projected population, and the sprawl development that would be inevitable if the General Plan Update (GPU) 2008 were adopted. Her factchecking on water supply addressed the inability of the 21 unincorporated communities to absorb as much growth as the county said they could by 2030. This is even more true in May 2010. Since January 2008, there is a lower water table and more groundwater contamination, the economy has deteriorated, and water companies have less money to spend to update or extend their water system infrastructure or drill another well. On top of that, grants and loans are even harder to get.

Carole Clum's comments on the 2008 DEIR on air quality being worsened by the GPU and big increases in greenhouse gas emissions being inevitable still stand. These are serious environmental concerns that have not been addressed, mitigated, or avoided by this GPU. AB 32 was flouted. The scheme to build new towns in remote rural areas showed no concern for the health and welfare of the residents of Tulare County. It was obvious the 2008 GPU was written by planners and consultants under intense pressure from the Board of Supervisors, who want development at any cost.

The 2010 General Plan Update (GPU) is missing implementation measures for many of its policies. The same discretionary language in the policies and implementation measures render them meaningless and unenforceable. There are no measurement standards. Indeed, the amazing caveat on page 1-11 of the GPU tells the reader that implementation measures might not be implemented on schedule, might not be implemented due to lack of staff, money, or time, might not be top priority, and might be adjusted over time. If the County can't mitigate environmental degradation, it must avoid it.

The County is capable of writing strong, mandatory policies to protect aggregate (gravel, sand, and crushed stone), oil, gas, and timber in perpetuity from encroachment by incompatible land uses. Compare those policies and implementation standards with those for water quality, water supply, air quality, conservation of oak woodlands and other forestlands, agricultural land, biological resources, natural recharge basins, riparian zones, wetlands, and vernal pools.

The Climate Action Plan (CAP) does not comply with AB 32 or SB 375. It does not adopt the California Air Resources Board (CARB) recommendations in its Climate Change Scoping Plan of December 2008. A lot of time, effort, and taxpayer dollars for consultants have been expended trying to circumvent compliance. CAP was written after the Goals and Policy Report and the Revised Draft Environmental Impact Report (RDEIR). Apparently the county considers CAP optional since it is separate from and will be considered for adoption after the adoption of the GPU. The text states it is an implementation measure of the GPU, so will it have a public comment period? Many GPU elements (Land Use, Transportation and Circulation, Health and Safety, Water Resources, Agriculture, Housing [which was not part of the GPU], Economic Development, and Environmental Resources Management) would have looked much different if the County were committed to reducing greenhouse gas (GHG) emissions and adapting to the real and present, not "potential," effects of climate change. It doesn't matter if the Board of Supervisors does not believe in climate change. The State of California believes and AB 32 is the law of the land. Separating CAP from the GPU does not satisfy the requirements of AB 32. The voluntary measures, unsubstantiated assumptions, out-of-date and inaccurate data, and inconsistencies in the CAP make a mockery of GHG emissions reduction and adaptation to the effects of climate change.

The County ignores the fact that a separate CAP intended as an implementation measure of the GPU will require its own environmental impact report and public comment period.

Since 59% of the greenhouse gases emitted in the County emanate from 450,000 milking cows in our dairies (according to the Climate Action Plan), the first thing the Supervisors must do is stop permitting new dairies and allowing existing dairies to expand. When you find you have dug yourself into a hole, the first thing to do is stop digging. Then the County must require remediation. CEQA requires enforceable measures. The County places the onus of reducing emissions from dairies on SJVAPCD, which has voluntary incentive programs. The County must make these measures mandatory (feed supplements, frequent manure removal, and anaerobic digesters.) Each dairy cow produces 54,020 lbs of manure a year. Remember folks, those manure lagoons are contaminating our groundwater. Stop protecting dairies from expensive remediation and protect the public's drinking water.

Almost all of the General Plan Update policies touted in the Climate Action Plan as GHG reduction measures are not mandatory. They contain discretionary language such as: shall encourage, discourage, when feasible, seek opportunities, emphasize the importance of, shall identify, as appropriate, shall be evaluated, shall strive, shall review, shall promote, shall examine." How many different ways can the County say "maybe"?

The final straw is the County's intention to "consider the adoption of a Climate Action Plan in close proximity and subsequent to the adoption of the General Plan Update." It's hard to imagine why the Supervisors would be opposed to adopting such a spineless, unenforceable plan that does not impede development or dairies unless you understand the Supervisors' intense ideological opposition to the idea of climate change and their balking at the annual administrative costs of the Climate Action Plan.

The County plans to develop housing, businesses, industry, recreational resorts and planned communities (New Towns):

- in the mountains (Mountain Service Centers) under Mountain Framework Plan
- along the foothills in Foothill Growth Management Plan
- along main transit corridors (198, 99, 190, 65, 43, 63, 216, 201, 245, 137) in the Corridors Framework Plan
- in 21 unincorporated communities in Planning Framework
- in valley in Rural Valley Lands Plan
- in hamlets (Allensworth, Delft Colony, East Tulare Villa, Lindcove, Monson, Seville, Teviston, Tonyville, Waukena, West Goshen, and Yettem) in the Planning Framework

A theme has emerged - "Development Everywhere at Any Cost." There will not be enough water in Tulare County for the current population and current level of development at current water demand by the year 2030. Despite this, stringent water conservation is not mandated. This plan will greatly increase GHG emissions, air pollution, and groundwater overdrafting. It is not possible to serve the proposed foothill and mountain communities with public transit and adequate fire and police protection. The General Plan will put more people and property at risk in CAL FIRE-Designated high, very high, and extreme wildfire risk zones. There is not enough water in the fractured rock of the foothills and mountain areas for the scope of development envisioned. There has been no hydrologic study of fractured

rock groundwater capacity in the foothills. The General Plan will put more people and property in FEMA designated 100-year Flood Hazard Zones.

The range of project alternatives is unreasonably narrow. All project alternatives contain the same flawed policies and implementation measures. The detailed, carefully worked out, environmentally superior Healthy Growth Alternative submitted by the Tulare County Citizens for Responsible Growth in their 2008 comments on the 2008 DEIR was not included as an alternative.

The first value statement in the 2010 Revised Draft General Plan 2030 Update is:

> "The beauty of the County and the health and safety of its residents will be protected and enhanced."

However, the General Plan risks the health and safety of its residents by:

1. Allowing development in levee and dam inundation zones. Part I Health and Safety, page 10-9, HS-5.2, HS-5.5
2. Allowing development in 100-year floodplain zones. Part II FGMP, page 3-11, FGMP-8.1 and Part I Health and Safety 5.2 page 10-9.
3. Allowing development (although it will be "clustered") in natural recharge basins, thus impairing groundwater recharge, and the storm water run-off from the development will contaminate groundwater. Water Resources, Implementation Measure 6
4. Allowing development of 30° slopes or greater if "applicant can sufficiently mitigate the inherent problems associated with developing on steep slopes"). These cut and fill slopes create significant soil erosion risks and storm water run off. *FGMP Implementation Measure 4*
5. "Restricting development in chaparral since these areas present extreme wildland fire potential." Implementation measure 30 offers no percentage of restriction and only calls for "a drainage plan which minimizes sedimentation and/or contamination of the lake environment..." *FGMP-8.15.*
6. Not requiring the State Water Resources Control Board's "Low Impact Development-Sustainable Storm Water Management" recommendations that benefits water and contributes to water quality protection.

7. Allowing homes on stilts or cantilevered out over slopes, increasing risk of wildfire consuming homes. Part II Area Plans, page 3-33 FGMP Fire Protection Development Standard #48.
8. Not requiring non-combustible roofs on new development in wildland-urban interface fire areas. Part II, Area Plans, page 3-33, FGMP Fire Protection Development Standard #47.
9. Not prohibiting wood decks, walkways, fences, sheds abutting homes in wildland-urban interface fire areas. Part II, Area Plans, page 3-33, FGMP Fire Protection Development Standard #47.
10. Not requiring ember-proof vents on new development in wildland-urban interface areas. Part II, Area Plans, page 3-33, FGMP Fire Protection Development Standard #47.
11. Designating many large, mixed use development areas in the Foothill Growth Management Plan, including a large one for the proposed Yokohl Ranch New Town. See Part II, Area Plans, Figure 3-1, a map of FGMP on page 3-16. The proposed Yokohl Ranch New Town will cover 14,400 acres adjacent to and intermixed with wildlands, exposing people and structures to a significant risk of loss, injury or death involving wildland fires. All of the above 10 seem tailor-made for the Yokohl Valley development. Since 1964 the foothill corridor has been designated agricultural. Citrus orchards and cattle ranches dominate the foothills, except for the communities of Three Rivers and Springville.
12. See Part II Chapter 2. Corridors Framework Plan page 2-3, Figure 2-1, which promotes commercial and industrial development along all ten major transportation corridors in Tulare County.
13. Increased development around all 21 unincorporated communities, all hamlets. Part II, Chapter 1, Rural Valley Lands Plan, page 3-16, Figure 3-1, and along much of the foothill corridor. Part II, Area Plans, FGMP page 3-16, Figure 3-1.
14. Greatly increased development in remote mountain areas. Part II, Area Plans, Mountain Framework Plan, page 4-2, Figure 4-1.
15. Having weak policies. In the Background Report on page 3-3, a policy is defined as "A specific statement of principle or guiding actions, which implies clear commitment but is not mandatory. A general direction that a governmental agency sets to follow, in order to meet its goals and objectives before undertaking an action program."
16. Having illusory Implementation Measures. On page 1-11 of the General Plan, Part I - Goals and Policies Report document the County states:

"Implementation Measures describe actions that are measurable so their completion can be easily monitored in annual reports. The following principles guide action on these Implementation Measures:

- The timelines associated with the Implementation Measures are general guidelines for completion of the Work Plan.
- Completion of various tasks in the Work Plan are subject to available staff, financial resources, and other considerations.
- Implementation can take time, especially when needed resources are limited and required for more than one Implementation Measure.
- Because implementation will take time and will be costly the County will need to prioritize Implementation Measures. It is contemplated that this on-going process is part of the County's annual general policy-making function and budget cycle.
- While the Plan policies identify specific programs, 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."

This is OUTRAGEOUS flexibility. These "principles" make a joke of the Implementation Measures.

CEQA requires feasible mitigation or avoidance of the harmful impacts of a project on the environment or humans. Tulare County has a $7 million budget deficit. See attachment 30, County Faces $7 Million Budget Shortfall. There have been furloughs and firings. RMA staff is reduced, overworked, inexperienced, handling two jobs instead of one, transferred to departments they know nothing about, and demoralized. It is highly unlikely that monitoring will take place, studies will be conducted, ordinances will be created, training will take place, fines will be imposed for infractions and mitigation measures enforced.

The Supervisors have long believed development to be the economic salvation of our County. Instead, infrastructure costs of new development outweigh property tax and sales tax revenue. Residents of the County have experienced reduced infrastructure services (road maintenance, staffing, hours and days of library operation, ratio of police and firemen to population, closing of public health clinics, ambulance service). Each new development robs the rest of us of services. And it

exacerbates our poor air quality, increases greenhouse gas emissions, strains our groundwater supply (which has been in a condition of critical overdraft for decades), paves over prime agricultural land, eliminates open space, and contaminates our groundwater with septic system effluents. All of these consequences are exacerbated if the development is leapfrog and greatly decreased if it occurs within the eight incorporated cities' growth boundaries. The aforementioned consequences of sprawl contradict the General Plan Value Statement "to protect and enhance the health and safety of its residents." The Tulare County General Plan Update is a CEQA violation of the first order. Since the County is unable and unwilling to create good, healthy policies, Tulare County should adopt model ordinances, energy efficiency standards, green building standards, and a truly healthy growth alternative from other agencies, counties, or non-profit organizations like the American Farmland Trust, the California Oak Foundation, California Attorney General, Green Building Council, California Air Resources Board, and the Tulare County Citizens for Responsible Growth.

To truly reduce greenhouse gas emissions, 95% of future population growth must be directed into existing cities and communities with adequate infrastructure. New Towns must not be permitted. Housing density must be increased by more than the 25% decided by TCAG. SJVAPCD's Suggested Land Use and Transportation Measures must be adopted and mandated. Incentives must be offered to existing homeowners, business owners, and farmers to insulate buildings, and replace inefficient heating units, air conditioners, and water heaters.

Population Projections to 2030

The assumption of Tulare County's population growth of 313,900 people from 2010 to 2030 is based on TCAG projections. According to the RDEIR on page 5-2, "The U.S. Census Bureau and California Department of Finance (DOF) do not provide long term forecasts to 2030." In fact, DOF and the U.S. Census Bureau do provide population projections to 2030 for Tulare County, as well as estimates (2010) of current population in our county. Also on page 5.2 in the RDEIR, "TCAG does provide these forecasts." TCAG is both the Metropolitan Planning Organization (MPO) and the Regional Transportation Planning Agency (RTPA) for (Tulare) County. As an MPO, (TCAG) is charged by the federal government to research and prepare plans for transportation, growth management, hazardous waste management, and air quality. Additionally, one of the many State mandated responsibilities is the development of demographic projections . . ."

The 15 members of TCAG (5 supervisors, 8 representatives of the 8 incorporated cities and 2 members-at-large have based future rates of growth on the rate of growth from 1990-2000 of 18%, from 311,920 to 368,020 people (DOF population estimates.)

"From 2000 until 2007, the population grew steadily at an average of 2.2 percent per year to a total population of 429,010." (RDEIR page 5.2) There is no mention of the source of this population estimate. According to the Valley Voice newspaper on December 31, 2009. "Tulare County's population grew by 1.68 percent between July 1, 2008 and July 1, 2009, according to official population estimates released by the California Department of Finance."

According to TCAG population projections, the County's population is projected to exceed 742,900 by 2030." (RDEIR page 5.2)

As of May 3, 2010 the California Department of Finances released a provisional estimate of the population of Tulare County of 447,814 for 2010. According to DOF, the population of Tulare County grew by 1.68% from July 1, 2008 to July 1, 2009. TCAG's yearly growth estimate is 2.2% . Starting with the DOF 447,814 population estimate for 2010 and a growth rate of 1.68 percent compounded over 20 years, the population of Tulare County will be 614,572 in the year 2030. That is 128,398 fewer people than TCAG's estimate. The same method of computation was used.

The County has created a General Plan Update to accommodate an extra, phantom 128,398 people. The County also made an arbitrary decision that about 75 percent of the future County population will live in incorporated cities and about 25 percent in unincorporated areas.

During the Blueprint Process 6 of the 8 Central Valley counties chose to increase average density of housing units per acre by 32.6%. TCAG chose to increase average density of housing units per acre by only 25 percent. This will result in more sprawl. This contradicts SB 35 (anti-sprawl law).

No consideration was given by TCAG to the housing bust and economic collapse of the State of California and the entire country since September 2008. No consideration of the dismal unemployment rate of 19.4% in Tulare County in March,

2010. See attachment 31, Unemployment in Tulare County and attachment 32, West is Hit Hardest by Joblessness. There is far less migration to California from other parts of the U.S. and far less illegal migration from Mexico and Central America. See attachment 33, Fewer in U.S. Move as Economy Falters, attachment 34, Economic Crisis Curbs Migration of Workers, attachment 35, Ailing Economy Slows Americans' Mobility.

The County has an estimated $7 million shortfall this year because of lower property tax and sales tax revenue. California will have an estimated $19.1 billion shortfall. The federal government has a multi-trillion dollar deficit. Where will the money come from for this grandiose expansion of roads, business, industry, and New Towns? On April 14, 2010 the Federal Reserve Chairman, Ben Bernanke predicted a long slow economic recovery and an equally slow job recovery.

TCAG's population projections are unrealistically high considering current economic and migration conditions. Even if the projections turn out to be accurate, isn't it prudent to concentrate population growth (95 percent) into a limited number of places (incorporated cities) in the densest manner, favoring infill first and close-in development second? Why destroy some resources irrevocably – prime farmland, water quality, biological resources, cultural resources, aesthetics, and provoke faster, more devastating climate change, if it isn't necessary?

What is the motive for such high population projections? Is it a simple mistake? Not understanding that you can't predict the far future (20 years) on past performance? Or is it the outdated mindset that cities and counties must grow or die? Expanding growth boundaries is the only way to create more jobs and tax revenue? The cities and the County believe they need more money to do their jobs well. Doesn't this create a conflict of interest when they are charged with making demographic predictions?

The losers are the residents of Tulare County who voted in the County-held public workshops in 2005 and 2006 for cleaner air, clean water, reliable water, no more sprawl, no more loss of agricultural land and preserving the rural character of the County.

Attachments

Original hand delivered to Dave Bryant April 26, 2010 at the Board of Supervisors Hearing Room

File Copy

April 26, 2010

From: Carole A. Clum and J. Peter Clum, 45638 South Fork Drive, Three Rivers, CA 93271 (559) 561-4661

To: David Bryant, Project Planner, Tulare County Resource Management Agency, Government Plaza, 5961 South Mooney Boulevard, Visalia, California 93277

Subj: Request for Correction and Reissue of Table ES-4 Contained on Pages ES-12 through 26 of the RDEIR, Tulare County General Plan and for Restarting the Commencement Date of the 60 Day Public Review Period for the RDEIR

1. Page ES-8 RDEIR contains a paragraph which provides:

"Table ES-3 lists the revised or new policies and implementation measures that were identified through the CEQA process as additional mitigating policies or implementation measures for potential impacts analyzed in this RDEIR. Table ES-4 presents a summary of impacts and mitigation measures identified in this RDEIR including those proposed in this RDEIR. It is organized to correspond with the enviromental issues discussed throughout the RDEIR. The table is arranged in four columns: 1) environmental impacts; 2) mitigation measure; 3) significance before mitigation; and 4) significance after mitigation."

APR 2010 RECEIVED RESOURCE MANAGEMENT AGENCY

2. Contrary to express language above, Table ES-4 only contains a summary of the proposed required additional mitigation policies and implementation measures identified

in the RDEIR and listed in Table ES-3 beginning on page ES-8. It has no summary of the numerous other mitigation measures, i.e., Part I, Goals and Policies, Tulare County General Plan 2030 Update, discussed in the RDEIR. This omission defeats the informational requirements of CEQA by providing a confusing and substantially incomplete summary of mitigation measures, by interfering with the public's understanding, and by undermining informed decision making.

3. The confusion created by this apparent oversight is compounded by the misleading and erroneous language in the last paragraph on page 3-3 RDEIR:

> "Following each impact statement is a discussion of the potential impact and the General Plan Update policies and implementation measures that would help to mitigate this impact. Existing policies and implementation measures are included in a table similar to that provided below:" (Emphasis added.)

and further compounded by the unfortunate wording in the last ten lines on page 1-2, Part I, Goals and Policies Report.

4. Accordingly, we request that Table ES-4 be corrected using a format similar to that contained in Table ES-4 of the 2008 DEIR, that corrected copies be made

available to the public at no additional charge, and that the 60 day comment period for the RDEIR be restarted on the date the corrected table is available for public review and comment.

Respectfully,

Carole A. Clum

Copy to: Susan Fiering, Deputy Attorney General
Winter King, Shute, Mihaly, and Weinberger LLC
Matt Vespa, Center for Biological Diversity
Gordon Nipp, Kern-Kaweah Chapter, Sierra Club
Laurie Schwaller, Tulare County Citizens for Responsible Growth

File Copy

Fax to Dave Bryant 05/05/2010 pm 4:53

May 5, 2010

From: Carole A. Clum and J. Peter Clum

To: David Bryant, Project Planner, Tulare County
Resource Management Agency

Subj: Our Request of April 26 to Correct the Executive Summary, RDEIR Tulare County General Plan and Restart the 60 Day Public Comment Period

1. In addition to the matters noted in our April 26 letter, we just discovered additional errors in the Executive Summary; (1) no discussion of the alternatives to the proposed project, (2) no identification of areas of controversy known to the lead agency including issues raised by agencies and the public, and (3) no indication of the issues to be resolved including the choice among alternatives and whether or how to mitigate significant effects.

2. The rationale and requests stated in our letter of April 26, Remain in effect.

Respectfully,

Carole A. Clum

J. Peter Clum

File Copy

Recd 5/15/2010

RESOURCE MANAGEMENT AGENCY

5961 South Mooney Blvd
Visalia, CA. 93277
Phone (559) 624-7000
Fax (559) 730-2653

Britt L. Fussel — Planning
Roger Hunt — Public Works
Administration/Community Development

JAKE RAPER JR, AICP, DIRECTOR

May 14, 2010

J. Peter Clum
Carole Clum
45638 South Fork Drive
Three Rivers, CA 93271

Subject: General Plan 2030 Update Recirculated Draft Environmental Impact Report

Dear Mr. & Mrs. Clum:

The County of Tulare Resource Management Agency has received two letters sent by you dated April 26, 2010 and May 5, 2010 requesting an extension of the 60-day public review period beyond May 27, 2010 for the General Plan 2030 Update Recirculated Draft Environmental Impact Report.

The County will not extend the review period as per your request. The 60-day public review period will end on May 27, 2010. The County will respond to all comments received during the 60-day public review period in the General Plan 2030 Update Final Environmental Impact Report.

If you have any questions regarding this matter, please contact the undersigned at 624-7000.

Yours very truly,

Jake Raper, Jr, AICP
Agency Director

Received from Chuck Przybylski 4/20/10

Policies and Procedures

TULARE COUNTY RMA, CURRENT & LONG RANGE PLANNING DIVISIONS

NUMBER:	SUBJECT:	EFFECTIVE DATE
300	**Tulare County Guidelines for the Implementation of the California Environmental Quality Act of 1970**	12/19/72

SOURCE: **BOS: Resolution Nos. 72-3900; 73-356; 73-1202; 74-1346; 74-2165; 75-2452; 77-2229; 78-2300; 81-1670; 82-390; 83-460; 86-1419; 87-228; 87-429; 87-1278; 89-850A; 90-0803; 91-0805; 93-0489; 95-0476; 99-0479**

NOTE: Tulare County Ordinance Code Section 7-08-1070, effective December 25, 1997, provides as follows:

> **Section 1-03-1070. Resource Management Agency:** The Resource Management Agency is hereby established. All references in the Tulare County Ordinance Code, any other codified or uncodified County ordinance, or any other official County contracts, resolutions or other documents, to the Tulare County Planning and Development Department, the Tulare County Public Works Department, or the Tulare County General Services Department (except as set forth in sections 2-03-1001 and 2-05-1000) shall be deemed to refer to the Tulare County Resource Management Agency.

SECTION 100. GENERAL

(a) These Guidelines are intended to be used in conjunction with the State "Guidelines for Implementation of the California Environmental Quality Act of 1970" contained in Title 14, California Administrative Code, Sections 15000 et seq., as amended (herein: State CEQA Guidelines). The State CEQA Guidelines and any future amendments thereto are hereby adopted by reference and made a part of these guidelines. All words and phrases contained in these guidelines shall have the same meanings as contained in the State CEQA Guidelines.

(b) These guidelines are primarily intended to be used for the preparation of environmental documents required by the provisions of the California Environmental Quality Act of 1970, as amended, for County projects, and private projects subject for County approval.

(c) These guidelines may also be used for the preparation of environmental documents required for Tulare County Local Agency Formation Commission projects. In such cases, the County Planning and Development Department, acting on behalf of the Local Agency Formation Commission, shall make a initial study, prepare the necessary environmental documents, and carry out the other duties imposed upon a County department responsible for a County project by these guidelines, and shall receive any fees provided by these guidelines for preparation of such documents (added by Res. 72-3900, effective 12-19-72; amended by Res. 73-1202,

Attachment 4

NUMBER:	SUBJECT:	EFFECTIVE DATE
300	Tulare County Guidelines for the Implementation of the California Environmental Quality Act of 1970	12/19/72

SOURCE: BOS: Resolution Nos. 72-3900; 73-356; 73-1202; 74-1346; 74-2165; 75-2452; 77-2229; 78-2300; 81-1670; 82-390; 83-460; 86-1419; 87-228; 87-429; 87-1278; 89-850A; 90-0803; 91-0805; 93-0489; 95-0476; 99-0479

effective 8-9-77; amended by Res. 83-460, effective 4-5-83; amended by Res. 86-1419, effective 11-4-86).

(d) These Guidelines may also be used for the preparation of environmental documents required for Tulare County Redevelopment Agency plans and projects. CEQA compliance for Redevelopment Agency projects which are to be carried out under agreement with the Tulare County Public Works Department, shall be the responsibility of the Public Works Department, while CEQA compliance for other Redevelopment Agency plans and projects shall be the responsibility of the Tulare County Planning and Development Department. In either case, the County Environmental Assessment Officer (Planning and Development Director or Public Works Director), acting on behalf of the Redevelopment Agency, shall make an initial study, prepare the necessary environmental documents, and carry out the other duties imposed upon a County department responsible for a County project by these guidelines and shall receive any fees provided by these guidelines for preparation of such documents (adopted by Res. 87-228, effective 2-17-87).

(e) These Guidelines may also be used for the preparation of environmental documents required for Tulare County Flood Control District plans and projects. In such cases, the Tulare County Public Works Department, acting on behalf of the Flood Control District, shall prepare all necessary environmental documents and carry out the other duties imposed upon a County department responsible for a County project by these Guidelines (added by Res. 87-1278, effective 9-22-87).

SECTION 100.5. PRIVATE PROJECT APPLICATIONS: SPECIAL DETERMINATIONS AND PROCEDURES: (added by Res. 86-1419, effective 11-4-86; amended by Res. 90-0803, effective 9-1-90).

(a) At the time that an initial application for approval of a private project is received and accepted as complete, the responsible County department shall determine and advise the applicant of the estimated time which will be necessary to process the application under the California Environmental Quality Act ("CEQA"), the State CEQA Guidelines and these guidelines. If the applicant so desires, applicant can request, at applicant's own expense, an expedited

environmental assessment process wherein the services set forth in subsection (d) are performed in an expeditious manner by qualified private entities or persons contracted with the County of a temporary basis.

(b) If the applicant desires to proceed with an expedited environmental assessment process, the applicant shall enter into a deposit agreement in a form approved by the Board of Supervisors and executed on behalf of the County by the County Environmental Assessment Officer.

(c) Upon execution of the deposit agreement described in subsection (b) and upon receipt of the deposit required thereunder, the Environmental Assessment Officer shall secure, on the basis of availability and/or specific qualifications or expertise, the services of one of the qualified private entities or persons on retainer with the County for this purpose.

(d) The private entities or persons contracted with pursuant to subsection (c) shall perform only those services necessary to meet the initial study requirements of the CEQA and shall not perform those functions reserved by the CEQA, the State CEQA Guidelines, or these guidelines to the decision-making body. Even though it is understood that these required reports and studies should be prepared in cooperation with the applicant, the responsibility of the entity or person under contract will be solely to the County. Accordingly, the entity or person shall make every effort to prepare the reports and studies with maximum accuracy and objectivity. Further, in all matters pertinent to the private project the entity or person under contract shall act solely as the consultant to the County and shall not act in any capacity as consultant to, representative of, or agent of the applicant.

SECTION 101. INITIAL STUDY OF PROJECT:

The County department initiating a County project, or receiving the initial application for approval of a private project, shall make an Initial Study of the project pursuant to the State CEQA Guidelines, Section 15063, to determine whether a Negative Declaration or an Environmental Impact Report is required, or whether the project may proceed without the preparation of either. In the case of a private project application, said determination shall be made within 30 days from the date on which the

NUMBER:	SUBJECT:	EFFECTIVE DATE
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application was accepted as complete (Section 21080.2, Public Resources Code). This period may be extended 15 days upon the consent of the department and the applicant.

If the department desires the assistance of the County Planning and Development Department in evaluating the project or in preparing a Negative Declaration or an Environmental Impact Report, the Planning and Development Department shall provide such assistance upon request. If neither a Negative Declaration nor an Environmental Impact Report is required under the State CEQA Guidelines, the department may proceed with the County project, or approve the private project, in the normal manner without taking any additional steps under the California Environmental Quality Act of 1970. If the project is a ministerial or emergency project, or is categorically exempt, within the meaning of the State CEQA Guidelines, a notice of exemption may be filed as provided in Section 15062 of the State CEQA Guidelines (Note: Prior Section 105 adopted by Res. 72-3900, effective 12-19-72; amended and renumbered Section 102 by Res. 73-1202, effective 4-3-73; amended by Res. 74-1346, effective 4-30-74; amended and renumbered as Section 101 by Res. 77-2229, effective 8-9-77; amended by Res. 83-460, effective 4-5-83; amended by Res. 86-1419, effective 11-4-86).

SECTION 101.1: INITIAL STUDY OF PRIVATE PROJECTS: EFFECTS ON ARCHAEOLOGICAL RESOURCES:

(a) In the case of an Initial Study of an application for a private project, the responsible county department shall determine if the project may have a significant effect on unique archaeological resources as defined in Section 21083.2 (g) of the Public Resources Code. If the Environmental Assessment Officer determines that the private project could have an adverse impact on archaeological resources, the county department shall contract with a qualified archaeologist. In such cases, the Environmental Assessment Officer shall recommend at least three qualified archaeologists to prepare the initial archaeological assessment. The applicant seeking approval of an application for a private project shall select one of the recommended archaeologists to prepare the assessment. Agreements shall be prepared between the county and the applicant and the county and the archaeologist to specify the details of the initial archaeological assessment process. The same procedures shall be followed in processing and acting on such agreements as are applicable to agreements for preparation of environmental impact reports by consultants in Section 103.1 of these Guidelines. Once the initial archaeological assessment is

completed and accepted by the responsible county department, it shall be attached to and made a part of the Initial Study of the project as provided in Section 101 of these guidelines (adopted by Res. 83-460, effective 4-5-83).

(b) As an alternative to the procedure described in paragraph (a) of this section, an applicant for a private project may contract independently with a qualified archaeologist to perform the analysis required in paragraph (a) of this section. Said analysis shall be submitted in conjunction with the application for the private project and the application shall not be accepted as complete until the Environmental Assessment Officer has reviewed and approved the analysis. If the Environmental Assessment Officer disapproves the analysis, a new archaeological analysis shall be performed in the manner specified in paragraph (a) of this section (paragraph (b) adopted by Res. 86-1419, effective 11-4-86).

SECTION 102. NEGATIVE DECLARATION:

(a) If the county department responsible for making the Initial Study of a project pursuant to Section 101 of these guidelines determines that a Negative Declaration is required under Section 15070 of the State CEQA Guidelines, it shall file a Negative Declaration with the Environmental Assessment Officer.

(b) If the Environmental Assessment Officer approves the Negative Declaration, this fact shall be endorsed on a copy of the Negative Declaration. A notice that the decision-making body proposes to adopt a Negative Declaration shall be made available to the public in sufficient time to provide an opportunity for members of the public to respond to the findings before the project is approved. Within five (5) working days after the project is approved, the responsible department shall file a Notice of Determination with the County Clerk of the County, or counties, in which the project will be located pursuant to Section 15075 of the State CEQA Guidelines. The notice shall be posted at the County Clerk's Office and made available for public review as required by Section 21152(c) of the Public Resources Code.

(c) If the Environmental Assessment Officer disapproves of a Negative Declaration for a particular project because the Officer finds there is substantial evidence that the particular project will

NUMBER:	SUBJECT:	EFFECTIVE DATE
300	Tulare County Guidelines for the Implementation of the California Environmental Quality Act of 1970	12/19/72

SOURCE: BOS: Resolution Nos. 72-3900; 73-356; 73-1202; 74-1346; 74-2165; 75-2452; 77-2229; 78-2300; 81-1670; 82-390; 83-460; 86-1419; 87-228; 87-429; 87-1278; 89-850A; 90-0803; 91-0805; 93-0489; 95-0476; 99-0479

have a significant effect on the environment, an Environmental Impact Report shall be prepared for that particular project (Note: Prior Section 106 adopted by Res. 72-3900, effective 12-19-72; amended and renumbered as Section 103 by Res. 73-1202, effective 4-3-73; amended by Res. 74-1346, effective 4-30-74; amended and renumbered as Section 102 by Res. 77-2229, effective 8-9-77; amended by Res. 78-2311, effective 8-29-78; amended by Res. 83-460, effective 4-5-83; amended by Res. 86-1419, effective 11-4-86).

SECTION 102.1. MITIGATED NEGATIVE DECLARATION:

(a) If the County department initiating a County project or receiving the initial application for approval of a private project, determines that a particular project may have a significant effect on the environment, but that such effects can be mitigated to a point where clearly no significant environmental effects would occur, the responsible department shall determine if a mitigated Negative Declaration can be prepared pursuant to Section 15070(b) of the State CEQA Guidelines.

(b) The Initial Study of the project for which a mitigated Negative Declaration is to be prepared pursuant to this section, shall specify the mitigation measures required and the nature of the modifications made in the project to avoid the significant adverse impacts originally identified for the project.

(c) If all the mitigation measures are made a part of a County project, or if the applicant seeking approval of an application for a private project revises the project plans to include such mitigation measures as a part of the project, and/or agrees to an enforceable commitment to include the mitigation measures in the project, then the County department shall prepare a Negative Declaration for submittal to the Environmental Assessment Officer.

(d) Where a mitigated Negative Declaration is approved, the decision-making body shall make a finding that there is no substantial evidence that the project as approved may have a significant effect on the environment (adopted by Res. 78-2311, effective 8-29-78; amended by Res. 83-460, effective 4-5-83; amended by Res. 86-1419, effective 11-4-86).

NUMBER:	SUBJECT:	EFFECTIVE DATE
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SOURCE: BOS: Resolution Nos. 72-3900; 73-356; 73-1202; 74-1346; 74-2165; 75-2452; 77-2229; 78-2300; 81-1670; 82-390; 83-460; 86-1419; 87-228; 87-429; 87-1278; 89-850A; 90-0803; 91-0805; 93-0489; 95-0476; 99-0479

SECTION 103. PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT: NOTICE OF PREPARATION:

If the County department responsible for making the Initial Study of the project pursuant to Section 101 of these guidelines determines that an Environmental Impact Report is required under the State CEQA Guidelines, or if the department has been directed to prepare an Environmental Impact Report after submitting a Negative Declaration pursuant to Section 102 of these guidelines, it shall prepare, or cause to be prepared, a draft Environmental Impact Report containing the information required by Article 9 of the State CEQA Guidelines. Before commencing preparation, the department shall send a Notice of Preparation to each responsible agency and consult with the responsible agencies and other concerned persons or organizations as required by Section 15082(a) of the State CEQA Guidelines. A copy of each Notice of Preparation sent to a State responsible agency or trustee agency shall be sent to the State Clearinghouse as required by Section 15082(d) of the State CEQA Guidelines (Note: Prior Section 107 adopted by Res. 72-3900, effective 12-19-72; amended and renumbered as Section 104 by Res. 73-1202, effective 4-3-73; amended and renumbered as Section 103 by Res. 77-2229, effective 8-9-77; amended by Res. 78-2311, effective 8-29-78; amended by Res. 83-460, effective 4-5-83; amended by Res. 86-1419, effective 11-4-86).

SECTION 103.1. PREPARATION OF ENVIRONMENTAL IMPACT REPORTS BY CONSULTANTS:

(a) If the County Planning and Development Department is unable to assist in the preparation of a Draft or Final Environmental Impact Report pursuant to Sections 101 or 101.5 of these Guidelines, the County department may elect to contract with a qualified consultant for preparation of all or a part of an Environmental Impact Report. In such cases, the Environmental Assessment Officer shall recommend at least three qualified consultants to prepare the Environmental Impact Report based upon their qualifications for the type and scale of project at hand. The County department carrying out a County project or the applicant seeking approval of an application for a private project, as the case may be, shall select one of the recommended consultants to prepare the Environmental Impact Report. In the case of a private project application, agreements shall be prepared between the County and the applicant and the County and the consultant to specify the details of the Environmental Impact Report

NUMBER:	SUBJECT:	EFFECTIVE DATE
300	Tulare County Guidelines for the Implementation of the California Environmental Quality Act of 1970	12/19/72

SOURCE: BOS: Resolution Nos. 72-3900; 73-356; 73-1202; 74-1346; 74-2165; 75-2452; 77-2229; 78-2300; 81-1670; 82-390; 83-460; 86-1419; 87-228; 87-429; 87-1278; 89-850A; 90-0803; 91-0805; 93-0489; 95-0476; 99-0479

preparation process. The applicant shall execute an agreement with the County concerning Environmental Impact Report preparation within 30 days of the date the County department submitted the agreement to the applicant (amended by Res. 87-1278, effective 9-22-87).

(b) In the event the applicant fails to execute such contract within said 30 days, the County department shall notify the applicant by certified mail that the application will be declared null and void, and the proposed project deemed abandoned, if the contract is not executed and received by the County department within 5 working days of the receipt of the notice.

(c) If the contract is not executed and received as provided in subsection (b) of this section, the application shall be delivered to the decision-making body who, after giving prior notice to the applicant, shall hold a public hearing and determine whether or not the application should be declared null and void for failure to comply with these guidelines. If the decision-making body is not the Board of Supervisors, the applicant may appeal the action of the decision-making body to the Board of Supervisors as provided in Section 109 of these guidelines. The decision of the Board of Supervisors on such an appeal shall be final (adopted by Res. 78-2311, effective 8-29-78; amended by Res. 83-460, effective 4-5-83; amended by Res. 86-1419, effective 11-4-86).

(d) As an alternative to the procedure established in subsections (a) through (c), the County department may allow an applicant seeking approval of an application for a private project to prepare and submit draft environmental impact report materials, including but not limited to a draft and/or final environmental impact report, as part of such application. In such case, the private application shall not be deemed complete until the draft environmental impact report materials are satisfactory to the County. Such draft environmental impact report materials shall be subject to the independent review requirements of Public Resources Code section 21082.1 and applicable State CEQA Guidelines (added by Res. 93-0498, effective 7-10-93).

NUMBER:	SUBJECT:	EFFECTIVE DATE
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SOURCE: BOS: Resolution Nos. 72-3900; 73-356; 73-1202; 74-1346; 74-2165; 75-2452; 77-2229; 78-2300; 81-1670; 82-390; 83-460; 86-1419; 87-228; 87-429; 87-1278; 89-850A; 90-0803; 91-0805; 93-0489; 95-0476; 99-0479

SECTION 103.2. USE OF PRIOR ENVIRONMENTAL IMPACT REPORTS FOR SUBSEQUENT PROJECTS:

(a) Whenever a prior Environmental Impact Report has been prepared and certified for a program, plan, policy or ordinance and a subsequent project is proposed, the Environmental Assessment Officer shall determine if the subsequent project would be subject to Section 15183 of the State CEQA Guidelines (residential projects) or Section 21094 of the Public Resources Code (tiering of EIRs).

(b) If the Environmental Assessment Officer determines that Section 15183 or Section 21094 would be applicable, the Initial Study shall assess if the subsequent project will result in impacts upon the environment which are peculiar to the parcel or to the project and which were not addressed as significant effects in a prior Environmental Impact Report, and/or if feasible mitigation measures exist which were not addressed in the prior EIR.

(c) If the Initial Study finds that the subsequent project will result in impacts that were not addressed as significant effects in the prior EIR, or that feasible mitigation measures exist which were not addressed in the prior EIR, either a Subsequent EIR (Section 15162) or a Supplement to the EIR (Section 15163) shall be prepared. The report shall be limited to the additional effects and mitigations, provided however that in the case of residential project subject to Section 15183, such effects need not be considered if County development policies or standards, adopted in conformance with Section 15183, will substantially mitigate such effects.

(d) If the Initial Study determines that there are no additional effects upon the environment which are peculiar to the project or the parcel and which are not addressed as significant effects in the prior EIR, no additional feasible mitigation measures exist in the Environmental Assessment Officer determines that the prior EIR is adequate for the subsequent project, no further EIR for the project shall be prepared unless an Addendum to the EIR is appropriate under Section 15164, CEQA Guidelines. In such cases the Environmental Assessment Officer shall certify the prior EIR as adequate for the project and shall authorize the notice provided in Section 105.1 of these guidelines (adopted by Res. 82-390, effective 3-9-82; amended by Res. 86-1419, effective 11-4-86).

NUMBER:	SUBJECT:	EFFECTIVE DATE
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SECTION 104. SUBMISSION OF DRAFT ENVIRONMENTAL IMPACT REPORT:

(a) After the draft Environmental Impact Report is completed, it shall be submitted to the Environmental Assessment Officer for review.

(b) If the Environmental Assessment Officer determines that the report is adequate, he shall so indicate by endorsing his approval on the report. The Officer shall at the time determine the review period for the draft report and the public agencies and/or persons with special expertise to which the draft report shall be sent for review. The normal review period for the draft report shall be no less than 30 days nor longer than 90 days except in unusual circumstances. However, where a draft report must be submitted to the State Clearinghouse pursuant to Sections 15205 or 15206 of the State CEQA Guidelines, the Officer must set a review period at least as long as the period provided in the State review system by the State Clearinghouse.

(c) If the Environmental Assessment Officer determines that the draft report is inadequate, he shall inform the department submitting the draft report of the reasons he finds the report inadequate. The department submitting the report shall then amend the report and resubmit it for approval by the Environmental Assessment Officer (Note: Prior Section 110 adopted by Res. 72-3900, effective 12-19-72; amended and renumbered as Section 106 by Res. 73-1202, effective 4-3-73; amended by Res. 74-1346, effective 4-30-74; amended and renumbered as Section 104 by Res. 77-2229, effective 8-9-77; amended by Res. 78-2311, effective 8-29-78; amended by Res. 83-460, effective 4-5-83; amended by Res. 86-1419, effective 11-4-86).

SECTION 105. NOTICE OF COMPLETION: DISTRIBUTION OF DRAFT EIR REPORT FOR REVIEW:

After a draft report has been approved by the Environmental Assessment Officer, the County department responsible for preparing the draft report shall cause a Notice of Completion to be filed with the State Clearinghouse pursuant to Section 15085 of the State CEQA Guidelines. The responsible department shall then distribute copies of the draft report to all responsible agencies and those public agencies and/or persons with special expertise designated by the Environmental

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Assessment Officer. The responsible department shall advise reviewers of the date that their comments must be received for inclusion in the final Environmental Impact Report (Note: Prior Section 111 adopted by Res. 72-3900, effective 12-19-72; amended and renumbered as Section 107 by Res. 73-1202, effective 4-3-73; amended by Res. 74-1346, effective 7-30-74; amended and renumbered as Section 105 by Res. 77-2229, effective 8-9-77; amended by Res. 78-2311, effective 8-29-78, amended by Res. 83-460, effective 4-5-83; amended by Res. 86-1419, effective 11-4-86).

SECTION 105.1. NOTICE TO AGENCIES: USE OF PRIOR EIR FOR SUBSEQUENT PROJECTS:

If a prior EIR has been approved by the Environmental Assessment Officer for use with a subsequent project in accordance with Section 103.2(d) of these Guidelines, the County department responsible for preparing the report shall not be required to prepare a Notice of Completion. However, the responsible County department shall notify all responsible agencies of the decision to use the prior EIR. If State agencies are to be notified, the State Clearinghouse shall also be notified (adopted by Res. 82-390, effective 3-9-82; amended by Res. 86-1419, effective 11-4-86).

SECTION 106. SUBMISSION OF FINAL ENVIRONMENTAL IMPACT REPORT:

(a) After the time for review of the Draft EIR has expired, the responsible County agency shall prepare a Final Environmental Impact Report and submit it to the Environmental Assessment Officer for review. This report shall contain the matters set forth in Section 15132 of the State CEQA Guidelines.

(b) If the Environmental Assessment Officer approves the Final Environmental Impact Report, he shall endorse this fact on a copy of the report. The department making the report shall then submit a copy to the decision-making body for its certification and consideration pursuant to Section 15090 of the State CEQA Guidelines prior to making a final decision on the project.

(c) The decision-making body, if it approves a project, shall within 5 working days file a Notice of Determination with the County Clerk of the County or counties in which the project will be located pursuant to Section 15094 of the State CEQA Guidelines. The notice shall be posted at

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the County Clerk's office and made available for public review as required by Section 21152(c) of the Public Resources Code (Note: Prior Section 108 adopted by Res. 73-1202, effective 4-3-73; amended by Res. 74-1346, effective 4-30-74; amended and renumbered as Section 106 by Res. 72-2229, effective 8-9-77; amended by Res. 78-2311, effective 8-29-78; amended by Res. 83-460, effective 4-5-83; amended by Res. 86-1419, effective 11-4-86).

SECTION 106.1. TIME LIMITS:

(a) Except where other laws require shorter time limits for action on projects, the time periods for completion and certification of EIRs and Negative Declarations for applications for approval of private projects when the County is acting as Lead Agency shall be the same as set forth in Sections 15107 and 15108 of the State CEQA Guidelines. When other laws prescribe shorter time periods than are specified in Sections 15107 and 15108 within which a lead agency must take action, completion and certification of EIRs and Negative Declarations shall be accomplished within the shorter time periods.

(b) Unless otherwise provided by law, the time limits established in subsection (a) of this section may be extended by mutual consent of the applicant and the Environmental Assessment Officer (adopted by Res. 78-2311, effective 8-29-78; amended by Res. 83-460, effective 4-5-83; amended by Res. 86-1419, effective 11-4-86).

SECTION 106.2 MITIGATION REPORTING OR MONITORING PROGRAMS:

(a) Pursuant to Public Resources Code section 21081.6, the County officer or body approving any project for which changes have been adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment shall adopt a CEQA mitigation reporting or monitoring program for such project, and such CEQA mitigation reporting or monitoring program shall be imposed as a condition of project approval. Any agency having jurisdiction by law over the natural resources affected by the project may request that a mitigation measure be included as a condition or other requirement of approval of the project, provided that such agency prepare and submit a proposed CEQA mitigation reporting or monitoring program with the requested mitigation measure.

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(b) Each CEQA mitigation reporting or monitoring program shall be prepared by the responsible County department or by a consultant retained for such purpose in accordance with Section 103.1 of these Guidelines, shall be paid for by the applicant, and submitted for approval to the County officer or body considering the project at the same time as the County officer or body takes final action on the requested project approval.

(c) Each CEQA mitigation reporting or monitoring program shall be prepared as part of the environmental review document prepared on the project and shall include: 1) all conditions and mitigation measures imposed on the project separated by subject area; 2) a plan for coordination and implementation of all measures; 3) a description of all measures the applicant will be required to take to assure compliance, including field monitoring, data collection, management and coordination of field personnel and feedback to field personnel and affected County agencies; 4) a description of all measures the County and any other agencies assigned will take to assure compliance, including review of applicant reports, field monitoring or inspections, data collection, and feedback to applicant and affected County and other agencies; and 5) a description of compliance criteria.

(d) The Director of the responsible County department for a project or his/her deputy as designated from time to time shall be the County CEQA mitigation reporting or monitoring program manager for that project. As such, he or she shall coordinate preparation of CEQA mitigation reporting or monitoring programs and verification of compliance efforts by County staff, shall be the contract person through which other public agencies may participate in such programs and shall resolve conflicts between the applicant, members of the public and County staff as to any issues arising in regard to such a CEQA mitigation reporting or monitoring program, except for those issues which are more appropriately raised in the regular County public hearing and decision-making procedures on any given project.

(e) In the case of phased, major or complex projects, the County officer or body approving the project may determine that a CEQA mitigation and monitoring agreement with a consultant selected in accordance with Section 103.1 is required in order to carry out the CEQA mitigation reporting or monitoring program.

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(f) All decisions and determinations of the program manager under this section shall be appealable as provided under Section 109.

(g) Failure to comply with any provisions of a CEQA mitigation reporting or monitoring program made a condition of any project approval, or failure to comply with the provisions of any CEQA mitigation and monitoring agreement, shall be deemed to be a violation of the conditions of project approval and shall subject the applicant and/or owner to enforcement action, and to such penalty as is otherwise provided by County ordinance or state law.

(Section 106.2 added by Res. 93-0498, effective 7-10-93)

SECTION 107. TULARE COUNTY ENVIRONMENTAL ASSESSMENT OFFICER*:

***NOTE: Tulare County Ordinance Code Section 1-03-1075, effective December 25, 1997, provides as follows:**

Section 1-03-1075. Resource Management Director: The Resource Management Director shall be appointed pursuant to the procedure specified in 1-03-1020 of this Ordinance Code. All references in the Tulare County Ordinance Code, any other codified or uncodified County ordinance, or any other official County contracts, resolutions or other documents, to the Tulare County Planning and Development Director, the Tulare County Public Works Director, the General Services Director (except as set forth in sections 2-03-1001 and 2-05-1000), or the General Services Director/Purchasing Agent shall be deemed to refer to the Resource Management Director or such duly authorized and qualified division manager, or managers, as the Director shall appoint.

(a) The Tulare County Environmental Review Committee previously established is hereby terminated effective September 12, 1978.

(b) The Officer of Environmental Assessment Officer is hereby established. The Planning and Development Director shall serve as the Environmental Assessment Officer on all County projects and applications for approval of private projects except those projects and applications

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which are under the jurisdiction of the County Public Works Department. In the case of Public Works Department projects, the Public Works Director shall serve as the Environmental Assessment Officer.

(c) Both the Planning and Development Director and the Public Works Director shall have the power to delegate the duties and responsibilities of the Environmental Assessment Officer to an employee in their respective departments.

(d) The duties of the Environmental Assessment Officer shall be:

(1) To review the adequacy and appropriateness of Negative Declarations and Environmental Impact Reports for all projects.

(2) To determine that Negative Declarations are completed within the time limits specified in Section 106.1 of these guidelines (Authority: Section 15025(a)(4) State CEQA Guidelines).

(3) To recommend additions or deletions to the classes of Categorical Exemptions to be submitted to the Board of Supervisors, or the Local Agency Formation Commission, and to the State Office of Planning and Research pursuant to the State CEQA Guidelines.

(4) To recommend to the Board of Supervisors and the Local Agency Formation Commission, for adoption, a list of those specific County and Local Agency Formation Commission activities which fall within each class of Categorical or Ministerial Exemptions pursuant to the State CEQA Guidelines.

(5) To compile a listing of public agencies, particularly local agencies, which have legal jurisdiction and/or special expertise with respect to various County and Local Agency Formation Commission projects (public and private) and project locations pursuant to the State CEQA Guidelines.

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(6) To compile and maintain a list of consultants qualified for the preparation of Environmental Impact Reports (Note: Prior Section 103 adopted by Res. 72-3900, effective 12-19-72; amended and renumbered as Section 101 by Res. 73-1202, effective 4-3-73; amended by Res. 74-1346, effective 4-30-74; amended by Res. 75-2452, effective 9-2-75; amended and renumbered as Section 107 by Res. 77-2229, effective 8-9-77; amended by Res. 78-2311, effective 8-29-78; amended by Res. 83-460, effective 4-5-83; amended by Res. 86-1419, effective 11-4-86).

SECTION 108. PUBLIC PARTICIPATION:

(a) List of projects under consideration. The Environmental Assessment Officer shall have posted, and revised weekly, a list, which may be supplemented by a map, of all projects currently under consideration for which a draft Environmental Impact Report or a Negative Declaration have been approved. This list, and any supplemental map, shall be posted on the bulletin board next to Room 109, Courthouse, Visalia, California.

(b) Early Consultation with Surrounding Owners. Immediately after deciding that an Environmental Impact Report (EIR) or a Mitigated Negative Declaration is required for a project, the responsible County department shall consult with surrounding owners by mailing a notice to all owners of property within 300' of the parcel or parcels on which the project is located, as those owners are shown on the latest equalized assessment roll. Such notice shall be for the purpose of soliciting public response and comment on the range of impacts identified and the adequacy of proposed mitigations. If substantial evidence is received concerning the environmental impacts of the project or the proposed mitigations, the responsible County department shall include the information in the draft EIR or Mitigated Negative Declaration.

In the case of projects as defined in Section 21065(a) and (b) of the Public Resources Code, mailed notice shall not be required if the number of owners to whom notice would be mailed is greater than 100. However, the responsible County department, in lieu of mailed notice, shall provide notice by placing a display advertisement of at least one-eighth page in at least one newspaper of general circulation within the area of the County affected by the project.

The responsible County department may also conduct scoping meetings pursuant to Section 15083 of the State Guidelines if deemed appropriate to resolve issues concerning the environmental effects of the project. A record of the meeting shall be attached to the draft EIR or Mitigated Negative Declaration. If a scoping meeting is held concerning an application for a private project, the applicant shall be invited to attend the meeting (Subsection (b) added by Res. 87-429, effective 3-31-87).

(c) Notice of Intent to Adopt a Negative Declaration or Notice of Completion of Draft Environmental Impact Report. The Environmental Assessment Officer shall, within five (5) days after approving a Negative Declaration or draft Environmental Impact Report, provide the notice as set forth in Sections 15072 and 15087 of the State CEQA Guidelines informing interested persons where they may inspect or obtain copies of such Environmental Impact Report or Negative Declaration.

(d) Submission of comments. Prior to the time that the review period on a draft Environmental Impact Report has expired, and prior to the time that a final decision is made on a project for which a Negative Declaration has been prepared, interested parties may submit written comments on the adequacy of a Draft Environmental Impact Report, or on the appropriateness of a Negative Declaration.

(e) Public Hearings. Where a public hearing or hearings are held in connection with a project under a provision of law other than the California Environmental Quality Act, as amended, all notices pertaining to such hearing or hearings shall include a statement that the environmental impact of the project will be considered at such hearing or hearings. In addition, if a prior EIR is being utilized for a residential project pursuant to Section 15183 of the State CEQA Guidelines, the notice shall announce the intent of the decision-making body to make a finding as to whether the mitigation measures described in the prior EIR will be undertaken for the residential project. In exceptional cases, where the decision-making body determines that it would facilitate the purposes and goals for the California Environmental Quality Act to do so, a public hearing or hearings may be held on the environmental impact of the project not otherwise requiring a hearing before final approval or disapproval. Notice of any such hearing shall be given in the matter determined by the decision-making body for the particular project

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and shall include the information set forth above for projects requiring a hearing under other provisions of law. When such hearing or hearings are held, a summary of the comments made at the hearing or hearings on the environmental impact of the project, together with the response by the responsible County department, shall be added to any final Environmental Impact Report before its certification by the decision-making body pursuant to the State CEQA Guidelines (Former Section 109 adopted by Res. 73-1202, effective 4-3-73; amended by Res. 74-1346, effective 4-30-74; amended and renumbered as Section 108 by Res. 77-2229, effective 8-9-77; amended by Res. 78-2311, effective 8-29-78; amended by Res. 83-460, effective 4-5-83; amended by Res. 86-1419, effective 11-4-86).

SECTION 109. APPEALS:

(a) Any interested party, including a County department, may appeal a determination of the Environmental Assessment Officer by filing a written request for a hearing with the decision-making body within ten (10) days from the decision of the Environmental Assessment Officer. When such a request is filed, the decision-making body shall review the decision of the Environmental Assessment Officer at a hearing, noticed in accordance with Section 15202(e) of the CEQA Guidelines, at which the responsible County department, the Environmental Assessment Officer, the party requesting a hearing and any person affected by the determination shall all have an opportunity to be heard. The decision of the decision-making body as to the correctness or incorrectness of the decision of the Environmental Assessment Officer shall be final unless the decision-making body is not the Board of Supervisors. In those cases, any interested party may further appeal the decision to the Board of Supervisors in the manner provided in Section 115 of the County Ordinance Code.

(b) Any interested party may appeal any determination of a County department, official or decision-making body concerning the adequacy of exemptions, negative declarations, or environmental impact reports by filing a written request for a hearing with the Board of Supervisors within ten (10) days from the determination. When such a request is filed, the Board of Supervisors shall review the determination at a hearing, noticed in accordance with Section 15202(e) of the CEQA Guidelines, at which the responsible County department, official or decision-making body, the Environmental Assessment Officer, the party requesting a

hearing and any person affected by the determination shall all have an opportunity to be heard. The decision of the Board of Supervisors as to the correctness or incorrectness of the determination shall be final.

(c) Unless otherwise noted, any appeals to the Board of Supervisors under this section shall be subject to Section 115 of the County Ordinance Code. (Note: Prior Section 110 adopted by Res. 74-1346, effective 4-30-74; renumbered as Section 109 by Res. 77-2229, effective 8-9-77; amended by Res. 78-2311, effective 8-29-78; amended by Res. 83-460, effective 4-5-83; amended by Res. 86-1419, effective 11-4-86; amended by Res. 89-850A, effective 9-9-89).

SECTION 110. FEES:

Except as otherwise provided in the Tulare County Local Agency Formation Commission Guidelines, every applicant, including public agencies, for approval by the County or the Local Agency Formation Commission of a project which requires the preparation of an initial study pursuant to Section 101.1 of these guidelines, a mitigated negative declaration pursuant to Section 102.1 of these guidelines, or an Environmental Impact Report under the California Environmental Quality Act shall pay the following fees:

a.	Initial Assessment of Archaeological Resources by qualified archaeologist (Section 101.1(a))	Total cost of initial assessment + 20%
b.	Environmental Impact Report (EIR) prepared by County (Sections 103 and 103.2)	Total cost of draft Environmental Impact Report + 10%
c.	Draft EIR prepared by Consultant under contract to County (Section 103.1)	Total amount of estimated cost of the DEIR as provided in the contract + 20%

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d.	Draft and Final EIR prepared by Consultant under contract to County	Total amount of cost of the Draft and Final EIR as provided in the contract + 10%
e.	Review of Draft and/or Final EIR Materials submitted by Applicant (Section 103.1(d))	Total cost of review of Material + 10%
f.	Environmental Assessment work performed by private entity or persons (Section 100.5)	Total amount of estimated cost of the work as provided in the contract + 10%
g.	Mitigated Negative Declaration (Section 102.1)	Total cost of the Mitigated Negative Declaration
h.	Administration of CEQA Mitigation Reporting and Monitoring Agreements entered into the County with a Consultant (Section 110.3)	Total cost of negotiated cost of work as provided in the contract + 10%

Except as provided above, the fee for the initial determination shall be incorporated into the initial project application fees. If a determination is made that a Categorical Exemption, Negative Declaration or Addendum to an EIR (State CEQA Guidelines Section 15164) is appropriate, no additional fees shall be required. If a determination is made that a mitigated Negative Declaration is required, the County Department shall bill the applicant for the total costs for preparation of the mitigated Negative Declaration. (Amended by Res. 91-0805, effective 9-7-91; amended by Res. 93-0498, effective 9-7-93)

If it is necessary to prepare an Environmental Impact Report (including a Subsequent EIR or a Supplement to an EIR), the County department shall bill the applicant for the total cost to the County

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for preparation of the draft Environmental Impact Report, plus 10% to cover the cost of preparing the final Environmental Impact Report. If it is necessary to contract with a consultant or a qualified archaeologist as herein provided, the County department shall bill the applicant for the total amount as provided in the contract, plus 10% to cover the costs of preparing any Final Environmental Impact Report and an additional 10% for administering the contract. No action approving the project shall be taken until the cost of the Environmental Impact Report is paid. As used herein, "total cost" includes all the costs associated with the preparation of the EIR or mitigated Negative Declaration, including, but not limited to, direct costs for staff time, equipment usage and materials and indirect costs for administration, overhead and services and supplies. (Note: Prior Section 109 adopted by Res. 72-3900, effective 12-19-72; amended by Res. 73-356, effective 1-23-73; amended and renumbered as Section 105 by Res. 73-1202, effective 4-3-73; amended by Res. 74-1346, effective 4-30-74; amended and renumbered as Section 110 by Res. 77-2229, effective 8-9-77; amended by Res. 78-2311, effective 8-29-78; amended by Res. 81-1670, effective 10-1-81; amended by Res. 83-460, effective 4-5-83; amended by Res. 86-1419, effective 11-4-86; amended by Res. 87-1278, effective 9-22-87; amended by Res. 89-850A, effective 9-9-89; amended by Res. 90-0803, effective 9-1-90; amended by Res. 91-0805, effective 9-7-91; amended by Res. 93-0498, effective 7-10-93; amended by Res. 95-0476, effective 6-10-95)

If it is necessary to contract with a consultant to carry out a CEQA mitigation reporting or monitoring program, the County department shall bill the applicant the total cost provided in the contract between the County and the Consultant, plus 10% to cover the costs of administering the contract (amended by Res. 93-0498, effective 7-10-93).

SECTION 110.1 FEES: APPEALS:

At the time of filing an appeal pursuant to Section 109 of these guidelines, the appellant shall pay a fee of Two Hundred Dollars ($200) to the responsible county department, official or decision-making body to defray the expenses incidental to the proceedings. This section shall not be applicable if the appellant is another county department (added by Res. 89-850A, effective 9-9-89; amended by Res. 90-0803, effective 9-1-90; amended by Res. 91-0805, effective 9/7/91; added by Res. 92-0796, effective 8-29-92; amended by Res. 95-0476, effective 6/10/95).

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SECTION 110.2 FEES: CHARGES TO COUNTY DEPARTMENTS:

If the County Planning and Development Department is requested pursuant to Sections 100 or 101 to provide assistance to the Local Agency Formation Commission, the Redevelopment Agency, or a county department in evaluating a project under CEQA or in preparing a Negative Declaration or an Environmental Impact Report, the Planning and Development Department shall charge the total cost of those services to those agencies. Such billing shall include all of the costs associated with the work including, but not limited to, the direct costs of staff time, equipment usage and materials, and indirect costs for administration, overhead and services and supplies. (Added by Res. 91-0805, effective 9/7/91)

SECTION 110.3 FEES: MITIGATION REPORTING AND MONITORING:

(a) Every applicant, including public agencies other than the County, for approval of a project for which a CEQA mitigation reporting or monitoring program is required under Public Resources Code Section 21081.6 and Section 106.2 of these Guidelines, shall pay the required fees as to each component included within such CEQA mitigation reporting or monitoring program or as to each CEQA mitigation and monitoring agreement.

(b) Unless otherwise provided in a CEQA mitigation reporting and monitoring agreement between an outside consultant and the county, CEQA mitigation reporting or mitigation monitoring fees shall be paid prior to the issuance of any building permit or other grant of approval required to carry out an approved project. The program manager shall review the approved project's CEQA mitigation reporting or monitoring program, determine the estimated CEQA mitigation reporting or monitoring fees required by such program and advise the project applicant. The fees shall be calculated based upon the following schedule for each County department participating in the mitigation reporting or monitoring program:

MITIGATION REPORTING/MONITORING FEE SCHEDULE

Fire Warden ..... $50/hr.

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Environmental Health ..... $67/hr.

Planning and Development ..... $65/hr.

Any other participating Co. Dept. ..... Total cost of services

The project applicant shall deposit such estimated fees with the responsible County department. Such estimated CEQA mitigation reporting or monitoring fees shall be intended to recover the total cost of the County's services required to carry out the CEQA mitigation reporting or monitoring program for the approved project which are in excess of the costs recovered through inspection fees, plan check fees and compliance monitoring fees charged under the County's Zoning, Subdivision, SMARA, or Building Regulations. As used here, "total cost" includes all the costs associated with the County services provided under the CEQA mitigation reporting or monitoring program, including, but not limited to, direct costs for staff time, equipment usage, materials and travel and indirect costs for administration, overhead and services and supplies.

(c) Each County department participating in a mitigation reporting or monitoring program shall maintain accurate records of the hours worked and the total costs involved in each program. The records of hours worked and total costs shall be provided to the program manager upon request. Upon depleting such deposit of estimated CEQA mitigation reporting or monitoring fees to a level of 70% or more of the initial deposit, the program manager for the subject CEQA mitigation reporting or monitoring program shall advise the applicant of any revised estimate of fees due and necessary to cover the expected total cost of the County services remaining to be completed.

(d) At such time as the County officer or body approving the private project and its CEQA mitigation reporting or monitoring program authorizes termination of the CEQA mitigation reporting or monitoring program, the program manager shall review the deposit account and notify the applicant of the amount remaining on deposit and, upon written request of the applicant, the program manager shall refund any fee amounts paid in excess of the total cost of the County services provided under the CEQA mitigation reporting or monitoring program.

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CEQA mitigation reporting and monitoring fees shall also be subject to waiver or refund under Sections 107 or 108 of the Ordinance Code of Tulare County.

(e) The fees established in this section shall also apply to on-going CEQA mitigation reporting or monitoring programs in effect on the effective date of this section and shall be collected for any County services provided under such CEQA mitigation reporting or monitoring programs after the effective date of this section. Such fees shall be due and payable within thirty (30) days of notification of the applicant (or the applicant's successors-in-interest) by the program manager of the amount of fees due and owing for any particular project's CEQA mitigation or monitoring program. To that end, the program manager shall advise the applicant for each project approved by the County subject to an ongoing CEQA mitigation reporting or monitoring program of the fees established hereby, the fees due on the CEQA mitigation reporting or monitoring program for applicant's particular project and the date such fees shall be due.

(Section 110.3 added by Res. 93-0498, effective 7-10-93; amended by Resolution 95-0476, effective 6/10/95)

SECTION 111. CATEGORICAL EXEMPTIONS:

(Note: **Bold type** indicates additional exemptions adopted by County)

Section 15300.4 of the State CEQA Guidelines provides that each public agency shall list those specific activities which fall within each class of categorical exemptions subject to the qualifications that the list must be consistent with both the letter and intent expressed in the classes. The following list of projects are hereby declared to be categorically exempt from the requirement to prepare environmental documents pursuant to the authority set forth in Section 15300.4 of the State CEQA Guidelines (Note: Original list of categorical exemptions adopted by Res. 74-2165, effective 7-30-74; amended and incorporated into the Guidelines as Section 111 by Res. 78-2311, effective 8-29-78; amended by Res. 83-460, effective 4-5-83; amended by Res. 86-1419, effective 11-4-86):

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Class 1: Existing Facilities. Class 1 consists of the operation, repair, maintenance or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of use beyond that previously existing, including but not limited to (adopted by Res. 74-2165, effective 7-30-74):

(a) Interior or exterior alterations involving such things as interior partitions, plumbing and electrical conveyances,

(b) Existing facilities of both investor and publicly owned utilities used to provide electric power, natural gas, sewerage, or other public utility services,

(c) Existing highways and streets, sidewalks, gutters, bicycle and pedestrian trails, and similar facilities except where the activity will involve removal of a scenic resource including a stand of trees, a rock outcropping or a historical building (amended by Res. 78-2311, effective 8-29-78),

(1) **All maintenance as per guidelines from State Comptroller.**

(2) **A. C. pavement overlays, seal coat and slurry seal.**

(3) **Replacement of drainage culverts at existing locations.**

(4) **Replacement of bridge deck.**

(5) **Removal of trees or limbs which are dead or diseased or for traffic safety, or pruning necessary to maintain health of trees.**

(6) **Road Maintenance Yard and Borrow Site maintenance.**

(7) **Installation of traffic control devices.**

(8) **Placement of dikes, berms, roadside ditches, down drains.**

(9) Extension of existing culverts.

(10) Shoulder widening, including bridges.

(11) Placing of guard rails.

(12) Placing of fences and cattle guards.

(13) Improvement of bridge wing walls, abutments and piers.

(14) Construction of curb, gutter, drop inlets and related highway facilities.

(15) Channelization.

(16) Placement of slope and bank protection for highway purposes.

(17) Placement of subdrains.

(18) Construction of tractor crossings.

(d) Restoration, or rehabilitation of deteriorated or damaged structures, facilities or mechanical equipment to meet current standards of public health and safety, unless it is determined that the damage was substantial and resulted from an environmental hazard such as earthquake, landslide or flood,

(1) Normal maintenance of natural or manmade channels to retain channel capacity where such work is limited to weed, grass and brush removal or control and involving only minor grading,

(2) The operation, maintenance and minor alteration of disposal facilities in accordance with state and local environmental criteria,

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(e) Additions to existing structures provided that the addition will not result in an increase or more than:

(1) Fifty percent of the floor area of the structures before the addition or 2500 square feet, whichever is less, or

(2) 10,000 square feet if:

(A) The project is in an area where all public agencies and facilities are available to allow for maximum development permissible in the General Plan, and

(B) The area in which the project is located is not environmentally sensitive (amended by Res. 83-460, effective 4-5-83).

(f) Addition of safety or health protection devices for use during construction of or in conjunction with existing structures, facilities or mechanical equipment, or topographical features including navigational devices,

(g) New copy of existing on and off-premises signs,

(h) Maintenance of existing landscaping, native growth and water supply reservoirs (excluding the use of economic poisons, as defined in Division 7, Chapter 2, California Agricultural Code),

(i) Maintenance of fish screens, fish ladders, wildlife habitat areas, artificial wildlife waterway devices, streamflows, springs and waterholes, and stream channels (clearing of debris) to protect fish and wildlife resources,

(j) (Not applicable) (deleted by Res. 78-2311, effective 8-29-78),

(k) Division of existing multiple family rental units into condominiums,

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(l) Demolition and removal of individual small structures listed in this subsection except where the structures are of historical, archaeological or architectural significance:

(1) Single family residences not in conjunction with the demolition of two or more units,

(2) Motels, apartments and duplexes designed for not more than four dwelling units if not in conjunction with the demolition of two or more such structures,

(3) Stores, offices and restaurants if designed for an occupant load of 20 persons or less, if not in conjunction with the demolition of two or more such structures,

(4) Accessory (appurtenant) structures including carports, patios, swimming pools and fences (amended by Res. 83-460, effective 4-5-83).

(m) Minor repairs and alterations to existing dams and appurtenant structures under the supervision of the Department of Water Resources (added by Res. 83-460, effective 4-5-83),

(n) Conversion of a single family residence to office use (added by Res. 83-460, effective 4-5-83),

(o) The conversion of existing commercial units in one structure from single to condominium type ownership (added by Res. 83-460, effective 4-5-83).

Class 2: Replacement or Reconstruction. Class 2 consists of replacement or reconstruction of existing structures and facilities where the new structure will be located on the same site as the structure replaced and will have substantially the same purpose and capacity as the structure replaced, including but not limited to (adopted by Res. 74-2165, effective 7-30-74):

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(a) Replacement or reconstruction of existing schools and hospitals to provide earthquake resistant structures which do not increase capacity more than 50%.

(b) Replacement of a commercial structure with a new structure of substantially the same size, purpose and capacity (amended by Res. 83-460, effective 4-5-83).

(c) Internal modifications to existing, fully developed areas such as replacement of buildings, parking areas, lighting, etc., which will not essentially change the use of the area and will not increase the density of the area in terms of such things as land coverage, traffic generation, need for public services, etc. (amended by Res. 83-460, effective 4-5-83).

(d) Renewal of any lease, license or permit to use an existing structure or facility where the use involves negligible or no permanent effect on the environment.

(e) Reconstruction of existing roads and bridges to current day engineering standards.

(f) Replacement or reconstruction of existing utility systems and/or facilities involving negligible or no expansion of capacity (added by Res. 83-460, effective 4-5-83).

(g) Conversion of overhead electric utility distribution system facilities to underground including connection to existing overhead electric utility distribution lines where the surface is restored to the condition existing prior to the undergrounding (added by Res. 83-460, effective 4-5-83).

Class 3: New Construction or Conversion of Small Structures. Class 3 consists of construction and location of limited numbers of new, small facilities or structures; installation of small, new equipment and facilities in small structures; and the conversion of existing small structures from one use to another where only minor modifications are made in the exterior of the structure. The numbers of structures described in this section are the maximum allowable on any legal parcel or to be associated with a project within a two year period. Examples of this exemption include, but

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are not limited to (adopted by Res. 74-2165, effective 7-30-74; amended by Res. 83-460, effective 4-5-83):

(a) Single family residences not in conjunction with the building of two or more such units. In urbanized areas, up to three single family residences may be constructed under this exemption (amended by Res. 83-460, effective 4-5-83).

(b) Apartments, duplexes and similar structures designed for not more than four dwelling units if not in conjunction with the building of two or more such structures. In urbanized areas, the exemption applies to single apartments, duplexes and similar small structures designed for not more than six dwelling units if not constructed in conjunction with the building of two or more such structures (amended by Res. 83-460, effective 4-5-83).

(c) Stores, motels, offices, restaurants and similar small commercial structures not involving the use of significant amounts of hazardous substances, if designed for an occupant load of 30 persons or less, if not in conjunction with the building of two or more such structures. In urbanized areas, the exemption also applies to commercial buildings on sites zoned for such use, if designed for an occupant load of 30 persons or less, if not constructed in conjunction with the building of 4 or more such structures and if not involving the use of significant amounts of hazardous substances (amended by Res. 83-460, effective 4-5-83).

(d) Water main, sewage, electrical, gas and other utility extensions of reasonable length to serve such construction.

(e) Accessory (appurtenant) structures including garages, carports, patios, swimming pools and fences.

(f) **Installation of new equipment and industrial facilities required for safety, health or environmental protection involving negligible or no expansion of use.**

(g) **Second units approved in accordance with Section 16A.6.c. of the Zoning Ordinance. (Note: Original paragraph (g) repealed by Res. 78-2311, effective 8-29-78; new paragraph (g) adopted by Res. 86-1419, effective 11-4-86).**

Class 4: Minor Alterations to Land: Class 4 consists of minor public or private alterations in the condition of land, water and/or vegetation which do not involve removal of mature, scenic trees except for forestry and agricultural purposes. Examples include but are not limited to (adopted by Res. 74-2165, effective 7-30-74):

(a) Grading on land with a slope of less than 10 percent, except that grading shall not be exempt in a waterway, in any wetland, in an officially designated (by Federal, State or local governmental action) scenic area, or in officially mapped areas of severe geological hazard (amended by Res. 83-460, effective 4-5-83).

(b) New gardening or landscaping.

(c) Filling of earth into previously excavated land with material compatible with the natural features of the site.

(d) Minor alterations in land, water and vegetation on existing officially designated wildlife management areas or fish production facilities which result in improvement of habitat for fish and wildlife resources or greater fish production.

(e) Minor temporary uses of land having negligible or no permanent effects on the environment, including carnivals, sales of Christmas trees, etc.

(f) Minor trenching and backfilling where the surface is restored.

(g) Maintenance dredging where the spoil is deposited in a spoil area authorized by all applicable state and federal regulatory agencies (added by Res. 78-2311, effective 8-29-78).

(h) Minor relocation or alignment of existing waterways with intermittent flows not involving the removal of trees or the disturbance of wildlife to reduce erosion or flooding and improve land use.

(i) Filling of earth into previously excavated land and maintenance of land elevation in areas of land settlement and subsidence, with materials compatible with the natural features of the site.

(j) The creation of bicycle lanes on existing rights-of-way (added by Res. 83-460, effective 4-5-83).

Class 5: Minor Alterations in Land Use Limitations: Class 5 consists of minor alterations in land use limitations in areas with less than a 20% slope, which do not result in any changes in land use or density, including but not limited to (adopted by Res. 74-2165, effective 7-30-74; amended by Res. 83-460, effective 4-5-83):

(a) Minor lot adjustments, side yard and setback variances not resulting in the creation of any new parcel.

(b) Issuance of minor encroachment permits.

(c) Reversion to acreage in accordance with the Subdivision Map Act (added by Res. 83-460, effective 4-5-83).

(d) Issuance of minor encroachment permits for installation of the following:

(1) Driveways and drainage culverts.

(2) Transverse pipes under road.

(3) Curb, gutter, sidewalk and paveout including base.

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(4) Removal of spilled materials.

(5) Installation of all underground utilities.

(6) Enlargement or replacement of existing culverts.

(e) Abandonments of existing road easements on which no road improvements exist.

(f) Minor street, alley and utility easements, including conveyances thereof.

(g) Minor modifications of the conditions of previously approved tentative parcel maps, subdivision maps and use permits involving improved design features when no increase in the number of lots or parcels or change in general intensity of the particular type of use is proposed (amended by Res. 83-460, effective 4-5-83).

(h) Changes in zoning classifications or boundaries or the approval of use permits under the zoning ordinance for the sole purpose of establishing zoning conformance of legally existing nonconforming uses to a conforming status provided that:

(1) The nonconforming use is currently existing.

(2) The rezoning or use permit is limited only to the area necessary to make the nonconforming use conforming.

(3) The new zoning classification or use permit will not change or expand the existing use nor expand the number or scope of other uses of the property that are presently nonconforming; and

(4) There is no evidence that the existing use is adverse to the public health, safety or welfare.

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The use permit exemption shall be applicable only to nonconforming uses which were legally existing prior to the effective date of the law or ordinance which established the use permit requirement for such use (amended by Res. 78-2311, effective 8-29-78; amended by Res. 83-460, effective 4-5-83).

(i) Mergers of existing subdivisions pursuant to Section 66424.2 of the Government Code and Sections 7121 et seq. of the Ordinance Code of Tulare County (added by Res. 78-2311, effective 8-29-78).

(j) Actions by the Public Works Director on road right-of-way dedications and improvements pursuant to Sections 7455 et seq. of the Ordinance Code of Tulare County (added by Res. 78-2311, effective 8-29-78).

Class 6: Information Collection. Class 6 consists of basic data collection, research, experimental management and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource. These may be for strictly information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted or funded (adopted by Res. 74-2165, effective 7-30-74).

Class 7: Actions by Regulatory Agencies for Protection of Natural Resources. Class 7 consists of actions taken by regulatory agencies as authorized by State law or local ordinance to assure the maintenance, restoration, or enhancement of a natural resources where the regulatory process involves procedures for protection of the environment. Examples include but are not limited to wildlife preservation activities of the State Department of Fish and Game. Construction activities are not included in this exemption (adopted by Res. 74-2165, effective 7-30-74; amended by Res. 83-460, effective 4-5-83).

Class 8: Actions by Regulatory Agencies for Protection of the Environment. Class 8 consists of actions taken by regulatory agencies, as authorized by State or local ordinance, to assure the maintenance, restoration, enhancement, or protection of the environment where the regulatory process involves procedures for protection of the environment. Construction activities are not included in this exemption (adopted by Res. 74-2165, effective 7-30-74).

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Class 9: Inspections. Class 9 consists of activities limited entirely to inspection, to check for performance of an operation, or quality, health or safety of a project, including related activities such as inspection for possible mislabeling, misrepresentation or adulteration of products (adopted by Res. 74-2165, effective 7-30-74).

Class 10: Loans. Class 10 consists of loans made by the Department of Veterans Affairs under the Veterans Farm and Home Purchase Act of 1943, mortgages for the purchase of existing structures where the loan will not be used for new construction and the purchase of such mortgages by financial institutions. Class 10 includes but is not limited to the following examples (adopted by Res. 74-2165, effective 7-30-74):

(a) Loans made by the Department of Veterans Affairs under the Veterans Farm and Home Purchase Act of 1943.

(b) Purchases of mortgages from banks and mortgage companies by the Public Employees Retirement System and by the State Teachers Retirement System.

Class 11: Accessory Structures. Class 11 consists of construction, or placement of minor structures accessory to (appurtenant to) existing commercial, industrial, or institutional facilities, including but not limited to (adopted by Res. 74-2165, effective 7-30-74):

(a) On-premise signs (amended by Res. 83-460, effective 4-5-83).

(b) Small parking lots.

(c) Placement of seasonal or temporary use items such as lifeguard towers, mobile food units, portable restrooms and similar items in generally the same locations from time to time in publicly owned parks, stadiums, or other facilities designed for public use (amended by Res. 83-460, effective 4-5-83).

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Class 12: Surplus Government Property Sales. Class 12 consists of sales of surplus government property except for parcels of land located in an area of statewide interest or potential area of critical concern as identified in the Governor's Environmental Goals and Policies Report prepared pursuant to Government Code Section 65041 et seq. However, if the surplus property to be sold is located in those areas identified in Governor's Environmental Goals and Policy Report, its sale is exempt if (adopted by Res. 74-2165, effective 7-30-74; amended by Res. 83-460, effective 4-5-83):

(a) The property does not have significant values for wildlife habitat or other environmental purposes, and (added by Res. 83-460, effective 4-5-83)

(b) Any of the following conditions exist (added by Res. 83-460, effective 4-5-83):

(1) The property is of such size or shape that it is incapable of independent development or use, or

(2) The property to be sold would qualify for an exemption under any other class of categorical exemption in Article 8 of the State Guidelines, or

(3) The use of the property and adjacent property has not changed since the time of purchase by the public agency.

Class 13: Acquisition of Lands for Wildlife Conservation Purposes. Class 13 consists of the acquisition of lands for fish and wildlife conservation purposes including preservation of fish and wildlife habitat, establishing ecological reserves under Fish and Game Code Section 1580, and preserving access to public lands and waters where the purpose of the acquisition is to preserve the land in its natural condition (adopted by Res. 78-2311, effective 8-29-78).

Class 14: Minor Additions to Schools. Class 14 consists of minor additions to existing schools within existing school grounds where the addition does not increase original student capacity by more than 25% or ten classrooms, whichever is less. The addition of portable classrooms is included in this exemption (adopted by Res. 78-2311, effective 8-29-78).

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Class 15: Minor Land Divisions. Class 15 consists of the division of property in urbanized areas zoned for residential, commercial, or industrial use into four or fewer parcels when the division is in conformance with the General Plan and zoning, no variance or exceptions are required, all services and access to the proposed parcels to local standards are available, the parcel was not involved in a division of a larger parcel within the previous 2 years, and the parcel does not have a slope greater than 20% (adopted by Res. 83-460, effective 4-5-83).

Class 16: Transfer of Ownership of Land in Order to Create Parks. Class 16 consists of the acquisition or sale of land in order to establish a park where the land is in a natural condition or contains historic sites or archaeological sites and either (adopted by Res. 78-2311, effective 8-29-78):

(a) The management plan for the park has not been prepared, and

(b) The management plan proposes to keep the area in a natural condition or preserve the historic or archaeological site. CEQA will apply when a management plan is proposed that will change the area from its natural condition or significantly change the historic or archaeological site.

Class 17: Open Space Contracts or Easements. Class 17 consists of the establishment of agricultural preserves and Farmland Security Zones; the making and renewing of open space contracts under the Williamson Act, or the acceptance of easements or fee interests in order to maintain the open space character of the area. The cancellation of such preserves, contracts, interests or easements is not included; **however, diminishment or disestablishment of agricultural preserves where there is no contract and where such action is consistent with the County General Plan, and rescinding of contracts in order to simultaneously place the land under new contracts designating the property as Farmland Security Zones is included** (adopted by Res. 78-2311, effective 8-29-78; amended by Res. 99-0479, effective 7-13-99).

Class 18: Designation of Wilderness Areas. (not applicable)

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Class 19: Annexations of Existing Facilities and Lots for Exempt Facilities. Class 19 consists of only the following annexations (adopted by Res. 78-2311, effective 8-29-78):

(a) Annexations to a city or special district of areas containing existing public or private structures developed to the density allowed by the current zoning or pre-zoning of either the gaining or losing governmental agency whichever is more restrictive, provided, however that the extension of utility services to the existing facilities would have a capacity to serve only the existing facilities.

(b) Annexations of individual small parcels of the minimum size for facilities exempted by Class 3, New Construction or Conversion of Small Structures.

Class 20: Changes in Organization of Local Agencies. Class 20 consists of changes in the organization or reorganization of local governmental agencies where the changes do not change the geographical area in which previously existing powers are exercised. Examples include but are not limited to (adopted by Res. 78-2311, effective 8-29-78):

(a) Establishment of a subsidiary district.

(b) Consolidation of two or more districts having identical powers.

(c) Merger with a city or a district lying entirely within the boundary of the city.

Class 21: Enforcement Actions by Regulatory Agencies:

(a) Class 21 consists of actions by regulatory agencies to enforce or revoke a lease, permit, license, certificate, or other entitlement for use issued, adopted or prescribed by the regulatory agency or law, general rule, standard, or objective, administered or adopted by the regulatory agency. Such actions include, but are not limited to the following:

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(1) The direct referral of a violation of lease, permit, license, certificate, or entitlement for use or of a general rule, standard, or objective to the Attorney General, District Attorney, or City Attorney as appropriate, for judicial enforcement.

(2) The adoption of an administrative decision or order enforcing or revoking the lease, permit, license, certificate, or entitlement for use or enforcing the general rule, standard, or objective.

(b) Construction activities undertaken by the public agency taking the enforcement or revocation action are not included in this exemption (adopted by Res. 78-2311, effective 8-29-78).

Class 22: Educational or Training Programs Involving No Physical Changes. Class 22 consists of the adoption, alteration, or termination of education or training programs which involve no physical alteration in the area affected or which involve physical changes only in the interior of existing school or training structures. Examples include, but are not limited to (adopted by Res. 78-2311, effective 8-29-78):

(a) Development of or changes in curriculum or training methods.

(b) Changes in the grade structure in a school which do not result in changes in student transportation.

Class 23: Normal Operations of Facilities for Public Gatherings. Class 23 consists of the normal operations of existing facilities for public gatherings for which the facilities were designed, where there is a past history of the facility being used for the same kind of purpose. Facilities included within this exemption include, but are not limited to: racetracks, stadiums, convention centers, auditoriums, amphitheaters, planetariums, swimming pools and amusement parks (adopted by Res. 78-2311, effective 8-29-78).

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Class 24: Regulation of Working Conditions. Class 24 consists of actions taken by regulatory agencies, including the Industrial Welfare Commission as authorized by statute, to regulate any of the following (adopted by Res. 78-2311, effective 8-29-78):

(a) Employee wages,

(b) Hours of work, or

(c) Working conditions where there will be no demonstrable physical changes outside the place of work.

Class 25: Transfers of Ownership of Interests in Land to Preserve Open Space. Class 25 consists of the transfers of ownership of interests in land in order to preserve open space. Examples include but are not limited to (adopted by Res. 83-460, effective 4-5-83):

(a) Acquisition of areas to preserve the existing natural conditions.

(b) Acquisition of areas to allow continued agricultural use of the areas.

(c) Acquisition to allow restoration of natural conditions.

(d) Acquisition to prevent encroachment of development into flood plains.

Class 26. Acquisition of Housing for Housing Assistance Programs. Class 26 consists of actions by a redevelopment agency, housing authority, or other public agency to implement an adopted Housing Assistance Plan by acquiring an interest in housing units. The housing units may be either in existence or possessing all required permits for construction when the agency makes its final decision to acquire the units (adopted by Res. 83-460, effective 4-5-83).

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Class 27: Leasing New Facilities.

(a) Class 27 consists of the leasing of a newly constructed or previously unoccupied privately owned facility by a local or state agency where the local governing authority determined that the building was exempt from CEQA. To be exempt under this Section, the proposed use of the facility (adopted by Res. 83-460, effective 4-5-83):

(1) Shall be in conformance with existing State plans and policies and with general, community, and specific plans for which an EIR or Negative Declaration has been prepared.

(2) Shall be substantially the same as that originally proposed at the time the building permit was issued.

(3) Shall not result in a traffic increase of greater than 10% of front access road capacity, and

(4) Shall include the provision of adequate employee and visitor parking facilities.

(b) Examples of Class 27 include but are not limited to:

(1) Leasing of administrative offices in newly constructed office space.

(2) Leasing of client service offices in newly constructed retail space.

(3) Leasing of administrative and/or client service offices in newly constructed industrial parks.

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Class 28: Small Hydroelectric Projects at Existing Facilities. Class 28 consists of the installation of hydroelectric generating facilities in connection with existing dams, canals, and pipelines where (adopted by Res. 83-460, effective 4-5-83):

(a) The capacity of the generating facilities is less than 5 megawatts.

(b) Operation of the generating facilities will not change the flow regime in the affected stream, canal, or pipeline including but not limited to:

(1) Rate and volume of flow,

(2) Temperature,

(3) Amounts of dissolved oxygen to a degree that could adversely affect aquatic life, and

(4) Timing of releases.

(c) New power lines to connect the generating facilities to existing power lines will not exceed one mile in length if located on a new right of way and will not be located adjacent to a wild or scenic river.

(d) Repair or reconstruction of the diversion structure will not raise the normal maximum surface elevation of the impoundment.

(e) There will be no significant existing upstream or downstream passage of fish.

(f) The discharge from the powerhouse will not be located more than 300 feet from the toe of the diversion structure.

(g) The project will not cause violations of applicable state or federal water quality standards.

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(h) The project will not entail any construction on or alteration of a site included in or eligible for inclusion in the National Register of Historic Places, and

(i) Construction will not occur in the vicinity of any rare or endangered species.

Class 29: Cogeneration Projects at Existing Facilities. Class 29 consists of the installation of cogeneration equipment with a capacity of 50 megawatts or less at existing facilities meeting the conditions described in this section (adopted by Res. 83-460, effective 4-5-83).

(a) At existing industrial facilities, the installation of cogeneration facilities will be exempt where it will:

(1) Result in no net increases in air emissions from the industrial facility, or will produce emissions lower than the amount that would require review under the new source review rules applicable in the County, and

(2) Comply with all applicable state, federal, and local air quality laws.

(b) At commercial and institutional facilities, the installation of cogeneration facilities will be exempt if the installation will:

(1) Meet all the criteria described in subsection (a),

(2) Result in no noticeable increase in noise to nearby residential structures, and

(3) Be adjacent to other commercial or institutional structures.

NUMBER:	SUBJECT:	EFFECTIVE DATE
300	Tulare County Guidelines for the Implementation of the California Environmental Quality Act of 1970	12/19/72

SOURCE: BOS: Resolution Nos. 72-3900; 73-356; 73-1202; 74-1346; 74-2165; 75-2452; 77-2229; 78-2300; 81-1670; 82-390; 83-460; 86-1419; 87-228; 87-429; 87-1278; 89-850A; 90-0803; 91-0805; 93-0489; 95-0476; 99-0479

SECTION 112. MINISTERIAL PROJECTS:

Section 15268 of the State CEQA Guidelines provides that each public agency should provide an identification or itemization of its projects and actions which are deemed ministerial under the applicable laws and ordinances, and are exempt from the requirements of CEQA. The following list of projects and actions are hereby declared to be ministerial under the laws and ordinances of Tulare County (adopted by Res. 83-460, effective 4-5-83; amended by Res. 86-1419, effective 11-4-86):

(a) Issuance of permits pursuant to Chapter 4 of Part VII of the Tulare County Ordinance Code (building, plumbing, electrical, etc.)

(b) Issuance of business license pursuant to Chapter 2 of Part VI of the Tulare County Ordinance Code (junk dealers, public dances and dance halls, card rooms and card dealers, circus and carnival operators).

(c) Approval of final subdivision maps and final parcel maps, including approval of improvement plans.

(d) Issuance of kennel licenses pursuant to Article 3.5 of Chapter 4 of Part IV of the Tulare County Ordinance Code.

(e) Issuance of permits for well construction, deepening, reconstruction or destruction pursuant to Chapter 7 of Part IV of the Tulare County Ordinance Code.

(f) Approvals of certificates of compliance and conditional certificates of compliance pursuant to Chapter 1.5 of Part VII of the Tulare County Ordinance Code.

together with an estimate of the cost thereof for the current fiscal year and for the immediately ensuing fiscal year.

(b) Subject to subdivision (c), but notwithstanding any other provision of law, the board or the department is not required to proceed in accordance with subdivision (a) or with the formation of a maintenance area under this chapter if neither the board nor the department has given the nonfederal assurances to the United States required for the project. If neither the board nor the department has given the nonfederal assurances to the United States required for the project, the board or department may elect to proceed with the formation if it determines that the formation of a maintenance area is in the best interest of the state.

* * *

(c) * * * If a local agency requests the department * * * to form a maintenance area * * * by resolution duly adopted and filed with the department * * *, the department shall estimate the cost of preparing the statement of necessary work and the cost thereof, and all other applicable costs incurred by the department before the formation of the maintenance area. The department shall submit that estimate to the local agency * * *. The department is not required to perform any additional work to form that maintenance area * * * until the local agency pays the department the amount estimated pursuant to this subdivision.

SEC. 12. Section 12878.21 of the Water Code is amended to read:

12878.21. Upon the formation of a maintenance area, the department shall thereafter operate and maintain the unit until such time as the maintenance area may be dissolved pursuant to * * * this chapter. If the board or the department forms a maintenance area for a portion of a unit of a project, any remaining portion of the unit of a project not included in the maintenance area shall remain the responsibility of the local agency obligated to operate and maintain that unit.

SEC. 13. Section 12878.23 of the Water Code is amended to read:

12878.23. (a) The board or the department may modify the boundaries of any established maintenance area or zones * * * within the maintenance area, the description of works to be maintained * * * within the maintenance area, and the determination of relative benefits within any zone * * *, upon its own initiative or upon petition by the governing body of the local agency formerly responsible for the operation and maintenance of the unit or by the board of supervisors of the county in which all or a portion of the unit is located.

(b) The board or the department may consolidate maintenance areas that share a common boundary.

SEC. 14. No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution because a local agency or school district has the authority to levy service charges, fees, or assessments sufficient to pay for the program or level of service mandated by this act, within the meaning of Section 17556 of the Government Code.

However, if the Commission on State Mandates determines that this act contains other costs mandated by the state, reimbursement to local agencies and school districts for those costs shall be made pursuant to Part 7 (commencing with Section 17500) of Division 4 of Title 2 of the Government Code.

ZONING AND PLANNING—LAND USE—FLOODS AND FLOOD CONTROL

CHAPTER 369

A.B. No. 162

AN ACT to amend Sections 65302, 65303.4, 65352, 65584.04, and 65584.06 of, and to add Sections 65300.2 and 65302.7 to, the Government Code, relating to local planning.

[Filed with Secretary of State October 10, 2007.]

LEGISLATIVE COUNSEL'S DIGEST

AB 162, Wolk Land use: water supply.

(1) The Planning and Zoning Law requires a city or county general plan to include specified mandatory elements, including a land use element that designates the proposed general distribution and general location and extent of the uses of the land for various purposes and a conservation element that considers, among other things, the effect of development within the jurisdiction, as described in the land use element, on natural resources located on public lands, including military installations, and provides that the conservation element may also cover, among other things, flood control.

This bill would require the land use element to identify and annually review those areas covered by the general plan that are subject to flooding as identified by flood plain mapping prepared by the Federal Emergency Management Agency or the Department of Water Resources. The bill also would require, upon the next revision of the housing element, on or after January 1, 2009, the conservation element of the general plan to identify rivers, creeks, streams, flood corridors, riparian habitat, and land that may accommodate floodwater for purposes of groundwater recharge and stormwater management. By imposing new duties on local public officials, the bill would create a state-mandated local program.

(2) The Planning and Zoning Law also requires that a city or county general plan contain a safety element for the protection of the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides, subsidence, liquefaction, and other seismic, geologic, and fire hazards.

This bill would also require, upon the next revision of the housing element, on or after January 1, 2009, the safety element to identify, among other things, information regarding flood hazards and to establish a set of comprehensive goals, policies, and objectives, based on specified information for the protection of the community from, among other things, the unreasonable risks of flooding.

The bill would also require the planning agency, upon each revision of the housing element to review, and if necessary, to identify new information that was not available during the previous revision of the safety element and would provide criteria by which cities and counties that have flood plain management ordinances may comply with these provisions.

(3) The Planning and Zoning Law also requires, prior to the periodic review of its general plan and prior to preparing or revising its safety element, each city and county to consult with the Division of Mines and Geology of the Department of Conservation and with the Office of Emergency Services, as specified, and requires that at specified times prior to adoption or amendment of the safety element, each city and county submit one copy of a draft or amendment of the safety element to specified state agencies and local governments for review pursuant to specified procedures.

Existing law establishes the 7-member Reclamation Board in the Department of Water Resources and requires the board members to be appointed and serve at the pleasure of the Governor. Senate Bill 17 of the 2006–07 Regular Session, if enacted, would rename the Reclamation Board as the Central Valley Flood Protection Board, and would revise the membership of the board.

This bill would also require each city and county located within the boundaries of the Sacramento and San Joaquin Drainage District to submit the draft element or draft amendment to the safety element of its general plan to the Central Valley Flood Protection Board and every local agency that provides flood protection to territory in the city or county at least 90 days prior to the adoption of, or amendment to, the safety element. The bill would also require the board and a local agency to review the draft or an existing safety element and report its written recommendations to the planning agency within 60 days of its receipt of the draft or existing safety element, as specified.

(4) The Planning and Zoning Law requires, prior to action by a legislative body to adopt or substantially amend a general plan, that the planning agency refer the proposed action to specified state, local, and federal agencies.

This bill would also require that the proposed action be referred to the board when the proposed action is within the boundaries of the Sacramento and San Joaquin Drainage District.

Attachment 5

(5) The Planning and Zoning Law requires at least 2 years prior to a scheduled revision of a local government's housing element that each council of governments, or delegate subregion, as applicable, or the Department of Housing and Community Development, where there is no council of governments, develop a proposed methodology for distributing the existing and projected regional housing needs to cities, counties, and cities and counties within the region or within the subregion, where applicable, pursuant to specified provisions. That law requires that the methodology be consistent with specified objectives that include, among other things, a determination of the availability of land suitable for urban development or for conversion to residential use, the availability of underutilized land, and opportunities for infill development and increased residential densities.

This bill would provide that the determination of available land suitable for urban development may exclude lands where the flood management infrastructure designed to protect the jurisdiction is not adequate to avoid the risk of flooding such that the development of housing would be impractical due to cost or other considerations.

(6) The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that no reimbursement is required by this act for a specified reason.

The people of the State of California do enact as follows:

SECTION 1. Section 65300.2 is added to the Government Code, to read:

65300.2. (a) For the purposes of this article, a "200-year flood plain" is an area that has a 1 in 200 chance of flooding in any given year, based on hydrological modeling and other engineering criteria accepted by the Department of Water Resources.

(b) For the purposes of this article, a "levee protection zone" is an area that is protected, as determined by the Central Valley Flood Protection Board or the Department of Water Resources, by a levee that is part of the facilities of the State Plan of Flood Control, as defined under Section 5096.805 of the Public Resources Code.

SEC. 1.5. Section 65302 of the Government Code is amended to read:

65302. The general plan shall consist of a statement of development policies and shall include a diagram or diagrams and text setting forth objectives, principles, standards, and plan proposals. The plan shall include the following elements:

(a) A land use element that designates the proposed general distribution and general location and extent of the uses of the land for housing, business, industry, open space, including agriculture, natural resources, recreation, and enjoyment of scenic beauty, education, public buildings and grounds, solid and liquid waste disposal facilities, and other categories of public and private uses of land. The location and designation of the extent of the uses of the land for public and private uses shall consider the identification of land and natural resources pursuant to paragraph (3) of subdivision (d). The land use element shall include a statement of the standards of population density and building intensity recommended for the various districts and other territory covered by the plan. The land use element shall identify and annually review those areas covered by the plan that are subject to flooding * * * identified by flood plain mapping prepared by the Federal Emergency Management Agency (FEMA) or the Department of Water Resources. The land use element shall also do both of the following:

(1) Designate in a land use category that provides for timber production those parcels of real property zoned for timberland production pursuant to the California Timberland Productivity Act of 1982, Chapter 6.7 (commencing with Section 51100) of Part 1 of Division 1 of Title 5.

(2) Consider the impact of new growth on military readiness activities carried out on military bases, installations, and operating and training areas, when proposing zoning ordinances or designating land uses covered by the general plan for land, or other territory, adjacent to military facilities, or underlying designated military aviation routes and airspace.

(A) In determining the impact of new growth on military readiness activities, information provided by military facilities shall be considered. Cities and counties shall address military impacts based on information from the military and other sources.

(B) The following definitions govern this paragraph:

(i) "Military readiness activities" mean all of the following:

(I) Training, support, and operations that prepare the men and women of the military for combat.

(II) Operation, maintenance, and security of any military installation.

(III) Testing of military equipment, vehicles, weapons, and sensors for proper operation or suitability for combat use.

(ii) "Military installation" means a base, camp, post, station, yard, center, homeport facility for any ship, or other activity under the jurisdiction of the United States Department of Defense as defined in paragraph (1) of subsection (e) of Section 2687 of Title 10 of the United States Code.

(b) A circulation element consisting of the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, any military airports and ports, and other local public utilities and facilities, all correlated with the land use element of the plan.

(c) A housing element as provided in Article 10.6 (commencing with Section 65580).

(d)(1) A conservation element for the conservation, development, and utilization of natural resources including water and its hydraulic force, forests, soils, rivers and other waters, harbors, fisheries, wildlife, minerals, and other natural resources. The conservation element shall consider the effect of development within the jurisdiction, as described in the land use element, on natural resources located on public lands, including military installations. That portion of the conservation element including waters shall be developed in coordination with any countywide water agency and with all district and city agencies, including flood management, water conservation, or groundwater agencies that have developed, served, controlled, managed, or conserved water of any type for any purpose in the county or city for which the plan is prepared. Coordination shall include the discussion and evaluation of any water supply and demand information described in Section 65352.5, if that information has been submitted by the water agency to the city or county.

(2) The conservation element may also cover all of the following:

(A) The reclamation of land and waters.

(B) Prevention and control of the pollution of streams and other waters.

(C) Regulation of the use of land in stream channels and other areas required for the accomplishment of the conservation plan.

(D) Prevention, control, and correction of the erosion of soils, beaches, and shores.

(E) Protection of watersheds.

(F) The location, quantity and quality of the rock, sand and gravel resources.

* * *

(3) Upon the next revision of the housing element on or after January 1, 2009, the conservation element shall identify rivers, creeks, streams, flood corridors, riparian habitats, and land that may accommodate floodwater for purposes of groundwater recharge and stormwater management.

(e) An open-space element as provided in Article 10.5 (commencing with Section 65560).

(f)(1) A noise element which shall identify and appraise noise problems in the community. The noise element shall recognize the guidelines established by the Office of Noise Control in the State Department of Health Care Services and shall analyze and quantify, to the extent practicable, as determined by the legislative body, current and projected noise levels for all of the following sources:

(A) Highways and freeways.

(B) Primary arterials and major local streets.

(C) Passenger and freight on-line railroad operations and ground rapid transit systems.

(D) Commercial, general aviation, heliport, helistop, and military airport operations, aircraft overflights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation.

(E) Local industrial plants, including, but not limited to, railroad classification yards.

(F) Other ground stationary noise sources, including, but not limited to, military installations, identified by local agencies as contributing to the community noise environment.

(2) Noise contours shall be shown for all of these sources and stated in terms of community noise equivalent level (CNEL) or day-night average level (L_{dn}). The noise contours shall be prepared on the basis of noise monitoring or following generally accepted noise modeling techniques for the various sources identified in paragraphs (1) to (6), inclusive.

(3) The noise contours shall be used as a guide for establishing a pattern of land uses in the land use element that minimizes the exposure of community residents to excessive noise.

(4) The noise element shall include implementation measures and possible solutions that address existing and foreseeable noise problems, if any. The adopted noise element shall serve as a guideline for compliance with the state's noise insulation standards.

(g)(1) A safety element for the protection of the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides; subsidence, liquefaction, and other seismic hazards identified pursuant to Chapter 7.8 (commencing with Section 2690) of Division 2 of the Public Resources Code, and other geologic hazards known to the legislative body; flooding; and wild land and urban fires. The safety element shall include mapping of known seismic and other geologic hazards. It shall also address evacuation routes, military installations, peakload water supply requirements, and minimum road widths and clearances around structures, as those items relate to identified fire and geologic hazards.

(2) The safety element, upon the next revision of the housing element on or after January 1, 2009, shall also do the following:

(A) Identify information regarding flood hazards, including, but not limited to, the following:

(i) Flood hazard zones. As used in this subdivision, "flood hazard zone" means an area subject to flooding that is delineated as either a special hazard area or an area of moderate or minimal hazard on an official flood insurance rate map issued by the Federal Emergency Management Agency. The identification of a flood hazard zone does not imply that areas outside the flood hazard zones or uses permitted within flood hazard zones will be free from flooding or flood damage.

(ii) National Flood Insurance Program maps published by FEMA.

(iii) Information about flood hazards that is available from the United States Army Corps of Engineers.

(iv) Designated floodway maps that are available from the Central Valley Flood Protection Board.

(v) Dam failure inundation maps prepared pursuant to Section 8589.5 that are available from the Office of Emergency Services.

(vi) Awareness Floodplain Mapping Program maps and 200-year flood plain maps that are or may be available from, or accepted by, the Department of Water Resources.

(vii) Maps of levee protection zones.

(viii) Areas subject to inundation in the event of the failure of project or nonproject levees or floodwalls.

(ix) Historical data on flooding, including locally prepared maps of areas that are subject to flooding, areas that are vulnerable to flooding after wildfires, and sites that have been repeatedly damaged by flooding.

(x) Existing and planned development in flood hazard zones, including structures, roads, utilities, and essential public facilities.

(xi) Local, state, and federal agencies with responsibility for flood protection, including special districts and local offices of emergency services.

(B) Establish a set of comprehensive goals, policies, and objectives based on the information identified pursuant to subparagraph (A), for the protection of the community from the unreasonable risks of flooding, including, but not limited to:

(i) Avoiding or minimizing the risks of flooding to new development.

(ii) Evaluating whether new development should be located in flood hazard zones, and identifying construction methods or other methods to minimize damage if new development is located in flood hazard zones.

(iii) Maintaining the structural and operational integrity of essential public facilities during flooding.

(iv) Locating, when feasible, new essential public facilities outside of flood hazard zones, including hospitals and health care facilities, emergency shelters, fire stations, emergency command centers, and emergency communications facilities or identifying construction methods or other methods to minimize damage if these facilities are located in flood hazard zones.

(v) Establishing cooperative working relationships among public agencies with responsibility for flood protection.

(C) Establish a set of feasible implementation measures designed to carry out the goals, policies, and objectives established pursuant to subparagraph (B).

(3) After the initial revision of the safety element pursuant to paragraph (2), upon each revision of the housing element, the planning agency shall review and, if necessary, revise the safety element to identify new information that was not available during the previous revision of the safety element.

(4) Cities and counties that have flood plain management ordinances that have been approved by FEMA that substantially comply with this section, or have substantially equivalent provisions to this subdivision in their general plans, may use that information in the safety element to comply with this subdivision, and shall summarize and incorporate by reference into the safety element the other general plan provisions or the flood plain ordinance, specifically showing how each requirement of this subdivision has been met.

(5) Prior to the periodic review of its general plan and prior to preparing or revising its safety element, each city and county shall consult the California Geological Survey of the Department of Conservation, the Central Valley Flood Protection Board, if the city or county is located within the boundaries of the Sacramento and San Joaquin Drainage District, as set forth in Section 8501 of the Water Code, and the Office of Emergency Services for the purpose of including information known by and available to the department, the office, and the board required by this subdivision.

(6) To the extent that a county's safety element is sufficiently detailed and contains appropriate policies and programs for adoption by a city, a city may adopt that portion of the county's safety element that pertains to the city's planning area in satisfaction of the requirement imposed by this subdivision.

SEC. 2. Section 65302.7 is added to the Government Code, to read:

65302.7. (a) For the purposes of complying with Section 65302.5, each county or city located within the boundaries of the Sacramento and San Joaquin Drainage District, as set forth in Section 8501 of the Water Code, shall submit the draft element of, or draft amendment to, the safety element to the Central Valley Flood Protection Board and to every local agency that provides flood protection to territory in the city or county at least 90 days prior to the adoption of, or amendment to, the safety element of its general plan.

(b) The Central Valley Flood Protection Board and each local agency described in paragraph (1) shall review the draft or an existing safety element and report their respective written recommendations to the planning agency within 60 days of the receipt of the draft or existing safety element. The Central Valley Flood Protection Board and each local agency shall review the draft or existing safety element and may offer written recommendations for changes to the draft or existing safety element regarding both of the following:

(1) Uses of land and policies in areas subjected to flooding that will protect life, property, and natural resources from unreasonable risks associated with flooding.

(2) Methods and strategies for flood risk reduction and protection within areas subjected to flooding.

(c) Prior to the adoption of its draft element or draft amendments to the safety element, the board of supervisors of the county or the city council of a city shall consider the recommendations made by the Central Valley Flood Protection Board and any local agency that provides flood protection to territory in the city or county. If the board of supervisors or the city council determines not to accept all or some of the recommendations, if any, made by the Central Valley Flood Protection Board or the local agency, the board of supervisors or the city council shall make findings that state its reasons for not accepting a recommendation and shall communicate those findings in writing to the Central Valley Flood Protection Board or to the local agency.

(d) If the Central Valley Flood Protection Board's or the local agency's recommendations are not available within the time limits required by this section, the board of supervisors or the city council may act without those recommendations. The board of supervisors or city council shall consider the recommendations at the next time it considers amendments to its safety element.

SEC. 3. Section 65303.4 of the Government Code is amended to read:

65303.4. The Department of Water Resources or the Central Valley Flood Protection Board, as appropriate, and the Department of Fish and Game may develop site design and planning policies to assist local agencies which request help in implementing the general plan guidelines for meeting flood control objectives and other land management needs.

SEC. 4. Section 65352 of the Government Code is amended to read:

65352. (a) Prior to action by a legislative body to adopt or substantially amend a general plan, the planning agency shall refer the proposed action to all of the following entities:

(1) A city or county, within or abutting the area covered by the proposal, and any special district that may be significantly affected by the proposed action, as determined by the planning agency.

(2) An elementary, high school, or unified school district within the area covered by the proposed action.

(3) The local agency formation commission.

(4) An areawide planning agency whose operations may be significantly affected by the proposed action, as determined by the planning agency.

(5) A federal agency if its operations or lands within its jurisdiction may be significantly affected by the proposed action, as determined by the planning agency.

(6)(A) The branches of the United States Armed Forces that have provided the Office of Planning and Research with a California mailing address pursuant to subdivision (d) of Section 65944 when the proposed action is within 1,000 feet of a military installation, or lies within special use airspace, or beneath a low-level flight path, as defined in Section 21098 of the Public Resources Code, provided that the United States Department of Defense provides electronic maps of low-level flight paths, special use airspace, and military installations at a scale and in an electronic format that is acceptable to the Office of Planning and Research.

(B) Within 30 days of a determination by the Office of Planning and Research that the information provided by the Department of Defense is sufficient and in an acceptable scale and format, the office shall notify cities, counties, and cities and counties of the availability of the information on the Internet. Cities, counties, and cities and counties shall comply with subparagraph (A) within 30 days of receiving this notice from the office.

(7) A public water system, as defined in Section 116275 of the Health and Safety Code, with 3,000 or more service connections, that serves water to customers within the area covered by the proposal. The public water system shall have at least 45 days to comment on the proposed plan, in accordance with subdivision (b), and to provide the planning agency with the information set forth in Section 65852.5.

(8) The Bay Area Air Quality Management District for a proposed action within the boundaries of the district.

(9) On and after March 1, 2005, a California Native American tribe, that is on the contact list maintained by the Native American Heritage Commission, with traditional lands located within the city or county's jurisdiction.

(10) The Central Valley Flood Protection Board for a proposed action within the boundaries of the Sacramento and San Joaquin Drainage District, as set forth in Section 8501 of the Water Code.

(b) Each entity receiving a proposed general plan or amendment of a general plan pursuant to this section shall have 45 days from the date the referring agency mails it or delivers it in which to comment unless a longer period is specified by the planning agency.

(c)(1) This section is directory, not mandatory, and the failure to refer a proposed action to the other entities specified in this section does not affect the validity of the action, if adopted.

(2) To the extent that the requirements of this section conflict with the requirements of Chapter 4.4 (commencing with Section 65919), the requirements of Chapter 4.4 shall prevail.

SEC. 5. Section 65584.04 of the Government Code is amended to read:

65584.04. (a) At least two years prior to a scheduled revision required by Section 65588, each council of governments, or delegate subregion as applicable, shall develop a proposed methodology for distributing the existing and projected regional housing need to cities, counties, and cities and counties within the region or within the subregion, where applicable pursuant to this section. The methodology shall be consistent with the objectives listed in subdivision (d) of Section 65584.

(b)(1) No more than six months prior to the development of a proposed methodology for distributing the existing and projected housing need, each council of governments shall survey each of its member jurisdictions to request, at a minimum, information regarding the factors listed in subdivision (d) that will allow the development of a methodology based upon the factors established in subdivision (d).

(2) The council of governments shall seek to obtain the information in a manner and format that is comparable throughout the region and utilize readily available data to the extent possible.

(3) The information provided by a local government pursuant to this section shall be used, to the extent possible, by the council of governments, or delegate subregion as applicable, as source information for the methodology developed pursuant to this section. The survey shall state that none of the information received may be used as a basis for reducing the total housing need established for the region pursuant to Section 65584.01.

(4) If the council of governments fails to conduct a survey pursuant to this subdivision, a city, county, or city and county may submit information related to the items listed in subdivision (d) prior to the public comment period provided for in subdivision (c).

(c) Public participation and access shall be required in the development of the methodology and in the process of drafting and adoption of the allocation of the regional housing needs. Participation by organizations other than local jurisdictions and councils of governments shall be solicited in a diligent effort to achieve public participation of all economic segments of the community. The proposed methodology, along with any relevant underlying data and assumptions, and an explanation of how information about local government conditions gathered pursuant to subdivision (b) has been used to develop the proposed methodology, and how each of the factors listed in subdivision (d) is incorporated into the methodology, shall be distributed to all cities, counties, any subregions, and members of the public who have made a written request for the proposed methodology. The council of governments, or delegate subregion, as applicable, shall conduct at least one public hearing to receive oral and written comments on the proposed methodology.

(d) To the extent that sufficient data is available from local governments pursuant to subdivision (b) or other sources, each council of governments, or delegate subregion as applicable, shall include the following factors to develop the methodology that allocates regional housing needs:

(1) Each member jurisdiction's existing and projected jobs and housing relationship.

(2) The opportunities and constraints to development of additional housing in each member jurisdiction, including all of the following:

(A) Lack of capacity for sewer or water service due to federal or state laws, regulations or regulatory actions, or supply and distribution decisions made by a sewer or water service provider other than the local jurisdiction that preclude the jurisdiction from providing necessary infrastructure for additional development during the planning period.

(B) The availability of land suitable for urban development or for conversion to residential use, the availability of underutilized land, and opportunities for infill development and increased residential densities. The council of governments may not limit its consideration of suitable housing sites or land suitable for urban development to existing zoning ordinances and land use restrictions of a locality, but shall consider the potential for increased residential development under alternative zoning ordinances and land use restrictions. The determination of available land suitable for urban development may exclude lands where the Federal Emergency Management Agency (FEMA) or the Department of Water Resources has determined that the flood management infrastructure designed to protect that land is not adequate to avoid the risk of flooding.

(C) Lands preserved or protected from urban development under existing federal or state programs, or both, designed to protect open space, farmland, environmental habitats, and natural resources on a long-term basis.

(D) County policies to preserve prime agricultural land, as defined pursuant to Section 56064, within an unincorporated area.

(3) The distribution of household growth assumed for purposes of a comparable period of regional transportation plans and opportunities to maximize the use of public transportation and existing transportation infrastructure.

(4) The market demand for housing.

(5) Agreements between a county and cities in a county to direct growth toward incorporated areas of the county.

(6) The loss of units contained in assisted housing developments, as defined in paragraph (8) of subdivision (a) of Section 65583, that changed to non-low-income use through mortgage prepayment, subsidy contract expirations, or termination of use restrictions.

(7) High-housing cost burdens.

(8) The housing needs of farmworkers.

(9) The housing needs generated by the presence of a private university or a campus of the California State University or the University of California within any member jurisdiction.

(10) Any other factors adopted by the council of governments.

(e) The council of governments, or delegate subregion, as applicable, shall explain in writing how each of the factors described in subdivision (d) was incorporated into the methodology and how the methodology is consistent with subdivision (d) of Section 65584. The methodology may include numerical weighting.

(f) Any ordinance, policy, voter-approved measure, or standard of a city or county that directly or indirectly limits the number of residential building permits issued by a city or county shall not be a justification for a determination or a reduction in the share of a city or county of the regional housing need.

(g) In addition to the factors identified pursuant to subdivision (d), the council of governments, or delegate subregion, as applicable, shall identify any existing local, regional, or state incentives, such as a priority for funding or other incentives available to those local governments that are willing to accept a higher share than proposed in the draft allocation to those local governments by the council of governments or delegate subregion pursuant to Section 65584.05.

(h) Following the conclusion of the 60-day public comment period described in subdivision (c) on the proposed allocation methodology, and after making any revisions deemed appropriate by the council of governments, or delegate subregion, as applicable, as a result of comments received during the public comment period, each council of governments, or delegate subregion, as applicable, shall adopt a final regional, or subregional, housing need

allocation methodology and provide notice of the adoption of the methodology to the jurisdictions within the region, or delegate subregion as applicable, and to the department.

SEC. 6. Section 65584.06 of the Government Code is amended to read:

65584.06. (a) For cities and counties without a council of governments, the department shall determine and distribute the existing and projected housing need, in accordance with Section 65584 and this section. If the department determines that a county or counties, supported by a resolution adopted by the board or boards of supervisors, and a majority of cities within the county or counties representing a majority of the population of the county or counties, possess the capability and resources and has agreed to accept the responsibility, with respect to its jurisdiction, for the distribution of the regional housing need, the department shall delegate this responsibility to the cities and county or counties.

(b) The distribution of regional housing need shall, based upon available data and in consultation with the cities and counties, take into consideration market demand for housing, the distribution of household growth within the county assumed in the regional transportation plan where applicable, employment opportunities and commuting patterns, the availability of suitable sites and public facilities, agreements between a county and cities in a county to direct growth toward incorporated areas of the county, or other considerations as may be requested by the affected cities or counties and agreed to by the department. As part of the allocation of the regional housing need, the department shall provide each city and county with data describing the assumptions and methodology used in calculating its share of the regional housing need. Consideration of suitable housing sites or land suitable for urban development is not limited to existing zoning ordinances and land use restrictions of a locality, but shall include consideration of the potential for increased residential development under alternative zoning ordinances and land use restrictions. The determination of available land suitable for urban development may exclude lands where the Federal Emergency Management Agency (FEMA) or the Department of Water Resources has determined that the flood management infrastructure designed to protect that land is not adequate to avoid the risk of flooding.

(c) Within 90 days following the department's determination of a draft distribution of the regional housing need to the cities and the county, a city or county may propose to revise the determination of its share of the regional housing need in accordance with criteria set forth in the draft distribution. The proposed revised share shall be based upon comparable data available for all affected jurisdictions, and accepted planning methodology, and shall be supported by adequate documentation.

(d)(1) Within 60 days after the end of the 90-day time period for the revision by the cities or county, the department shall accept the proposed revision, modify its earlier determination, or indicate why the proposed revision is inconsistent with the regional housing need.

(2) If the department does not accept the proposed revision, then, within 30 days, the city or county may request a public hearing to review the determination.

(3) The city or county shall be notified within 30 days by certified mail, return receipt requested, of at least one public hearing regarding the determination.

(4) The date of the hearing shall be at least 10 but not more than 15 days from the date of the notification.

(5) Before making its final determination, the department shall consider all comments received and shall include a written response to each request for revision received from a city or county.

(e) If the department accepts the proposed revision or modifies its earlier determination, the city or county shall use that share. If the department grants a revised allocation pursuant to subdivision (d), the department shall ensure that the total regional housing need is maintained. The department's final determination shall be in writing and shall include information explaining how its action is consistent with this section. If the department indicates that the proposed revision is inconsistent with the regional housing need, the city or county shall use the share that was originally determined by the department. The department, within its final determination, may adjust the allocation of a city or county that was not the subject of a request for revision of the draft distribution.

(f) The department shall issue a final regional housing need allocation for all cities and counties within 45 days of the completion of the local review period.

SEC. 7. No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution because a local agency or school district has the authority to levy service charges, fees, or assessments sufficient to pay for the program or level of service mandated by this act, within the meaning of Section 17556 of the Government Code.

WATERS AND WATERCOURSES—BOATS AND BOATING—BALLAST TANKS

CHAPTER 370

A.B. No. 740

AN ACT to amend Sections 71200, 71201, 71204, and 71205 of, and to add Section 71204.6 to, the Public Resources Code, relating to vessels.

[Filed with Secretary of State October 10, 2007.]

LEGISLATIVE COUNSEL'S DIGEST

AB 740, Laird Vessels: invasive species.

The Marine Invasive Species Act, which generally applies to all vessels carrying or capable of carrying ballast water into the coastal waters of the state after operating outside of the coastal waters of the state and to all ballast water and associated sediments taken on a vessel, imposes specified requirements on the master, owner, operator, or person in charge of one of those vessels, that operates in the waters of the state, to minimize the uptake and release of nonindigenous species, including the removal of fouling organisms from the hull, piping, and tanks on a regular basis, and the cleaning of the ballast tanks regularly to remove sediments and dispose of those sediments. The act additionally requires the master, owner, operator, agent, or person in charge of one of those vessels, that visits a California port or place, to maintain specified information related to the vessel and ballast water management, and to make that information available to the State Lands Commission. The act defines terms for its purposes.

This bill would define the terms "submerged portion of a vessel" and "hull fouling" for purposes of the act and specify that the act additionally applies to all hull fouling. The bill would require those persons to remove hull fouling organisms from hull, piping, propellers, sea chests, and other submerged portions of one of those vessels on a regular basis, as the bill would define that term for purposes of removal of hull fouling organisms until specified regulations are adopted. The bill would require the cleaning of the ballast tanks regularly to remove fouling organisms instead of sediments. The bill would require inwater cleaning of the submerged portion of a vessel while in the waters of the state to be conducted using best available technologies economically achievable.

The bill also would require the master, owner, operator, agent, or person in charge of one of those vessels, that visits a California port or place, to maintain specified records concerning drydocking, inwater cleaning of the submerged portion of the vessel, and antifouling paint applications to the vessel. The bill would require the master, owner, operator, agent, or person in charge to provide the information in electronic or written form to the commission annually upon request of the commission, beginning on January 1, 2008, and continuing until specified regulations are adopted.

The bill would require the commission, in consultation with specified entities, by January 1, 2012, to develop and adopt regulations governing the management of hull fouling on those vessels arriving at a California port or place, to protect the waters of the state.

The people of the State of California do enact as follows:

SECTION 1. Section 71200 of the Public Resources Code is amended to read:

71200. Unless the context otherwise requires, the following definitions govern the construction of this division:

(a) "Ballast tank" means a tank or hold on a vessel used for carrying ballast water, whether or not the tank or hold was designed for that purpose.

(b) "Ballast water" means * * * water and suspended matter taken on board a vessel to control or maintain trim, draft, stability, or stresses of the vessel, without regard to the manner in which it is carried.

(c) "Board" means the State Water Resources Control Board.

(d) "Coastal waters" means estuarine and ocean waters within 200 nautical miles of land or less than 2,000 meters (6,560 feet, 1,093 fathoms) deep, and rivers, lakes, or other water bodies navigably connected to the ocean.

(e) "Commission" means the State Lands Commission.

(f) "EEZ" means exclusive economic zone, which extends from the baseline of the territorial sea of the United States seaward 200 nautical miles.

(g) "Exchange" means to replace the water in a ballast tank using either of the following methods:

(1) "Flow through exchange," which means to flush out ballast water by pumping three full volumes of mid-ocean water through the tank, continuously displacing water from the tank, to minimize the number of original coastal organisms remaining in the tank.

(2) "Empty/refill exchange," which means to pump out, until the tank is empty or as close to 100 percent empty as is safe to do so, the ballast water taken on in ports, or estuarine or territorial waters, then to refill the tank with mid-ocean waters.

(h) "Hull fouling" means the attachment or association of marine organisms to the submerged portion of a vessel or its appurtenances, including, but not limited to, sea chests, propellers, anchors, and associated chains.

(i) "Mid-ocean waters" means waters that are more than 200 nautical miles from land and at least 2,000 meters (6,560 feet, 1,093 fathoms) deep.

(j) "Nonindigenous species" means any species, including, but not limited to, the seeds, eggs, spores, or other biological material capable of reproducing that species, or any other viable biological material that enters an ecosystem beyond its historic range, including any of those organisms transferred from one country into another.

(k) "Pacific Coast Region" means all coastal waters on the Pacific Coast of North America east of 154 degrees W longitude and north of 25 degrees N latitude, exclusive of the Gulf of California. The commission may modify these boundaries through regulation if the proponent for the boundary modification presents substantial scientific evidence that the proposed modification is equally or more effective at preventing the introduction of nonindigenous species through vessel vectors as the boundaries described herein.

(l) "Person" means an individual, trust, firm, joint stock company, business concern, or corporation, including, but not limited to, a government corporation, partnership, limited liability company, or association. "Person" also means a city, county, city and county, district, commission, the state, or a department, agency, or political subdivision of the state, an interstate body, or the United States and its agencies and instrumentalities, to the extent permitted by law.

(m) "Sediments" means * * * matter settled out of ballast water within a vessel.

(n) "Submerged portion of a vessel" means all parts of a vessel's hull and structures that are submerged in water when the vessel is loaded to the deepest permissible legal draft.

(o) "Waters of the state" means * * * surface waters, including saline waters, that are within the boundaries of the state.

(p) "Vessel" means a vessel of 300 gross registered tons or more.

(q) "Voyage" means any transit by a vessel destined for a California port or place from a port or place outside of the coastal waters of the state.

SEC. 2. Section 71201 of the Public Resources Code is amended to read:

NOTICE OF PREPARATION
AND
INITIAL STUDY

for

Yokohl Ranch Project

Prepared for:

County of Tulare
Resource Management Agency
5961 South Mooney Boulevard
Visalia, California 93277

Prepared by:

PBS&J

9275 Sky Park Court, Suite 200
San Diego, California 92123
Contact: Kim Howlett
Phone: (858) 514-1018
Fax: (858) 514-1001

February 2008

Attachment 6

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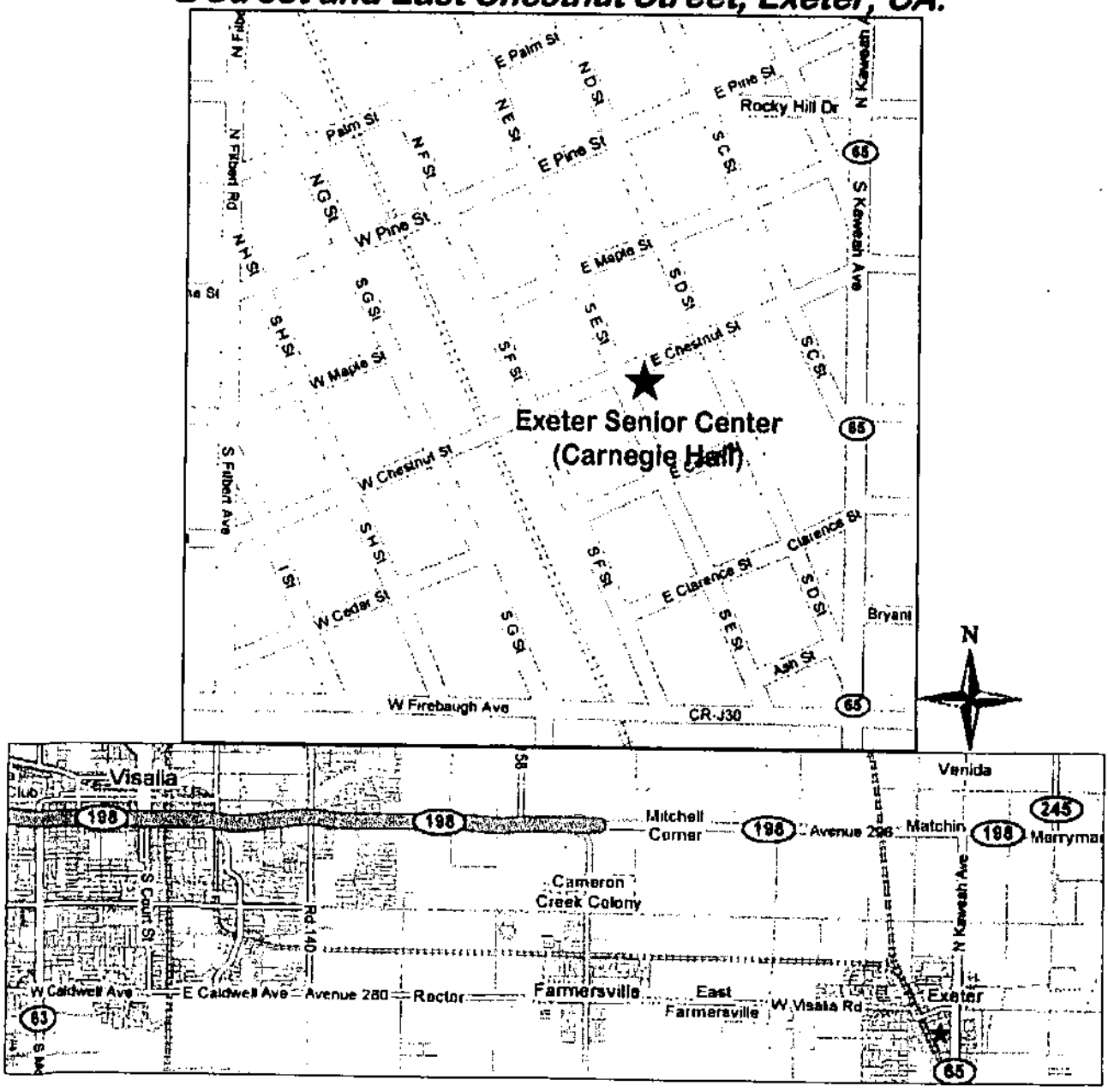
SECTION ONE

NOTICE OF PREPARATION

YOKOHL RANCH
Environmental Impact Report Scoping Meeting

If you are interested in the future content of the Yokohl Ranch Project Draft Environmental Impact Report (DEIR), please plan to attend the DEIR Scoping Meeting to register your comments regarding the environmental topics to be addressed in the DEIR. The NOP/IS is available for review at: www.co.tulare.ca.us.

Date: Monday March 3, 2008
Time: 3:00pm to 7:00pm
Location: Exeter Senior Center (Carnegie Hall)
E Street and East Chestnut Street, Exeter, CA.



SECTION 1.0
NOTICE OF PREPARATION AND SCOPING MEETING

TO: Federal Agencies
State Agencies
Trustee Agencies
Responsible Agencies
Interested Parties

FROM: County of Tulare
Resource Management Agency
5961 South Mooney Boulevard
Visalia, CA 93277
Attention: David Bryant

SUBJECT: **NOTICE OF PREPARATION (NOP) OF A DRAFT ENVIRONMENTAL IMPACT REPORT (EIR) AND NOTICE OF SCOPING MEETING.**

The County of Tulare, Resource Management Agency will be the Lead Agency and will prepare an Environmental Impact Report (EIR) for the project identified below. We need to know the views of your agency and interested parties as to the scope and content of the environmental information that is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the project.

The project description, location, maps, and a summary of the probable/potential environmental effects of the proposed project are contained in the attached Initial Study (IS) materials. This NOP/IS is also available for review at www.co.tulare.ca.us. We would appreciate any comment and/or recommendations that you may have regarding the above project or impacts and mitigation measures which should be addressed in the EIR.

Due to the time limits mandated by State Law, your response must be sent at the earliest possible date but not later than March 14, 2008. Please send your response to David Bryant, Division Manger, County of Tulare, Resource Management Agency, at the address shown above. Also, please provide a contact name for your agency.

SCOPING MEETING
Interested agencies and parties are invited to attend and participate. ***The meeting will be held on Monday, March 3, 2008 at 3:00pm*** in the ***Exeter Senior Center (Carnegie Hall)*** at ***E Street and East Chestnut Street, Exeter, California.*** For more information, please contact David Bryant, Division Manager, at (559) 733-6291.

PROJECT TITLE: Yokohl Ranch Planned Community

LEAD AGENCY: County of Tulare, Resource Management Agency
5961 South Mooney Boulevard
Visalia, CA 93277

APPLICANT: The Yokohl Ranch Company, LLC
13500 Evening Creek Drive N., Ste. 400
San Diego, CA 92128

PROJECT LOCATION: Yokohl Ranch encompasses approximately 36,324 acres in the Sierra Nevada foothills, within the unincorporated area of Tulare County. Yokohl Ranch is regionally located about 15 miles east and southeast of Visalia, centrally positioned east of Exeter, northeast of Lindsay, south of Lake Kaweah, and 30 miles southwest of the entrance to Sequoia National Park (Figures 1 and 2). Primary access to the

property is via Yokohl Drive (M-296) off Highway 198 (approximately 3.2 miles south from SR 198), or via Balch Park Road off Highway 190.

GENERAL PLAN DESIGNATIONS: Existing: Foothill Agriculture
Proposed: Planned Community Area

ZONING DESIGNATIONS: Existing: Foothill Agricultural Zone (AF) and Planned Development – Foothill Combining – Special Mobile Home Zone (PD-F-M)
Proposed: Planned Community (PC) Zone

PROJECT DESCRIPTION: The project includes the phased development (over 20-30 years) of the Yokohl Ranch master planned community. The project is divided into 3 subareas: The Valley, The Meadows and The Oaks. Approximately 30 percent (9,500 acres) of the ranch is proposed for development with approximately 70 percent (26,000 acres) of the property to remain as open space and ranchlands. The project would construct 10,000 residential units, including active adult units; approximately 550,000 square feet of mixed use commercial areas; public/quasi-public areas; and infrastructure (e.g., roads, utilities, etc.) within three smaller planned areas on 36,324 acres. Yokohl Ranch would include fire and police facilities, public schools and public parks, which will serve both local and county residents. The project will require approval of the following discretionary actions:

1) Amend the General Plan including:
   a) Amend the Foothill Growth Management Plan (FGMP), to establish procedures for a Planned Community Area (PCA);
   b) Re-designate the 36,324 acre Yokohl Ranch site from Foothill Agriculture to "Planned Community Area" by establishing a Planned Community Area (PCA) boundary for the project;
2) Rezone the site to a Planned Community Zone (PC) (Section 18.8) to replace the Foothill Agricultural Zone (AF) and Planned Development – Foothill Combining – Special Mobile Home Zone (PD-F-M) for the project area;
3) Approve the Master Development Plan;
4) Approve the Area Development Plan Phase I; and
5) Approve Tentative Map for Phase I.

Other actions may include subdivision maps, development agreements, cancellation of Williamson Act Contracts, formation of agricultural conservation easements for lands to remain in agricultural use, and formation of special districts for governance and the provision of public services and facilities. Subsequent ADP Phases will be reviewed and approved, accompanied by additional CEQA documentation tiered off the Program EIR.

Signature: _____ Date: February 8, 2008

Kim B. Howlett for David Bryant, Division Manager
County of Tulare Resources Management Agency
(559) 733-6291

SECTION 2.0
INITIAL STUDY INTRODUCTION AND PROJECT DESCRIPTION

2.1 INTRODUCTION

This environmental document is an Initial Study (IS) for the Yokohl Ranch project, which proposes to amend the Tulare County General Plan and Zoning Ordinance and develop the 36,324-acre Yokohl Ranch into a planned community over 20 to 30 years.

This IS has been prepared to determine whether the project could have a significant effect on the environment, and is being prepared under the direction of the County of Tulare, Resource Management Agency. The County of Tulare is the lead agency under CEQA, in accordance with CEQA and the CEQA Guidelines and Title 14 of the California Administrative Code, as revised. The Issues Checklist, which includes 16 Issue Areas and is found below in Section Three, concluded that the project has the potential to result in potentially significant environmental impacts in all issue areas, except Mineral Resources. Global climate change (as noted below) and growth inducing impacts will also be addressed in the EIR. The Issue Areas in which the project may incur significant impacts include:

1. Aesthetics
2. Agricultural Resources
3. Air Quality and Global Climate Change
4. Biological Resources
5. Cultural Resources
6. Geology and Soils
7. Hazards and Hazardous Materials
8. Hydrology and Water Quality
9. Land Use and Planning
10. Noise
11. Population and Housing
12. Public Services
13. Recreation
14. Transportation/Traffic
15. Utilities and Service Systems
16. Mandatory Findings of Significance

Based on this IS it has been determined that an EIR should be prepared. Pursuant to Section 15082 of the State CEQA Guidelines, a Notice of Preparation (NOP) will be sent to the State Clearinghouse, each responsible agency, and to each trustee agency affected by the proposed project. "Responsible Agencies" under CEQA are agencies that are responsible for carrying out or approving a project. "Trustee Agencies" under CEQA are State agencies that have jurisdiction by law over natural resources affected by the project that are held in trust for the people of the State, such as the Department of Fish and Game's responsibility for fish and wildlife (CEQA Guidelines Section 15386).

2.2 PROJECT LOCATION AND SETTING

Yokohl Ranch encompasses approximately 36,324 acres in the Sierra Nevada foothills, within the unincorporated area of Tulare County. Yokohl Ranch is regionally located about 15 miles east and southeast of Visalia, centrally positioned east of Exeter, northeast of Lindsay, south of Lake Kaweah, and 30 miles west of the entrance to Sequoia National Park (Figures 1 and 2). Primary access to the property is via Yokohl Drive (M-296) off Highway 198, or via Balch Park Road off Highway 190.

The Yokohl Ranch site is characterized as an area with varied terrain, ranging from nearly flat ranch lands along Yokohl Creek, to the gentle valleys and rolling hills to the south and north along the main valley to

steeper hills and canyons in the northern portion of Yokohl Ranch. Vegetation types include riparian and oak woodlands, grasslands, and chaparral. Yokohl Creek flows from the southern portion of the project area west to the western boundary of the project site. Due to its rocky soils and shallow soil depths, Yokohl Ranch lands are not suitable for intensive commercial agricultural uses. Therefore, the property has been historically used for cattle grazing and ranching, as well as ranch family housing and support facilities.

2.3 PROJECT DESCRIPTION

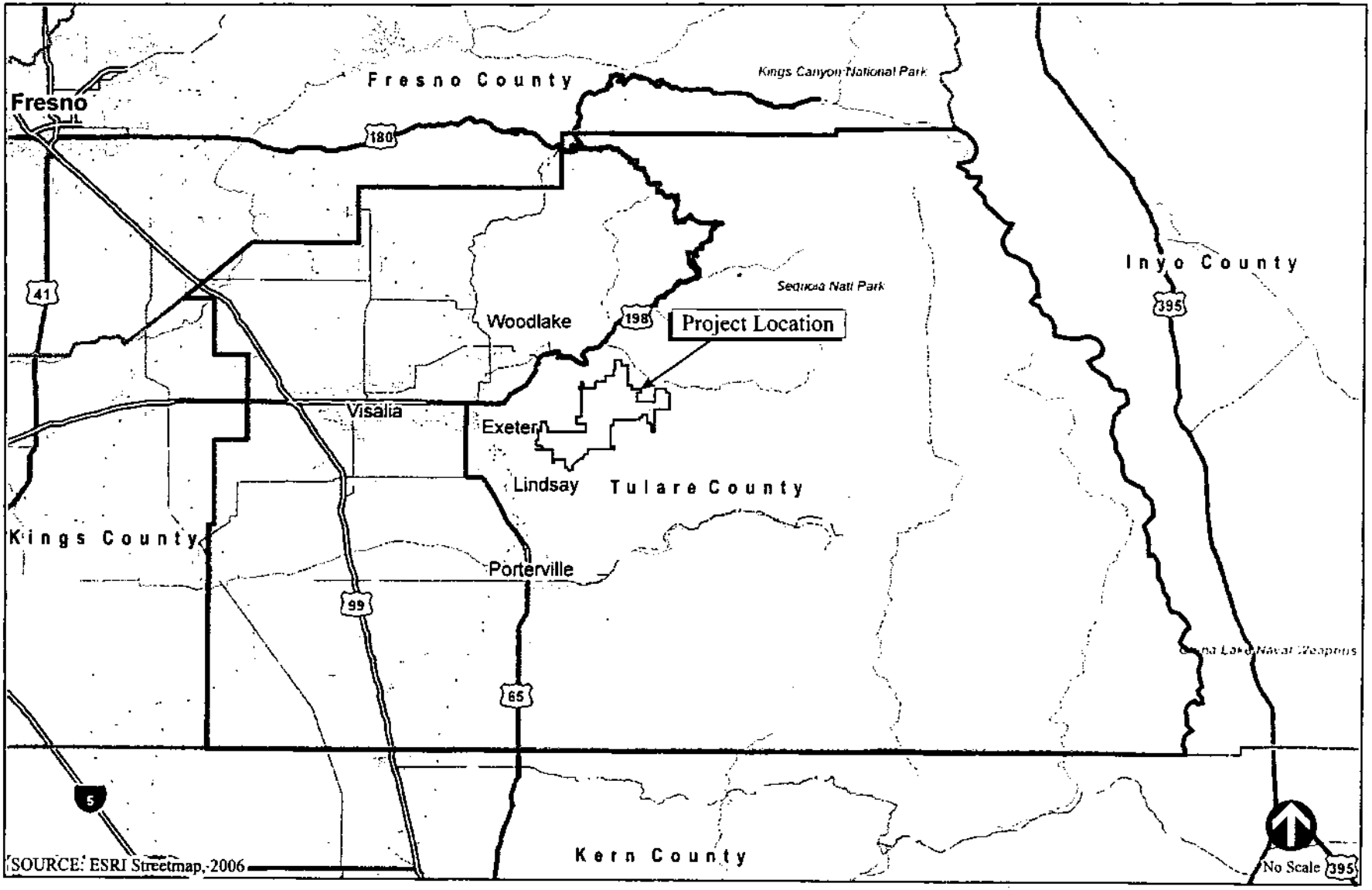
The project includes the phased development (over 20-30 years) of the Yokohl Ranch master planned community. The project is divided into 3 subareas: The Valley, The Meadows and The Oaks. Approximately 30 percent (9,500 acres) of the ranch is proposed for development with approximately 70 percent (26,000 acres) of the property to remain as open space and ranchlands. The project would construct 10,000 residential units, which would include active adult units; approximately 550,000 square feet of mixed use commercial areas; public/quasi-public areas; and infrastructure (e.g., roads, utilities, etc.) within three smaller planned areas on 36,324-acres. Yokohl Ranch would include fire and police facilities, public schools and public parks, which will serve both local and county residents. The project will require approval of the following discretionary actions:

1) Amend the General Plan to include:
   a) Amend the Foothill Growth Management Plan (FGMP), to establish procedures for a Planned Community Area (PCA);
   b) Re-designate the 36,324-acre Yokohl Ranch site from Foothill Agriculture to "Planned Community Area" by establishing a Planned Community Area (PCA) boundary for the project;
2) Rezone the site to a Planned Community Zone (PCZ) (Section 18.8) to replace the Foothill Agriculture and Planned Development – Foothill Combining – Special Mobile Home Zone (PD-F-M) for the project area;
3) Approve the Master Development Plan (all phases);
4) Approve the Area Development Plan Phase I;
5) Tentative Map for Phase 1.

Other actions may include subdivision maps, development agreements, cancellation of Williamson Act Contracts, formation of agricultural conservation easements for lands to remain in agricultural use, and formation of special districts for governance and the provision of public services and facilities. The subsequent ADP Phases will be reviewed and approved, accompanied by additional CEQA documentation tiered off the Program EIR.

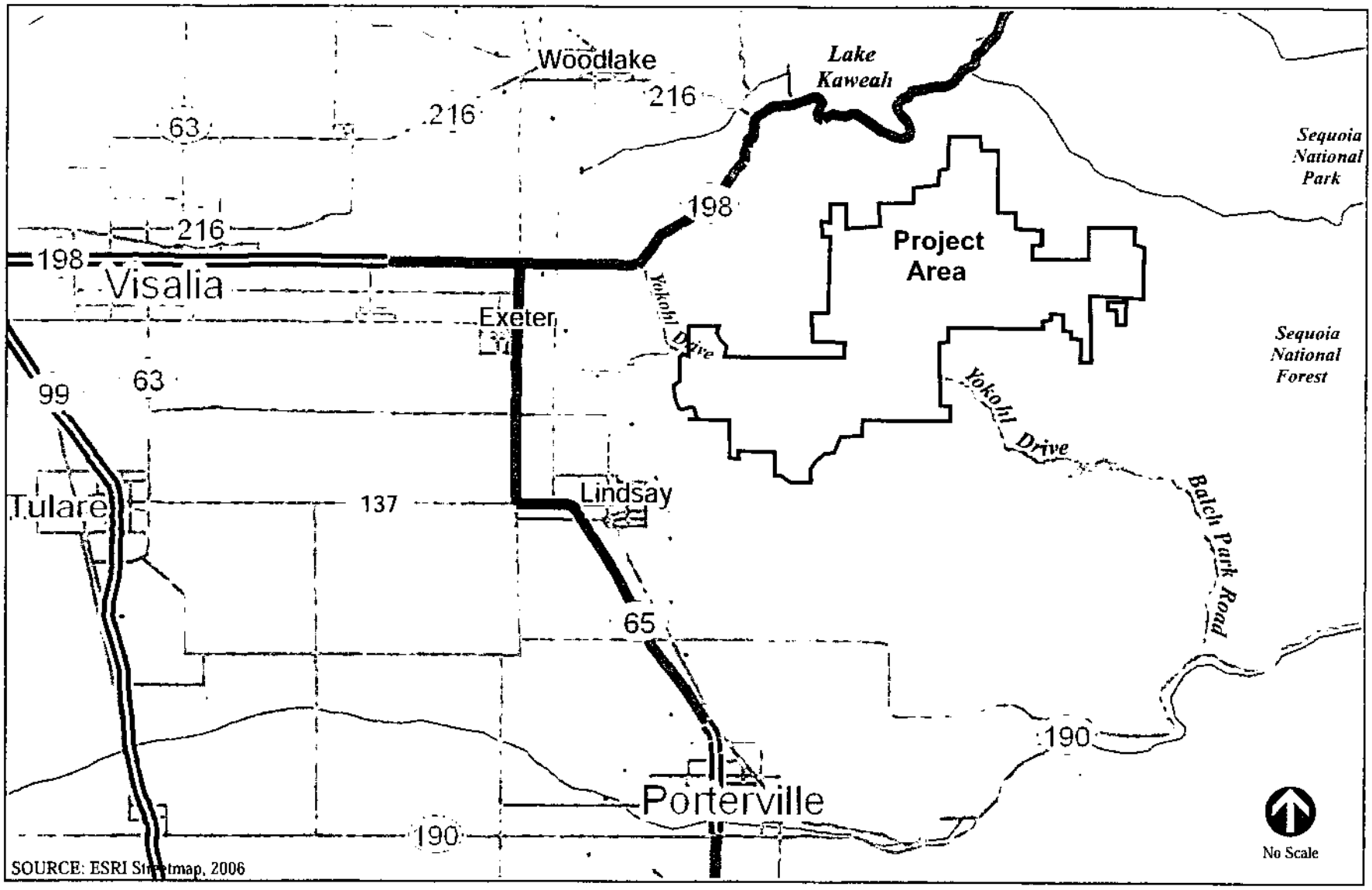
2.3.1 General Plan Amendment

The proposed General Plan Amendment for the Yokohl Ranch project would specifically amend the Foothill Growth Management Plan (FGMP), which is an element of the Tulare County General Plan. The proposed amendment would a) amend the Foothill Growth Management Plan (FGMP), to establish procedures for a Planned Community Area (PCA) and b) re-designate the 36,324 acre Yokohl Ranch site from Foothill Agriculture to "Planned Community Area" by establishing a Planned Community Area (PCA) boundary for the project.



REGIONAL LOCATION MAP **FIGURE 1**

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VICINITY MAP **FIGURE 2**

The Foothill Growth Management Plan area is a 675,000-acre area covering the eastern portion of Tulare County. Development is currently limited to areas designated as "Development Corridors." Development is not allowed on land designated as Foothill Agricultural Zone (AF) due to access constraints, excessive emergency response time, steep slopes, and biological or archaeological factors that prohibit safe development. However, the proposed amendment also would allow development within proposed Planned Community Areas. Therefore, with the proposed amendment, property designated as a Planned Community Area would have the same development status as property designated Development Corridor and would be considered suitable for urban development.

The FGMP currently uses a four-level planning strategy. This strategy is a step-down process whereby each level of analysis continues to focus in on more specific areas (and level of detail) of the foothills to determine suitability for urban development. The proposed amendment would include parallel analyses for the Planned Community Areas.

2.3.2 Zoning

The proposed project would rezone the project site from the Foothill Agricultural Zone (AF) and Planned Development-Foothill Combining Special Mobile Home (PD-F-M) for the Yokohl Ranch project site to "Planned Community Zone" pursuant to a new zone called "Planned Community Zone" (PCZ). The PC Zoning Ordinance requires the preparation of a Master Development Plan (MDP) and Area Development Plan (ADP) prior to development within the PC zone. The MDP will define land uses and development standards within the planned community. The MDP would also include the topography of the area; a conceptual grading and drainage plan; the general location of all existing and proposed uses; the approximate location of major circulation system components; conceptual locations of public and quasi-public uses, such as schools, parks, fire stations, open space, and major utility and infrastructure improvements; anticipated phasing of development by sub-area; and land use statistics for the area and each sub-area. Each planned community would be divided into planning sub-areas, which would be delineated in the MDP.

The zoning ordinance would require an Area Development Plan (ADP) prior to the approval of any development within a sub-area of a planned community. A proposed ADP would include a site plan; a description of the existing conditions of the sub-area; the proposed development of the sub-area; design guidelines for the sub-area; and a Public Facilities Financing Plan (PFFP) to ensure that the project provides adequate public facilities and services concurrent with the need created by the new development. The Area Development Plan (ADP), at a minimum, would consist of the contents required for a Specific Plan according to Section 65450 to Section 65457 of the Government Code.

The PC Zoning Ordinance would require the preparation of a MDP and an ADP prior to development of any planned community with the PC zone. The MDP would be the second in a hierarchy of planning documents that would guide the development of land designated as Planned Community Area. The first is the Tulare County General Plan, including the Foothill Growth Management Plan. However, the MDP would be the initial and overall plan for an entire planned community. The third document in the hierarchy would be the ADP which further details proposed development standards within planned community sub-areas.

2.3.3 Yokohl Ranch Master Planned Community Development

The layout and design of the proposed Yokohl Ranch community would be based on a MDP prepared to guide development in conformance with the Planned Community (PC) Zone described above. The Yokohl Ranch project proposes to create a planned community to include 10,000 residential units in three

neighborhoods, which would include active adult units; mixed use commercial areas; public schools and parks; open space areas; public/quasi-public areas; and infrastructure. No development would occur on ridgelines or on slopes over 30 percent. Figure 3 shows the locations of the proposed land uses within the MDP, which are discussed below. Table 1 summarizes the acreage of the proposed land uses and densities of residential areas upon buildout of the community.

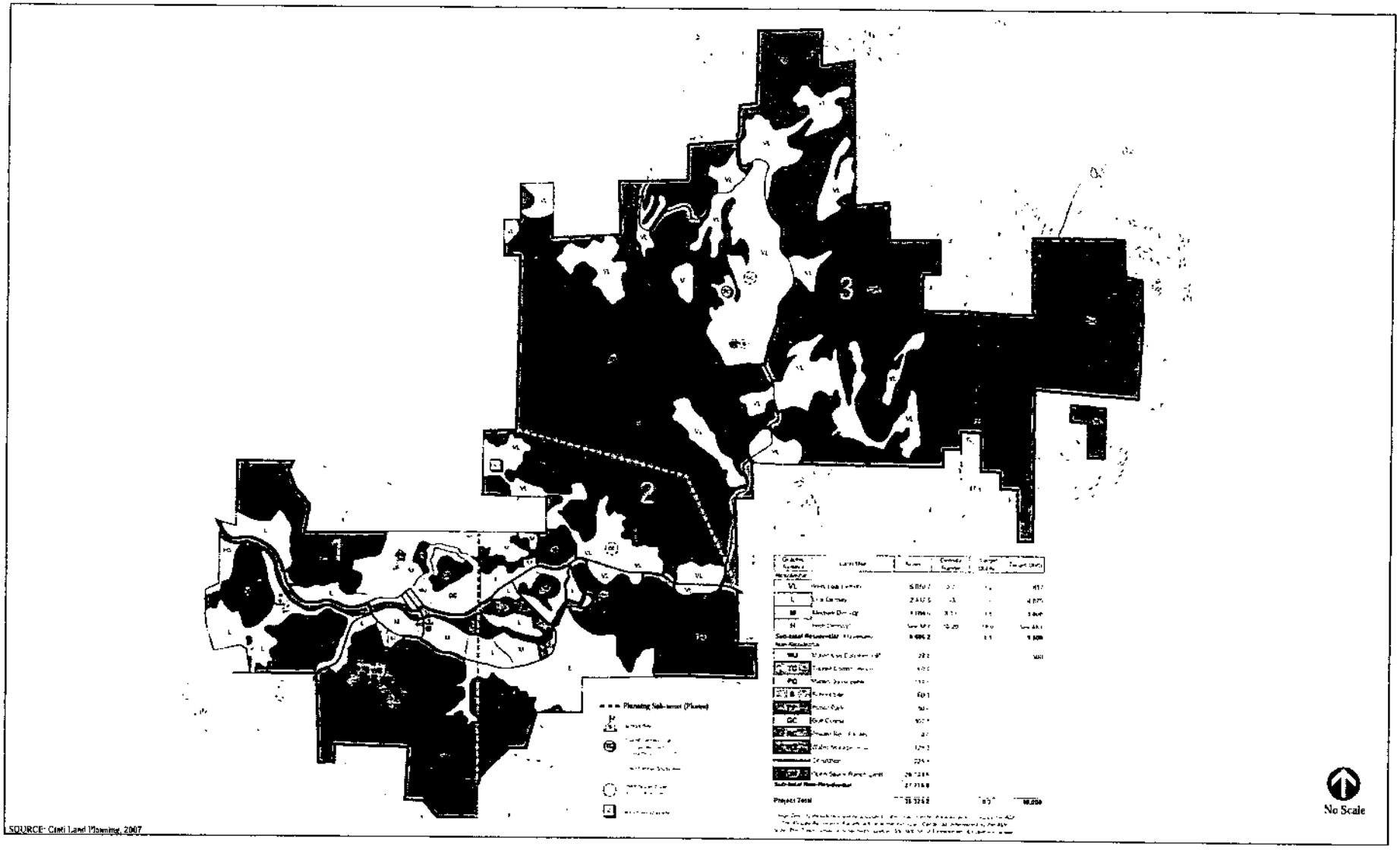
Table 1. Phased Development Summary of Land Uses for the Yokohl Ranch Project

Land Use	Phase I		Phase II		Phase III	
	Gross Acres	Target Units	Gross Acres	Target Units	Gross Acres	Target Units
Residential Uses						
Very Low (0-2 du/ac)	0.0	0	975.5	500	4,105.4	317
Low (1-3 du/ac)	1,054.2	2,108	1,383.3	2,767		0
Medium (3-10 du/ac)	816.5	2,858	271.5	950		0
High (10-20 du/ac)	See MU	See MU	0.0	0		0
Subtotal Residential	*1,870.7*	*4,966*	*2,630.1*	*4,217*	*4,105.4*	*317*
Non-Residential						
Mixed-Use Commercial (MU)	27.8	500	0.0		0.0	
Tourist Commercial (Resort)	0.0		0.0		60.0	
Public/Quasi-Public	114.0		0.0		0.0	
Schools	48.4		11.7		0.0	
Public Park	16.0		34.0		0.0	
Golf Course	307.5		0.0		0.0	
Private Recreation	0.0		0.0		0.0	
Open Space/Ranch Land	4,890.8		4,751.8		17,101.0	
Reservoir	129.2		0.0		0.0	
Circulation	95.7		57.7		72.4	
Subtotal Non-residential	*5,629.4*		*4,855.2*		*17,233.4*	
Phase Totals	**7,500.2**	**5,466**	7,485.4	4,217	**21,338.8**	**317**
Population Estimate						
Standard Units (@3.2 pers/du)	4,100 @ 3.2 = 13,119		3,163 @ 3.2 = 10,120		317 @ 3.2 = 1,014	
Active Adult Units (@2.0 pers/du)	1,367 @ 2.0 = 2,733		1,054 @ 2.0 = 2,108		0 @ 2.0 = 0	
Total Population	15,852		12,229		1,014	

Note: Additional "overlay uses" are allowed as depicted on the Land Use Map. Acreage assigned to such uses would be determined with approval of the applicable ADP.

Residential

Four residential densities are proposed: very low, low, medium, and high. Very low density areas would include single-family detached units and estates on large lots ranging from more than 8,000 square feet (sf) to several acres. Low density areas would include single-family detached units on lots ranging from 6,000 sf to 8,000 sf. The typical housing in medium density residential areas would include single-family detached units on lots ranging from 4,000 to 7,000 sf; however, some clustered site plans would include attached units or units on smaller lots. Units in the high density residential areas would include multi-family units such as townhouses and apartments and would only be found in the Town Center.



PROPOSED LAND USE PLAN

FIGURE 3

The development would be located around a Town Center within Phase I of The Valley sub-area, which would include mixed-use commercial and high-density residential uses. Medium- and low-density residential areas would be located away from the Town Center with densities becoming lower as distance from the Town Center increases and topography becomes steeper. This neighborhood would be called "The Valley," which is scheduled to be developed as Phase I. Further, to the north and east, beyond The Valley neighborhood, the residential density further decreases to very low-density. The neighborhood to the immediate northeast of The Valley would be called "The Meadows," developed as Phase II, and the neighborhood located in the northeast region of the project site would be called "The Oaks," developed as Phase III.

Commercial – Mixed Use and Tourist

The "Mixed Use" designation, located in the Town Center within The Valley, would allow a broad range of uses and facilities, including retail and office commercial, high-density residential, hotels, schools, recreation, restaurants, and public facilities. Another commercial designation would be "Tourist Commercial" which would be located in The Oaks neighborhood in the northeast region of the project site. This land use category would allow for the development of a destination resort and conference center that may include hotel facilities and a wide range of tourist and resort amenities.

Public Schools and Public Parks

Four locations are designated on the Land Use map for public school sites and five locations are designated for public parks. The specific location and configuration of these facilities would be determined within each planning sub-area's ADP. Other recreational facilities could include a golf course and private recreational facility, both located in The Valley. All but one public school area and one public park area are located in the southern portion of The Valley area.

Open Space

Approximately 70 percent of the project area would be designated and preserved as "Open Space." These areas would include generally undisturbed areas to be used as environmental protection areas, natural open space and ranch land, and could also include public infrastructure facilities, emergency access roads, fuel modification buffers, and portions of residential lots with strict development restrictions. Open space areas would continue to be used for agricultural and grazing uses. Hiking and biking trails may be constructed throughout the Yokohl Ranch project area.

Public and Quasi-public

Public facilities would be provided in areas designated as public or quasi-public. Such uses include churches, day care, public storage, utility and service districts, and buildings owned by public agencies, such as fire and police stations and medical facilities. These areas are located in the southwestern portion of the project area.

Infrastructure Improvements

On-Site Improvements. The proposed Yokohl Ranch project would develop many on-site infrastructure improvements, including roads and bridges, a wastewater treatment facility, wastewater collection, and sewer lines, a water storage reservoir and dam, water supply treatment plant, water distribution systems (potable and reclaimed), dry utilities (electricity, telephone, and cable), and storm drains. Wastewater treatment for development in Phase III may be accomplished through a septic or alternative wastewater treatment system. The project also proposes to restore, enhance, and relocate portions of Yokohl Creek, including flood control measures.

Off-Site Improvements. The proposed Yokohl Ranch project may potentially include various off-site improvements as part of the project. Some of the off-site improvements may be required for project implementation; others may be optional. All off-site improvements will be analyzed in the EIR. Figure 4 shows the proposed off-site improvements, which include:

- Upgrading, widening and relocating Yokohl Drive, one of the primary access roads to the project site;
- Upgrading and widening SR 198 from Road 204 to Yokohl Drive;
- Upgrading widening and improving Rocky Hill Drive from North Spruce Road to Yokohl Drive
- Widening and constructing roadways from the City of Lindsay along Avenue 226, Road 242, Road 244, and into the project site;
- Constructing a pump station near the intersection of Road 212 and Avenue 322 and installing a potable water supply connection system in the rights-of-way of Road 202, Avenue 320, Road 220 down to Yokohl Drive or upgrading an existing canal from Kaweah River near the base of the dam to the connection point at Yokohl Drive;
- Installing pipelines in the Yokohl Drive right-of-way;
- Installing a power line from the City of Lindsay along Avenue 226, Road 242, and Road 244 into the project site, and
- Constructing access road(s) from the northern part of the project site to SR 198.

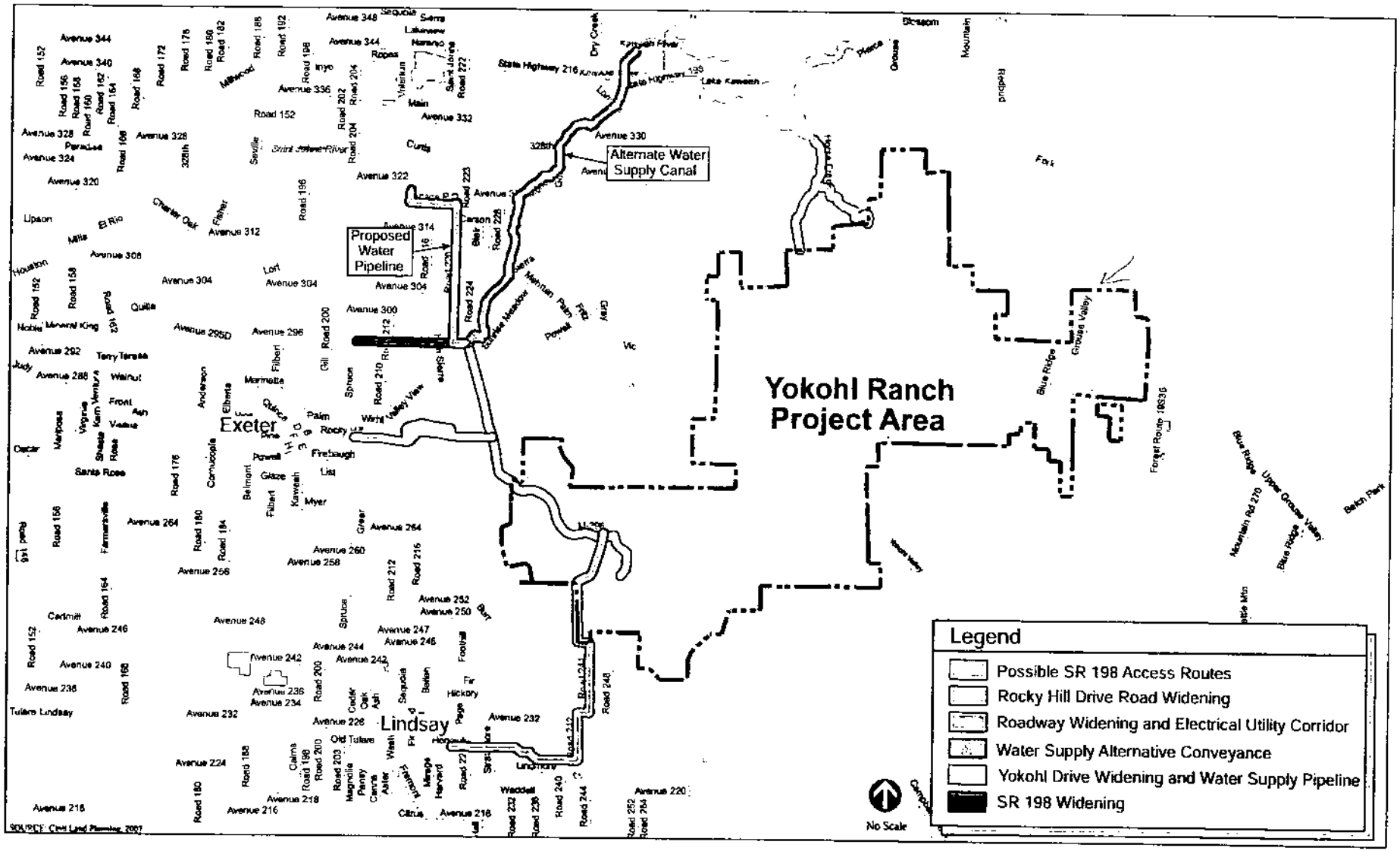
Water Supply. The owner of Yokohl Ranch will provide adequate, reliable water source for the proposed project. This water supply would be delivered to the project site through either a pipeline or a combination of a canal and pipeline. The project may include transfers of water possibly involving one or more water or irrigation districts as well as private entities.

2.4 PROJECT CONSTRUCTION AND GRADING

Substantial excavation and grading of the natural landform and demolition of a few existing structures would be required for the development of the proposed project. Construction for the project would involve the use of large to small earth moving equipment, such as scrapers, graders, excavators, bulldozers, dump trucks, and front-end loaders for grading and excavation and other construction activities.

Aggregate would be needed for development of the Yokohl Ranch project infrastructure. It is possible that some or all of the aggregate would be obtained as part of grading activities associated with the proposed project.

Three grading districts have been identified that would experience different levels of grading. The first district, located in the southern portion of the project area, where most of the development would occur, would experience the greatest intensity of grading. The second grading district, located in the valley in the northern portion of the project area, would receive only limited grading, most likely grading for residential units pads. The third grading district, located in the mountainous regions in the extreme southern, central western, and extreme eastern areas of the project site, would experience grading only for land management activities.



OFF-SITE IMPROVEMENTS

FIGURE 4

2.5 PUBLIC FACILITIES AND FINANCING

The EIR will also include a description of the proposed governance structure. This governance description will outline the expected municipal service providers, both in the early stages of community development, as well as once the community is builtout. It will also describe the institutional framework for establishing and evolving the governance structure as well as the expected sources of financing for service provision.

The Yokohl Ranch project would include construction of two fire and a police station, public schools, and public parks that would serve both local and Tulare County residents. The PC Zone establishes implementation phasing that would ensure that public facilities would be available concurrent with development, in accordance with future Public Facilities Financing Plan (PFFP) schedules prepared with each planning sub-area Area Development Plan (ADP).

The community would bear its own financial costs, through one or more funding mechanisms, for financing and providing services and infrastructure for the Yokohl Ranch planned community. Options include, but are not limited to, community service districts, assessment districts, infrastructure districts, service area districts, community facilities districts, County service areas, public benefit areas, or other forms of service providing funding sources or districts. In addition, the Yokohl Ranch project would finance and construct its own traffic and road improvements, both on and off site, as well as other infrastructure required by the project.

2.6 FUTURE CEQA REVIEW

The EIR for the proposed Yokohl Ranch project would cover the proposed General Plan amendment, Zoning Ordinance amendment, and MDP for the phased development of the master planned community. The EIR would also address the development of the first sub-area of the Yokohl Ranch MDP, which would include both an Area Development Plan for The Valley and a Tentative Subdivision Map for The Valley. The location of the first phase of development is shown in Figure 3. Subsequent environmental review in conformance with CEQA would occur for future development of the remaining two Phases (see Figure 3).

2.7 REQUIRED ENTITLEMENTS, APPROVALS AND PERMITS

The proposed Yokohl Ranch project would require various federal, state, and local entitlements, approvals, and permits (collectively "discretionary actions") as part of the master planned community. Table 2 lists the local discretionary approvals from the County of Tulare, as the CEQA lead agency, required to implement the proposed project.

Table 3 lists public and semi-public, other than the County of Tulare, which would have discretionary approval over the project and, therefore, are considered "Responsible Agencies" under CEQA (Section 15096).

Table 2. Required Lead Agency Approvals for the Yokohl Ranch Project

Local	
General Plan Amendment	County of Tulare
Rezone to PC	County of Tulare
Master Development Plan	County of Tulare
Area Development Plan	County of Tulare
Certification of CEQA Environmental Impact Report	County of Tulare
Subdivision Maps	County of Tulare
Development Agreements	County of Tulare
Williamson Act Contracts/Cancellation/Formation of Agricultural Conservations Easements	County of Tulare
Formation of Water, Sewer and Other Districts*	County of Tulare/Local Agency Formation Commission (LAFCO)
Water supply transfers	Water agency and water district approvals for water transfers

* Requires multiple-jurisdictional approvals

Table 3. Federal, State, and Other Approvals for the Yokohl Ranch Project

Approval	Agency
Federal	
§ 404 Permit under Clean Water Act (31 U.S.C. § 1344)	Army Corps of Engineers (ACOE)
§ 7 Consultation under Endangered Species Act (16 U.S.C. § 1536)	U.S. Fish & Wildlife Service and California Department of Fish and Game.
§ 106 Consultation with State Historic Preservation Officer under National Historic Preservation Act of 1966 (16 U.S.C. § 470)	State Historic Preservation Office (SHPO)
Clean Air Act	Unites States Environmental Protection Agency (EPA)
State	
Agricultural Conservation Easement(s)	Department of Conservation and 3rd party to hold title of the easement
§ 401 State Water Quality Certification (31 U.S.C. § 1341; Cal. Water Code §§ 13160 *et seq.*)	Regional Water Quality Control Board.
§ 1602 Streambed Alteration Agreement (Cal. Fish and Game Code §§ 1600 *et seq.*)	California Department of Fish and Game.
Construction of Dam/Reservoir (Cal. Water Code §§ 6200 *et seq.*)	Department of Water Resources, Division of Dam Safety.
Authority to Construct	San Joaquin Valley Air Pollution Control District.
State Highway Preliminary Study Reports; Encroachment Permits	California Department of Transportation (Caltrans).
Wastewater Discharge Requirements	Regional Water Quality Control Board.
National Pollutant Discharge Elimination System Permits (31 U.S.C. § 1342; Cal. Water Code §§ 13370 *et. Seq.*)	Regional Water Quality Control Board.
Local	
Formation of Water, Sewer and Other Districts*	County of Tulare LAFCO, initial formation by Tulare County Board of Supervisors.
Water supply transfers	Water agency and water district approvals for water transfers.

* Requires multiple-jurisdictional approvals

SECTION THREE

ENVIRONMENTAL EVALUATION

SECTION 3.0
ENVIRONMENTAL EVALUATION

3.1 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

■ Aesthetics	■ Agricultural Resources	■ Air Quality Including GHG as well
■ Biological Resources	■ Cultural Resources	■ Geology/Soils
■ Hazards & Hazardous Materials	■ Hydrology/Water Quality	■ Land Use/Planning
☐ Mineral Resources	■ Noise	■ Population/Housing
■ Public Services	■ Recreation	■ Transportation/Traffic
■ Utilities/Service Systems	■ Mandatory Findings of Significance	

3.2 DETERMINATION: (To be completed by the Lead Agency.)

On the basis of this initial evaluation:

■ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Signature: _____ Date: February 8, 2008

Kim B. Howlett for David Bryant, Division Manager
County of Tulare Resources Management Agency
(559) 733-6291

3.3 EVALUATION OF ENVIRONMENTAL IMPACTS:

Introduction

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2) All answers must take account of the whole action involved, including off site as well as on site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, "Earlier Analysis," may be cross-referenced).
5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063 (c)(3)(D). In this case, a brief discussion should identify the following:
   a) Earlier Analysis Used. Identify and state where they are available for review.
   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9) The explanation of each issue should identify:
   a) the significance criteria or threshold, if any, used to evaluate each question; and
   b) the mitigation measure identified, if any, to reduce the impact to less than significance.

3.4 ISSUES CHECKLIST

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
1. AESTHETICS – Would the project:				
a) Have a substantial adverse effect on a scenic vista?	■	☐	☐	☐

Potentially Significant Impact. The proposed Yokohl Ranch project would result in the conversion of existing agricultural and rural residential land uses to designated open space/ranch land, low density estate, urban residential, and mixed commercial uses. The proposed development would occur within the Yokohl Valley and the Sierra Nevada foothills. Some of the Project area contains views to significant landmarks, including natural landforms, water features, and other scenic vistas. No portion of the project would be developed on ridgelines, contour grading would be required, and design standards for landscaping and building design for development and parking areas would be provided to protect scenic vistas. Nonetheless, the project could result in a potentially significant impact to scenic vistas which will be addressed in the Environmental Impact Report (EIR) for the project.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a state scenic highway?	■	☐	☐	☐

Potentially Significant Impact. The proposed project would substantially change the overall setting in the area, and have potentially significant impacts to scenic resources. As part of the project, scenic resources such as existing trees, rock outcroppings and a creek would be impacted by the project. There are no state scenic highways on the project site or in the project vicinity that would be affected by the project; however, there are two highways in the vicinity which are eligible for designation as scenic highways: State Routes 198 and 190. Yokohl Drive is currently designated as a County Scenic Route. Therefore, the EIR will address any potentially significant impacts to scenic resources from development of the proposed project.

c) Substantially degrade the existing visual character or quality of the site and its surroundings?	■	☐	☐	☐

Potentially Significant Impact. Construction for the proposed project would require substantial earthwork and result in the removal of existing vegetation, alteration of natural features, and an overall change in the landform on portions of the project site. Approximately 70 percent of the property would be designated as Open Space which would retain the environmental protection, natural character and regional agricultural setting for those areas of the project site. Nonetheless, the EIR will address any potentially significant impacts pertaining to degradation of the existing visual character or quality of the site from development of the proposed Yokohl Ranch project.

d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	■	☐	☐	☐

Potentially Significant Impact. The proposed project would introduce new sources of light from construction activities, landscape lighting, commercial areas, public facilities, parking lots, and new streets and house lighting. In addition, glare from building materials may result in substantial glare in the

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

area. The EIR will address any potentially significant impacts from new sources of substantial light or glare from the proposed project, including the night sky.

2. **AGRICULTURE RESOURCES** – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? ■ ☐ ☐ ☐

Potentially Significant Impact. The proposed Yokohl Ranch project would convert portions of existing agricultural and rural residential lands (homesites) to non-agricultural use. According to the California Department of Conservation Farmland Mapping Farmland Mapping and Monitoring Program the vast majority of the site is classified as Grazing Land. However, the project would still require substantial grading for development of the project and would result in a potentially significant impact to agricultural lands that may be classified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The EIR will address whether there are potentially significant impacts to these farmland categories, if any, as a result of development of the proposed project.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? ■ ☐ ☐ ☐

Potentially Significant Impact. The proposed Yokohl Ranch project would develop existing agricultural and rural residential agricultural lands within areas of the project site, some of which contain existing Williamson Act parcels. The EIR will address any potentially significant impacts to Williamson Act contract parcels and agriculture zoning from development of the proposed project. Also see 2. a) above.

c) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use? ■ ☐ ☐ ☐

Potentially Significant Impact. The Yokohl Ranch project proposes to convert existing agricultural and ranch farmland and very low density rural residential uses to non-agricultural uses. The EIR will address changes in the existing environment, which, due to their location or nature, could result in the conversion of farmland to non-agricultural uses. In addition, the EIR will address the potential conflict between the proposed development project and future grazing and other agricultural uses or activities that would take place on the project site.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

3. **AIR QUALITY** – Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan? ■ ☐ ☐ ☐

Potentially Significant Impact. The proposed project would generate air pollutants from construction activities and community traffic, as well as other activities associated with the operation of the proposed community. The main operational air quality impacts associated with the proposed project would be project-related vehicular traffic that would generate air pollutants that could result in potentially significant air quality impacts. Minor air quality impacts would also be associated with area sources, such as space heating and landscaping.

The project would exceed the 152-unit threshold for "Small Project Analysis Level" that the Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI) has established for residential developments (San Joaquin Valley Air Pollution Control District (SJVAPCD), 2002). Construction activities could also result in air pollutants that would exceed SJVAPCD standards. The EIR will address any potentially significant air quality impacts from implementation of the proposed project, including any potential conflicts with the San Joaquin Valley Air Quality Management Plan.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation? ■ ☐ ☐ ☐

Potentially Significant Impact. As described in 3 a) above, the project would exceed the 152-unit threshold that the GAMAQI has established for residential developments; furthermore, construction activities could also result in air pollutants that would exceed SJVAPCD standards. The project would also undergo an Indirect Source Review evaluation. The EIR will address potentially significant air quality impacts from implementation of the proposed project, including potential violations with any existing or projected air quality standard. In addition, the EIR will include a discussion of the relationship between air pollutants and global climate change.

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? ■ ☐ ☐ ☐

Potentially Significant Impact. As described in 3 a) and b) above, the project would exceed the established GAMAQI 152-unit threshold for residential developments; construction activities could also result in air pollutants that would exceed SJVAPCD standards. The EIR will address any potential significant project-related and cumulative air quality impacts from implementation of the proposed project.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Expose sensitive receptors to substantial pollutant concentrations?	■	☐	☐	☐

Potentially Significant Impact. As described above in 3 a), the proposed project would allow for the phased development of a planned community that would generate air pollutants from construction, community traffic, and other activities. The main potential impacts to sensitive receptors would be construction-related impacts from dust, heavy machine emissions, worker-vehicle emissions traveling to and from the site, and operational impacts from project-related vehicular traffic. These construction and operational traffic activities could result in potentially significant air quality impacts to existing sensitive receptors and future planned receptors. The EIR will address potentially significant air quality impacts from the proposed project through the exposure of sensitive receptors to substantial pollutant concentrations from proposed project.

e) Create objectionable odors affecting a substantial number of people?	■	☐	☐	☐

Potentially Significant Impact. The proposed project would entail the phased development of a planned community that would generate air pollutants from construction, community traffic, and other activities. Construction activities would include the use of diesel powered vehicles, which are considered to emit objectionable odors from tailpipe emissions, and paving and painting operations. Potential odor impacts from project operation would include impacts from vehicular traffic and certain land uses, such as the proposed wastewater treatment facility. The EIR will address potentially significant odor impacts from implementation of proposed project.

GHG →

f) Generate greenhouse gas emissions that would contribute to global climate change?	■	☐	☐	☐

should update air. also with cal/gov agencies

Potentially Significant Impact. The proposed project would entail the phased development of a planned community that would generate greenhouse gas emissions from construction, community traffic, and other activities. The EIR will address potentially significant global climate change impacts associated with project-generated greenhouse emissions. Global climate change will be addressed in the EIR and will consider various topics such as air quality, biological resources, and utilities and service systems.

4. BIOLOGICAL RESOURCES – Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	■	☐	☐	☐

Potentially Significant Impact. A large portion of Yokohl Ranch has been altered from many years of cattle grazing and agricultural activities; however, much of it remains undisturbed and provides quality habitat, including riparian and oak woodland, grassland, and vernal pool habitat. The majority of the land

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

within Yokohl Ranch (approximately 70 percent) would be designated as open space and ranchlands. The Yokohl Ranch project proposes to incorporate sensitive design approaches that will preserve and/or mitigate impacts to sensitive habitats.

A biological assessment addressing the proposed project will be prepared and incorporated into the EIR. The biological assessment and EIR analysis will address potential direct and indirect impacts from development of the proposed project to any candidate, sensitive, or special status species, through habitat modification or other construction and operational activities. The analysis will also address biological resource impacts associated with off-site improvements, including those that may be affected from the project's water use, supply and transfer. In addition, the effect on biological resources from global climate change will be addressed.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? ■ ☐ ☐ ☐

Potentially Significant Impact. The project site includes several watercourses and conditions that support riparian and other wetland habitat. Yokohl Creek runs through the project area, and has been degraded by historic grazing activities but still includes riparian and oak woodland habitat. Vernal pools, which are a sensitive natural community that is regulated by the U.S. Army Corps of Engineers, may also be affected by the proposed project. A biological assessment for the Yokohl Ranch planned community area will be prepared and incorporated into the EIR for the proposed project. The biological assessment will address potential impacts to federal and state regulated wetlands, including riparian habitat, and other sensitive natural communities from implementation of the proposed project. The analysis will also address biological resource impacts associated with off-site improvements, including those that may be affected from the project's water use, supply and transfer.

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? ■ ☐ ☐ ☐

Potentially Significant Impact. As described in 4 b) above, the project site includes several watercourses and conditions that support riparian and other wetland habitat. The major watercourse in the project area is Yokohl Creek, which has been degraded due to historical cattle grazing. The project proposes to restore the habitat surrounding Yokohl Creek and enhance the channel through reconfiguration and revegetation of native species. Numerous small drainages defined by the hilly foothill terrain and canyons enter Yokohl Creek from the north and south. Yokohl Creek and related drainages would be regulated as a waters of the U.S. under Section 404 of the Clean Water Act (33 USC §§1344). The biological assessment for the proposed project that will be prepared and incorporated into the EIR will address potential impacts to federal 404 regulated waters, wetlands, and vernal pools from implementation of proposed project.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	■	☐	☐	☐

Potentially Significant Impact. Yokohl Ranch contains varying terrain throughout the project site, including nearly flat ranch lands along Yokohl Creek, gentle valleys and rolling hills to the south and north along the main valley, and steeper hills and canyons in the easterly portion of Yokohl Ranch. A portion of the planning area has been altered from many years of cattle grazing and agricultural activities; however, much of it remains undisturbed and provides quality wildlife habitat, including riparian and oak woodland, grassland, and vernal pool habitat that provide cover for animals and are used by wildlife for local and regional movement. The biological assessment for the proposed project, including all on-site and off-site project elements, which will be prepared and incorporated into the EIR, will address potential impacts to wildlife movement from implementation of the proposed project. The analysis will also address fishery resources both on site within creeks and off site as it pertains to the project's water use, supply, and transfer.

e) Conflict with any local policies or ordinances protecting biological resources, such as tree preservation policy or ordinance?	☐	☐	■	☐

Less Than Significant Impact. The County of Tulare has not adopted a habitat conservation plan or ordinance protecting biological resources. The proposed project would not conflict with the policies and implementation included in the Tulare County General Plan Update.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	■	☐

Less Than Significant. As described above in 4 e), the County of Tulare has not adopted a habitat conservation plan or ordinance protecting biological resources on the project site, and the project is not inconsistent with the policies included in the County of Tulare General Plan Update. Therefore, the proposed project would not conflict with existing plans and the impact would be less than significant.

5. CULTURAL RESOURCES – Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	■	☐	☐	☐

Potentially Significant Impact. Yokohl Ranch contains varying terrain throughout the project site, including nearly flat ranch lands along Yokohl Creek, gentle valleys and rolling hills to the south and north along the main valley, and steeper hills and canyons in the easterly portion of Yokohl Ranch. A portion of the planning area has been altered from many years of cattle grazing and agricultural activities; however, much of it remains undisturbed. The areas that would be graded for the proposed Yokohl Ranch

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

development may contain some surface and subsurface cultural resources, including historical buildings and structures as defined in § 15064.5.

A cultural resource reconnaissance and survey, including a records search, will be prepared and incorporated into the EIR. The cultural resource survey will address potential historic impacts from implementation of the proposed project.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5? ■ ☐ ☐ ☐

Potentially Significant Impact. The project would require substantial excavation and grading for development. It is possible that archaeological resources pursuant to §15064.5 may be present beneath the surface of the project site because of known archaeological resources found outside and near Yokohl Ranch. Disturbance or destruction of any archaeological resource, in particular from excavation for building pads, roadways and channel reconstruction, would result in a potentially significant impact. A cultural resource study will be prepared for the EIR and will address potentially significant archaeological impacts from implementation of the proposed project.

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? ■ ☐ ☐ ☐

Potentially Significant Impact. The Yokohl Ranch project proposes substantial excavation and grading. It is possible that paleontological resources may be present beneath the surface of the project site, including both on-site and off-site project features. Disturbance or destruction of any paleontological resource, in particular from excavation for building pads, roadways and channel reconstruction, would result in a potentially significant impact. An analysis of paleontological resources will be conducted for the EIR and will address potentially significant paleontological impacts from implementation of the proposed project.

d) Disturb any human remains, including those interred outside of formal cemeteries? ■ ☐ ☐ ☐

Potentially Significant Impact. The project would require substantial excavation and grading for development of the proposed project. It is possible that human remains may be present beneath the surface of the project site. Disturbance or destruction of any human remains, in particular from excavation activities, would result in a potentially significant impact. The cultural resource study that will be prepared and incorporated into the EIR will address potentially significant impacts to buried human remains resulting from the proposed project

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
6. GEOLOGY AND SOILS – Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area of based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	■	☐	☐	☐

Potentially Significant Impact. According to the Five County Seismic Safety Element (1974), there are several faults known to exist within the County which are located on the edges of the San Joaquin Valley. No faults are currently known to exist within the eastern portion the County, where the Yokohl Ranch project is proposed. A geotechnical investigation and reconnaissance, including test borings, will be prepared for the project site and incorporated into the Yokohl Ranch EIR. The geotechnical investigation will provide specific analysis for site geologic conditions, including information regarding faults.

ii. Strong seismic ground shaking?	■	☐	☐	☐

Potentially Significant Impact. According to the Five County Seismic Safety Element prepared in 1974, there are several faults known to exist within Tulare County, which is located on the edges of the San Joaquin Valley. Therefore, the project site, as with most parts of California, would be subject to ground shaking from earthquakes. A geotechnical investigation and reconnaissance, including test borings, will be prepared for the project site and incorporated into the EIR. The geotechnical investigation will provide specific analysis for site geologic conditions.

iii. Seismic-related ground failure, including liquefaction?	■	☐	☐	☐

Potentially Significant Impact. A geotechnical investigation and reconnaissance, including test borings, will be prepared for the project site and incorporated into the EIR. The geotechnical investigation will provide specific analysis of site geologic conditions and recommend appropriate measures to address impacts resulting from strong seismic-related ground failure, including liquefaction, and other pertinent geotechnical design considerations.

iv. Landslides?	■	☐	☐	☐

Potentially Significant Impact. A geotechnical investigation and reconnaissance, including test borings, will be prepared for the project site and incorporated into the EIR. The geotechnical investigation will provide specific analysis for site geologic conditions and recommend appropriate measures to address impacts resulting from landslides and other pertinent geotechnical design considerations.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Result in substantial soil erosion or the loss of topsoil?	■	☐	☐	☐

Potentially Significant Impact. A geotechnical investigation and reconnaissance, including test borings, will be prepared for the project site and incorporated into the EIR. The geotechnical investigation will provide specific analysis for site geologic conditions and recommend appropriate measures to address impacts resulting from soil erosion or loss of topsoil and other pertinent geotechnical design considerations. A site-specific grading plan and Stormwater Pollution Prevention Plan (SWPPP) would be prepared as part of the proposed project to address soil erosion impacts. See also Issue 8, Hydrology/Water Quality, of this IS.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	■	☐	☐	☐

Potentially Significant Impact. Yokohl Ranch contains varying terrain, including nearly flat ranch lands along Yokohl Creek, to the gentle valleys and rolling hills to the south and north along the main valley to steeper hills and canyons in the upper portion of Yokohl Ranch. A geotechnical investigation and reconnaissance, including test borings, will be prepared for the project site and incorporated into the EIR. The geotechnical investigation will provide specific analysis for site geologic conditions and recommend appropriate measures to address impacts resulting from unstable soils, as well as other pertinent geotechnical design considerations.

d) Be located on expansive soil, as defined in Table 18- 1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	■	☐	☐	☐

Potentially Significant Impact. A geotechnical investigation and reconnaissance, including test borings, will be prepared for the project site and incorporated into the EIR. The geotechnical investigation will provide specific analysis for site geologic conditions, including the identification and addressment of expansive soils.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	■	☐	☐	☐

Potentially Significant Impact. The proposed project includes the construction and operation of a wastewater reclamation plant that will provide sewer service for the project. Septic tanks or an alternative waste water disposal system may be used to treat wastewater associated with development in Phase III of the project. Therefore, a potentially significant impact resulting from septic tanks may occur.

Septic tanks in Phase III

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
7. HAZARDS AND HAZARDOUS MATERIALS – Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	■	☐	☐	☐

Potentially Significant Impact. The proposed project would entail the phased development of a planned community, including commercial activities and supporting infrastructure such as new water treatment and sewer treatment facilities on the project site. The operation of these facilities would likely entail the use of hazardous substances, such as chlorine, that would be transported on public roads. This issue, as well as other hazardous materials transport issues, will be addressed in the EIR.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	■	☐	☐	☐

Potentially Significant Impact. Phased development of the proposed planned community would be expected to increase the use of, transport to, and storage of hazardous materials at the property, in particular during construction. This issue will be addressed in the EIR. Naturally occurring asbestos in area rock formations will be considered as part of this analysis.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	■	☐	☐	☐

Potentially Significant Impact. The proposed project would allow for the phased development of 10,000 units with varying densities and other land uses as part of the Yokohl Ranch planned community. Public schools would be among the proposed land uses to serve the future community. The proposed schools may be located within one-quarter mile of a land use that would emit hazardous emissions, or handle hazardous or acutely hazardous materials. This issue will be addressed in the EIR which will provide a specific analysis to evaluate hazardous material contamination issues relative to school siting development, including consistency with AB 387 and SB 162 for public schools, as well as potential health risks from prolonged exposure to traffic-related pollutants.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	■	☐	☐	☐

Potentially Significant Impact. Although unlikely, there is the potential that the project is located where a hazardous materials release has occurred in the past. Therefore, the EIR will include a Phase I Environmental Site Assessment which will provide a database records search of numerous sources cataloging hazardous materials releases. The Phase I Environmental Site Assessment will address

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

potential impacts from listed hazardous material sites (Government Code Section 65962.5). In addition, naturally occurring radon releases will be evaluated as part of this study and included in the EIR.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in safety hazard for people residing or working in the project area? ☐ ☐ ☐ ■

No Impact. The Tulare County Airport Land Use Commission adopted a Comprehensive Airport Land Use Plan for the nine public-use airports in Tulare County in June 1992. Of the ten airports located within Tulare County, the closest are Exeter Airport and Eckert Field, which are located between two and four miles west of the Yokohl Ranch project. The project area is not located within either airport's safety zones; therefore, this issue will not be discussed in the EIR.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? ■ ☐ ☐ ☐

Potentially Significant Impact. As described in 7 e) above, the proposed Yokohl Ranch project is not located within an airport land use plan or within two miles of a public or private use airport and the project does not include an airport within its land use plan. Due to the distance of existing airports to the proposed project site, and the fact that no airport-related uses are proposed within the Yokohl Ranch community, the project would not result in an airport related safety hazard to people residing or working in the project area. However, the site is located within a Military Special Use Airspace (military operations areas) that may result in a potentially significant impact.
Therefore, this issue will be discussed in the EIR.

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? ■ ☐ ☐ ☐

Potentially Significant Impact. The proposed Yokohl Ranch project is located in an undeveloped area where it is unlikely that there is an adopted emergency response plan or emergency evacuation plan. Therefore it is unlikely that the proposed project would impair implementation of an adopted emergency response to evacuation plan. However, it is possible that project development could result in impacts to future emergency response times. The issue of emergency response will be addressed in the Public Services (police and fire sections) of the EIR

Wildland Fire

h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? ■ ☐ ☐ ☐

✓ Gcc mpct new

Potentially Significant Impact. The Yokohl Ranch project site is currently undeveloped and used for ranching. According to the Tulare County General Plan Safety Element, natural vegetation in the form of

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

dry grasses pose fire hazards, especially to structures located near fields if the land adjacent to development is not cleared of vegetation. Vegetation within the Yokohl Ranch project area has the potential to result in significant wildland fire impacts to homes and other uses if adequate fuel management is not provided.

Therefore, this is a potentially significant impact that will be addressed in the EIR.

8. HYDROLOGY AND WATER QUALITY – Would the project:

a) Violate any water quality standards or waste discharge requirements? ■ ☐ ☐ ☐

Potentially Significant Impact. Yokohl Ranch includes a number of drainages, among them Yokohl Creek, which runs through a valley that has been degraded by historic grazing activities. Numerous small drainages defined by the hilly foothill terrain and canyons enter Yokohl Creek from the north and south. The proposed project would require excavation and grading on approximately 9,500 acres for the phased development of the planned community. Development of the proposed project would have the potential to impact water quality or waste discharge requirements due to grading and excavation, increased impervious surface area, sediment transport and surface runoff from the proposed phased development. In addition, the project proposes to construct a water supply reservoir and water and waste water treatment plants, which would all be subject to water quality standards.

A hydrology and drainage study will be prepared and incorporated into the EIR for the proposed project. The study will compare the existing and the proposed hydrologic conditions and discuss the flooding potential and reconstruction of Yokohl Creek. Therefore, potentially significant water quality and hydrology and drainage impacts could occur and will be discussed in more detail in the EIR.

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

Potentially Significant Impact. It is anticipated that the water supply for the Yokohl Ranch project would not come from groundwater resources; however, this determination has not yet been finalized for all areas of the project. Therefore, direct impacts to groundwater would only result from grading and excavation, increased impervious surface In addition, the wastewater reclamation plant may also affect groundwater if the plant should use spray irrigation to dispose of excess reclaimed water. Finally, the use of the Kaweah River as the water supply source for the project may affect groundwater in the Kaweah River or other areas as an indirect impact. These issues may result in significant impacts and, therefore, will be addressed in the EIR.

Need to look at long term and cumulative. I also say we will address in future -

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner, which would result in substantial erosion or siltation on- or off- site?	■	☐	☐	☐

Potentially Significant Impact. The proposed project would result in alteration to Yokohl Creek and other drainages on the project site as part of project phased development. Therefore, development of the proposed project may result in substantial erosion or siltation that would have the potential to significantly impact existing drainage patterns on the project site or project vicinity. As a result, these issues will be addressed in the EIR, which will include a hydrology and drainage study for the project.

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on or off site?	■	☐	☐	☐

Potentially Significant Impact. The proposed project would result in the alteration of Yokohl Creek and other drainages on the project site as part of project development. In addition, the proposed project would substantially increase the amount of impervious surfaces from the existing condition throughout the project area, which in turn could result in an increase in the rate or amount of surface runoff. These issues would result in a potentially significant impact and, therefore, will be addressed in the EIR, which will include a hydrology and drainage study for the project.

e) Create or contribute runoff water, which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	■	☐	☐	☐

Potentially Significant Impact. The proposed project has the potential to significantly alter existing drainage patterns through grading and excavation and increased impervious surface area. Therefore, the project has the potential to create or contribute to increased surface water runoff which would exceed existing or planned stormwater drainage systems. The increased amount of impervious surfaces would also provide substantial additional sources of polluted runoff associated with development. As a result, these issues will be addressed in the EIR for the project.

f) Otherwise substantially degrade water quality?	■	☐	☐	☐

Potentially Significant Impact. As described above in 8 a), 8 c), and 8 e), the project has the potential to degrade water quality from grading and excavation, increased impervious surface area, and surface runoff associated with the proposed development. These issues would result in a potentially significant impact and, therefore, will be addressed in the EIR.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate map or other flood hazard delineation map?	■	☐	☐	☐

Potentially Significant Impact. The project proposes to develop commercial and residential uses in the vicinity of Yokohl Creek, which periodically floods. Portions of the proposed phased development could occur within the 100-year flood zone or other flood hazard area which would result in a significant impact. Therefore, this issue will be addressed in the EIR.

h) Place within a 100-year flood hazard area structures, which would impede or redirect flood flows?	■	☐	☐	☐

Potentially Significant Impact. As described above in 8 g), the proposed project includes structures that may be impacted by flooding associated with a 100-year flood hazard area. This issue would result in a potentially significant impact and, therefore, will be addressed in the EIR.

i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	■	☐	☐	☐

Potentially Significant Impact. The project proposes to develop a 129-acre domestic water supply reservoir to provide potable water for consumption and fire protection needs of the community. The reservoir would be created through the construction of a dam and reservoir located on a side drainage located south of Yokohl Creek during Phase I of the project. The design, construction, and operation of the reservoir would require approval from the Department of Water Resources, Division of Safety of Dams pursuant to California Water Code (Section 6200 *et seq).* A dam failure analysis will be conducted to address the potentially significant impact associated with the proposed water supply reservoir. This analysis will be discussed in the EIR

j) Inundation by seiche, tsunami, or mudflow?	■	☐	☐	☐

Potentially Significant Impact. The Yokohl Ranch project site is located approximately 135 miles east of the Pacific Ocean and, therefore, would not be subject to inundation by a tsunami. The only major water body located in the project vicinity is Kaweah Lake, found approximately one mile north of the easterly part of the northern project boundary. However, Kaweah Lake is situated in a watershed separate from those associated with Yokohl Ranch; therefore, the Yokohl Ranch project area would not be affected by a seiche. However, potentially significant impacts from mudflow or water overtopping at the proposed reservoir could occur during a seismic-related event. In addition, a seiche may be generated in the proposed reservoir as a result of a seismic event. Therefore, these issues will be addressed in the EIR.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
9. LAND USE AND PLANNING – Would the project:				
a) Physically divide an established community?	☐	☐	■	☐

Less Than Significant Impact. The Yokohl Ranch project area is currently used for cattle grazing and ranching, as well as ranch family housing and support facilities. It is located in the Sierra Nevada foothills east of Exeter where there is no established community. Therefore, because the proposed project would not physically divide an established community, development of the proposed project would result in a less than significant impact.

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	■	☐	☐	☐

Potentially Significant Impact. The proposed Yokohl Ranch project would require amendments to the Foothill Growth Management Plan (FGMP), an element of the Tulare County General Plan, and the Tulare County Zoning Ordinance. The proposed General Plan amendment would change the land use designation on the property from Foothill Agriculture to 'Planned Community Area'. The property would be rezoned to Planned Community (PC) Zone. The PC Zone would guide development of the Planned Community Area General Plan designation These changes would result in a potentially significant impact that will be evaluated in the EIR..

c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	■	☐

Less Than Significant Impact. As described in 4 e), Biology, Tulare County has not adopted a habitat conservation plan or ordinance protecting biological resources. Therefore, the project would have a less than significant impact to habitat conservation plan or natural community conservation plan.

10. MINERAL RESOURCES – Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	■

No Impact. Throughout Tulare County, sand, gravel, and crushed stone are used as sources for aggregate in road and building construction. The two major sources of aggregate are alluvial deposits (river beds and floodplains) and hard rock quarries. As a result, most of the mines in Tulare County are located along rivers at the base of the Sierra foothills. There are currently twenty-eight active aggregate mines in Tulare County. However, based on maps published by the *California Division of Mines and Geology* (1983), the project site is not located within the MRZ-2 mineral land classification, which identifies areas where significant mineral deposits are present or where there is a high likelihood for their presence. Therefore,

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

the buildout of the Yokohl Ranch project is not expected to result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State, and will not be discussed in the EIR.

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	■

No Impact. The project site has not been identified in a local land use plan as a locally important mineral resource recovery site and therefore would result in a less than significant impact. Therefore, the use of a locally important mineral resource would not be addressed in the EIR.

11. NOISE – Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	■	☐	☐	☐

Potentially Significant Impact. The proposed project would result in noise generation from various activities including construction activities, vehicular noise, adjacent uses and stationary sources from mechanical equipment, such as pump stations and the wastewater treatment facility. These noise sources are regulated by the Noise Element of the Tulare County General Plan. These potentially significant noise impacts will be addressed in a noise technical study and in the EIR in conformance with Tulare County's Nuisance Ordinance and Noise Element.

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	■	☐	☐	☐

Potentially Significant Impact. The proposed project would likely result in groundborne vibration associated with construction activities. This potentially significant impact will be addressed in the noise technical study prepared for the proposed project and included in the EIR.

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	■	☐	☐	☐

Potentially Significant Impact. The proposed project would entail the development of a planned community in an area that is currently used as a cattle ranch, where the ambient noise levels are relatively low. The proposed project would likely cause a permanent increase in ambient noise levels over the existing noise levels on the project site because of the noise associated with the proposed phased development. This issue will be evaluated in the noise technical study prepared for the proposed project and included in the EIR.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	■	☐	☐	☐

Potentially Significant Impact. The proposed project could result in a substantial increase in temporary or periodic increase in ambient noise levels primarily associated with construction activities on the project site and from other allowable uses. This issue will be evaluated in the noise technical study prepared for the proposed project and included in the EIR.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	■

No Impact. The Tulare County Airport Land Use Commission adopted a Comprehensive Airport Land Use Plan for the nine public-use airports in Tulare County in June 1992. Of the ten airports located within Tulare County, the closest are Exeter Airport and Eckert Field. Both of these airports are located between two and four miles west of the Yokohl Ranch project area and service small aircraft. However, the noise contour of Exeter Airport does not extend beyond the airport property and the noise contour for Eckert Field extends less than one-half mile from the airport runway. Therefore, the proposed project would not expose people residing and working in the project area to excessive noise levels resulting from aircraft.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	■

No Impact. The proposed project is not located in the vicinity of a private airstrip that would expose future project residents to excessive noise levels. Therefore, this issue will not be addressed in the EIR.

12. POPULATION AND HOUSING – Would the project:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	■	☐	☐	☐

Potentially Significant Impact. The proposed Yokohl Ranch project would result in the phased development of a planned community of 29,000 residents in a currently undeveloped area. In addition, as part of this project, a variety of off-site infrastructure components (e.g, water and electrical supply) would be extended to the project site. Therefore, it is anticipated that the project would induce substantial population growth in the area. This issue will be addressed in the EIR..

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	■	☐

Less Than Significant Impact. The proposed project involves development of a planned community in a currently undeveloped area. As a result, the project would not displace a substantial number of existing homes; therefore, this issue would result in a less than significant impact and will not be addressed in the EIR.

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	■	☐

Less Than Significant Impact. The proposed project involves phased development of a planned community in a currently undeveloped area. As a result the project would not displace a substantial number of people; therefore, this issue would result in a less than significant impact and will not be addressed in the EIR.

13. **PUBLIC SERVICES** – Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

a) Fire Protection?	■	☐	☐	☐

Potentially Significant Impact. The Yokohl Ranch project would provide for public facilities concurrent with development, in accordance with future Public Facilities Financing Plan (PFFP) schedules prepared with each Area Development Plan (ADP). The PFFPs would include fire stations needed to serve the community. Fire protection services to the area are currently provided by the County of Tulare Fire Department.. The physical impact associated with the demand for fire service to the project would result in a potentially significant impact, which will be addressed in the EIR. .

b) Police Protection?	■	☐	☐	☐

Potentially Significant Impact. The Yokohl Ranch project would provide for public facilities concurrent with development, in accordance with future Public Facilities Financing Plan (PFFP) schedules prepared with each Area Development Plan (ADP). The PFFPs would include police and fire stations needed to serve the community. Police protection services to the area are currently provided by the County of Tulare Sheriff's Department. The physical impact associated with the demand for police protection service to the project would result in a potentially significant impact, which will be addressed in the EIR.

c) Schools?	■	☐	☐	☐

Potentially Significant Impact. The Yokohl Ranch project would provide for public facilities concurrent with development, in accordance with future Public Facilities Financing Plan (PFFP) schedules prepared with each Area Development Plan (ADP). The PFFPs would include schools needed to serve the

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

community. The physical impact associated with demand for schools would result in a potentially significant impact, which will be addressed in the EIR.

d) Parks? ■ ☐ ☐ ☐

Potentially Significant Impact. The Yokohl Ranch project would provide for public facilities concurrent with development, in accordance with future Public Facilities Financing Plan (PFFP) schedules prepared with each sub-area Area Development Plan (ADP). The PFFPs would include public parks and other recreation facilities needed to serve the community. The physical impact associated with the development of future community parks would result in a potentially significant impact, which will be addressed in the EIR.

e) Other public facilities? ■ ☐ ☐ ☐

Potentially Significant Impact. Other public facilities are discussed under Sections 8 – Hydrology and Water Quality; 9 – Recreation; 15 – Transportation and Traffic; and 16 – Utilities and Service Systems.

14. RECREATION –

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial deterioration of the facility would occur or be accelerated? ■ ☐ ☐ ☐

Potentially Significant Impact. At buildout, the proposed Yokohl Ranch project would serve a population of approximately 29,000 people. The demand for parks and other recreational facilities would be accommodated on the project site concurrently with project development in accordance with the proposed PFFP that would be prepared with each ADP. Overall, the proposed project would include 50 acres of public parks, 307 acres for use as a golf course, and a possible private recreation facility. These uses would occur throughout the project area, but would be mainly concentrated within the lower neighborhood near The Valley area Town Center and the northern Oaks neighborhood. Nonetheless, the Yokohl Ranch project could result in increased demand for the use of recreational facilities outside the proposed project area. Therefore, the proposed project could result in a potential significant impact to existing recreational facilities, such as the Balch Park. This issue will be evaluated in the EIR.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? ■ ☐ ☐ ☐

Potentially Significant Impact. The proposed project would include recreational facilities that may have an adverse physical effect on the environment; therefore, this issue will be addressed in the EIR.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
15. TRANSPORTATION/TRAFFIC – Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	■	☐	☐	☐

Potentially Significant Impact. The Yokohl Ranch project proposes to develop a master planned community that would include 10,000 units, mixed commercial uses, public/quasi-public uses, and supporting infrastructure including roads and utilities. The development would have the potential to result in significant traffic impacts to streets and intersections outside of the project boundary due to project construction and operation. The potential for significant traffic impacts within the project boundary also exists.

A traffic and circulation analysis for the proposed project will be prepared and incorporated into the EIR. The traffic report and EIR analysis will address potential construction and short- and long-term operational traffic impacts to local streets and the State Highway system from development of the proposed project.

b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion/ management agency for designated roads or highways?	■	☐	☐	☐

Potentially Significant Impact. The phased development of 10,000 units would have the potential to result in significant traffic impacts to streets and intersections outside of the project boundary due to project construction and operation. Based on preliminary input, the California Department of Transportation (Caltrans) anticipates that project-generated trips could have significant impacts to SR 198, Yokohl Drive, and SR 190.

A traffic and circulation analysis for the proposed project will be prepared and incorporated into the EIR. The traffic report and EIR analysis will address potential construction and short- and long-term operational traffic impacts to local streets and the State Highway system from development of the proposed project.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	■	☐

Less Than Significant Impact. As described in 7 e), the proposed Yokohl Ranch project is not be located within an airport's area of influence. Due to the distance of existing airports to the proposed project site, and the fact that no airport-related uses are proposed within the Yokohl Ranch community, it anticipated that project-related impacts to changes in air traffic patterns would be less than significant. Therefore, this issue will not be discussed in the EIR.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	■	☐	☐	☐

Potentially Significant Impact. The phased development of the Yokohl Ranch project could have the potential to result in significant increases in hazards or incompatible uses if the new roadway system and required improvements to existing roadways are not designed properly to meet the volume and type of vehicle trips that would be generated by the community. A traffic and circulation analysis for the proposed project will be prepared and incorporated into the EIR. The traffic report and EIR analysis will address roadway design features and potentially incompatible uses that could substantially increase traffic operation hazards.

e) Result in inadequate emergency access?	■	☐	☐	☐

Potentially Significant Impact. The proposed Yokohl Ranch community is located in an undeveloped area where it is unlikely that there is an adopted emergency response plan or emergency evacuation plan. Therefore it is unlikely that the proposed project would impair implementation of an adopted emergency response to evacuation plan. However, it is possible that construction activities associated with project development could result in impacts to future emergency response times and access to the project site. A traffic and circulation analysis will be prepared to evaluate potential project impacts to emergency access and response times which will be addressed in the EIR.

f) Result in inadequate parking capacity?	■	☐	☐	☐

Potentially Significant Impact. The proposed project is a planned community which would have the potential to result in significant impacts to parking if an adequate supply is not provided to meet the overall project demand. A parking demand study will be prepared for the project as part of the traffic and circulation study and will be incorporated into the EIR.

g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	■	☐	☐	☐

Potentially Significant Impact. The proposed Yokohl Ranch project would have the potential to result in significant impacts to alternative transportation plans and policies. A traffic and circulation analysis will be prepared for the project which will include an evaluation of the project's potential impacts on alternative transportation policies, plans or programs. This issue and the analysis will be incorporated into the EIR.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
16. UTILITIES AND SERVICE SYSTEMS – Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	■	☐	☐	☐

Potentially Significant Impact. The proposed Yokohl Ranch project is located within the Central Valley RWQCB (Region 5). The County of Tulare, Resource Management Agency, Engineering Division operates the County's CSA and Zone of benefit for Sewer and Water services. The project proposes to construct a wastewater treatment plant that would serve the proposed project. Similar to public services discussed in Issue 13, above, wastewater facilities would be provided concurrently with project development in accordance with future sub-area PFFPs. Potential impacts related to wastewater treatment will be addressed in the EIR.

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	■	☐	☐	☐

Potentially Significant Impact. The project proposes to construct new water and wastewater treatment facilities. The construction of these new facilities would result in a potentially significant impact and will be addressed in the EIR.

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	■	☐	☐	☐

Potentially Significant Impact. The proposed project would construct storm water drainage facilities to serve the proposed project. The installation of these facilities could result in significant environmental effects and will be addressed in the EIR.

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	■	☐	☐	☐

Because of Global Climate Change Sacramento delta restoration San Joaquin River restoration State Water Resources Water Delivery Reliability Report less water will be available in the near term and long term in Southern California

Potentially Significant Impact. The water for the proposed Yokohl Ranch project would be provided from the Kaweah River and transported via pipeline or canal. The project also may include transfers of water possibly involving one or more water or irrigation districts, as well as private entities. As part of developing the water supply for the proposed project, a Water Supply Assessment (WSA) will be prepared in accordance with SB610 and SB221. The WSA will provide the basis for determining the impacts to both the river hydrology and river ecology, including groundwater resources. The project also proposes to construct a water reservoir to provide potable water supplies for consumption and fire protection needs. The construction of water supply facilities, the removal of water from the Kaweah River, and the construction of the reservoir would result in potentially significant impacts, which will be addressed in the EIR.

Impossible to guarantee

30 year assessment of water availability

Need to analyze impacts on groundwater level and quality on site and off site wells and surface water diversions in Phase II and Phase III

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	■	☐

Less Than Significant Impact. The project proposes to construct a wastewater treatment facility to serve the proposed community that would be located along the western boundary of the project site. The wastewater treatment facility would be sized to accommodate anticipated wastewater generated by the proposed project. Therefore, the project would result in a less than significant impact to wastewater treatment capacity.

recycle all waste on site ✓

f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	■	☐	☐	☐

Potentially Significant Impact. The Tulare County Solid Waste Division is responsible for the management of solid waste in the County. The Division administers the County Integrated Management Plan and the Source Reduction and Recycling Element; collection services; and waste reduction and disposal. The Division also develops, operates, and maintains solid waste facilities. The project would generate solid waste which would result in a potentially significant impact to the landfill capacity serving the project site. This issue will be addressed in the EIR.

g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	■	☐

Less Than Significant Impact. The proposed Yokohl Ranch project would comply with federal, state, and local statutes and regulations related to solid waste. Therefore, this would result in a less than significant impact. cumulative effect

17. MANDATORY FINDINGS OF SIGNIFICANCE

✓

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare of endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	■	☐	☐	☐

Potentially Significant Impact. The Yokohl Ranch project proposes to develop a planned community that would include 10,000 residential units, mixed commercial use areas, public/quasi-public areas, and supporting infrastructure. Based on the Initial Study analysis, the proposed Yokohl Ranch project has the potential to result in significant impacts to aesthetics, which could degrade the quality of the environment; biological resources, which could substantially reduce the habitat of a fish or wildlife species; cultural

hiking trails environmental impacts

disturb habitat fragment habitat disrupt migratory bird corridors destroy blue oak woodlands

mitigation measures are unavailable and inadequate in the size + scope of the project. This is an excellent reason to choose the no project alternative.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

resources, which could eliminate important examples of the major periods of California history or prehistory and induce growth in the foothill area.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulative considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? ■ ☐ ☐ ☐

Potentially Significant Impact. The proposed project has the potential to result in cumulatively considerable effects when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. The EIR will address the potential for cumulative impacts associated with environmental topics addressed in the EIR.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? ■ ☐ ☐ ☐

Potentially Significant Impact. The proposed Yokohl Ranch project would develop a planned community consisting of 10,000 residential units, 550,000 square feet of mixed commercial use areas, public/quasi-public areas, and supporting infrastructure. As described throughout the IS, in Issues 1 through 16, project-related development and growth in the area has the potential to result in significant impacts to many environmental issue areas that could directly or indirectly impact human beings. The EIR for the proposed project will address potential direct/indirect impacts to human beings from construction/ operation of the proposed Yokohl Ranch project.

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3.6 PREPARERS

Kim B. Howlett, PBS&J
Kateri S. Gentles, PBS&J

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The Fresno Bee Tuesday Dec 15, 2009

Valley water loss seen via satellite

By Tim Sheehan
The Fresno Bee

NASA satellites orbiting 280 miles above Earth are revealing what many in the San Joaquin Valley already know: the region's underground water table is being depleted faster than it's being replenished.

But the amount of water being lost is surprising.

The volume pumped from underground for agriculture, cities and industry is "not sustainable if current trends continue," said Jay Famiglietti, a professor of Earth sciences at University of California at Irvine who worked on the study. And reduced allocations of river water for Valley farmers, he added, will likely increase pumping demands "for the foreseeable future."

Over the past 5½ years, enough water was lost in the San Joaquin and Sacramento river basins to fill Nevada's Lake Mead — the effect of an extended drought and more pumping of water for agriculture and other human needs.

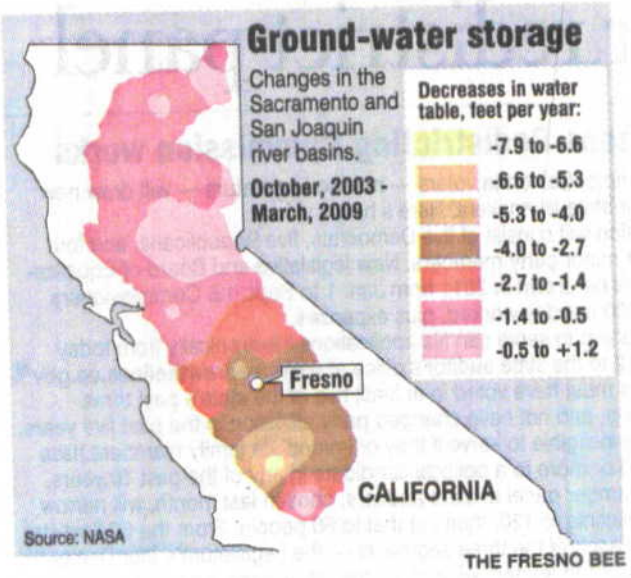
Scientists from the space agency and UC Irvine presented their findings Monday to the American Geophysical Union in San Francisco.

"Everyone [in the Valley] already knows ground water is being depleted at a rapid clip," Famiglietti said. "But I was surprised at the rate of depletion."

Famiglietti and other scientists said that between October 2003 and March 2009, the overdraft totaled more than than 30 cubic kilometers of water. One cubic kilometer is about 264.2 billion gallons — enough, according to some estimates, to meet the residential water needs of about 7.2 million people for a year.

For years, the U.S. Geological Survey and water agencies have measured sample

See **WATER**, Page A5



Attachment 7

WATER

Continued from A1

wells scattered throughout the region. But Famiglietti said the accuracy of NASA's satellites — which track tiny changes in Earth's gravitational field — makes the information much more reliable.

"The [depletion] rates we found are bigger than what USGS reported," Famiglietti said. "And when you think of it, it makes sense because of the drought, the reduced water allocations for agriculture and the reduced snowpack. But it's still a surprise."

Famiglietti reported that the San Joaquin River basin, which includes the Tulare Lake Basin, is losing water at the net rate of 3.5 cubic kilometers a year (about what more than 6 million families of four would use in a year) — most from groundwater pumping. Agriculture typically uses about 80% of groundwater compared to municipal needs, he said.

In the central San Joaquin Valley, every city except Fresno and Clovis relies solely on pumped water for municipal supplies. Fresno and Clovis have small surface-water supplies to augment what they pump from underground.

NASA's twin GRACE (Gravity Recovery and Climate Experiment) satellites were launched in 2002. By measuring minute changes in gravity and mass on Earth, scientists can determine the amount of water under the ground.

The GRACE findings were no surprise to either Valley water officials or conservationists.

"The trend for years has been down, and we all know that," said Randy McFarland, a spokesman for the Friant Water Authority and the Kings River Conservation District.

"We've monitored wells for years, and there are periods when it's down and periods when it's recovered somewhat after rainy years," McFarland said. But, he added, drought has reduced the availability of surface water and forced farmers to pump more in recent years to irrigate crops.

Speck Rosekrans, a senior analyst with the Environmental Defense Fund, said the data from the satellites "just puts a better number on things."

"Groundwater overdraft is a huge problem, and it needs to be addressed," Rosekrans added. "While the NASA analysis doesn't represent new data, it may tell a story in a way that forces the public and water managers to act."

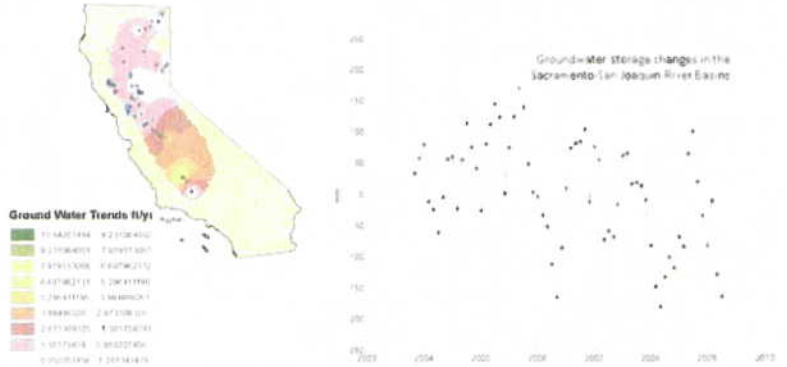
Famiglietti said he hopes the data can help politicians and water managers come up with solutions.

"There's no agenda here," he said. "We're telling people, this is what we found. If it's helpful to you, you're welcome to use it."

► The reporter can be reached at tsheehan@fresnobee.com or (559) 441-6319.

Attachment 7

NASA Data Reveal Major Groundwater Loss in California



Grace observed trends in groundwater levels, October, 2003 – March, 2009 Image Credit: University Of California Center For Hydrologic Modeling

› Full image and caption | › Play animation (MOV - 4 Mb) | › Play animation (High Def. MOV - 12.5 Mb)

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December 14, 2009

PASADENA, Calif. -- New space observations reveal that since October 2003, the aquifers for California's primary agricultural region -- the Central Valley -- and its major mountain water source -- the Sierra Nevadas -- have lost nearly enough water combined to fill Lake Mead, America's largest reservoir. The findings, based on data from the NASA/German Aerospace Center Gravity Recovery and Climate Experiment (Grace), reflect California's extended drought and increased rates of groundwater being pumped for human uses, such as irrigation.

In research being presented this week at the American Geophysical Union meeting in San Francisco, scientists from NASA and the University of California, Irvine, detailed California's groundwater changes and outlined Grace-based research on other global aquifers. The twin Grace satellites monitor tiny month-to-month changes in Earth's gravity field primarily caused by the movement of water in Earth's land, ocean, ice and atmosphere reservoirs. Grace's ability to directly 'weigh' changes in water content provides new insights into how Earth's water cycle may be changing.

Combined, California's Sacramento and San Joaquin drainage basins have shed more than 30 cubic kilometers of water since late 2003, said professor Jay Famiglietti of the University of California, Irvine. A cubic kilometer is about 264.2 billion gallons, enough to fill 400,000 Olympic-size pools. The bulk of the loss occurred in California's agricultural Central Valley. The Central Valley receives its irrigation from a combination of groundwater pumped from wells and surface water diverted from elsewhere.

"Grace data reveal groundwater in these basins is being pumped for irrigation at rates that are not sustainable if current trends continue," Famiglietti said. "This is leading to declining water tables, water shortages, decreasing crop sizes and continued land subsidence. The findings have major implications for the U.S. economy, as California's Central Valley is home to one sixth of all U.S. irrigated land, and the state leads the nation in agricultural production and exports."

"By providing data on large-scale groundwater depletion rates, Grace can help California water managers make informed decisions about allocating water resources," said Grace Project Scientist Michael Watkins of NASA's Jet Propulsion Laboratory, Pasadena, Calif., which manages the mission for NASA's Science Mission Directorate, Washington.

Preliminary studies show most of the water loss is coming from the more southerly located San Joaquin basin, which gets less precipitation than the Sacramento River basin farther north. Initial results suggest the Sacramento River basin is losing about 2 cubic kilometers of water a year. Surface water losses account for half of this, while groundwater losses in the northern Central Valley add another 0.6 cubic kilometers annually. The San Joaquin Basin is losing 3.5 cubic kilometers a year. Of this, more than 75 percent is the result of groundwater pumping in the southern Central Valley, primarily to irrigate crops.

Attachment 8

Famiglietti said recent California legislation decreasing the allocation of surface waters to the San Joaquin Basin is likely to further increase the region's reliance on groundwater for irrigation. "This suggests the decreasing groundwater storage trends seen by Grace will continue for the foreseeable future," he said.
The California results come just months after a team of hydrologists led by Matt Rodell of NASA's Goddard Space Flight Center, Greenbelt, Md., found groundwater levels in northwest India have declined by 17.7 cubic kilometers per year over the past decade, a loss due almost entirely to pumping and consumption of groundwater by humans.

"California and India are just two of many regions around the world where Grace data are being used to study droughts, which can have devastating impacts on societies and cost the U.S. economy $6 to $8 billion annually," said Rodell. Other regions under study include Australia, the Middle East – North Africa region and the southeastern United States, where Grace clearly captured the evolution of an extended drought that ended this spring. In the Middle East – North Africa region, Rodell is leading an effort to use Grace and other data to systematically map water- and weather-related variables to help assess regional water resources. Rodell added Grace may also help predict droughts, since it can identify pre-existing conditions favorable to the start of a drought, such as a deficit of water deep below the ground.

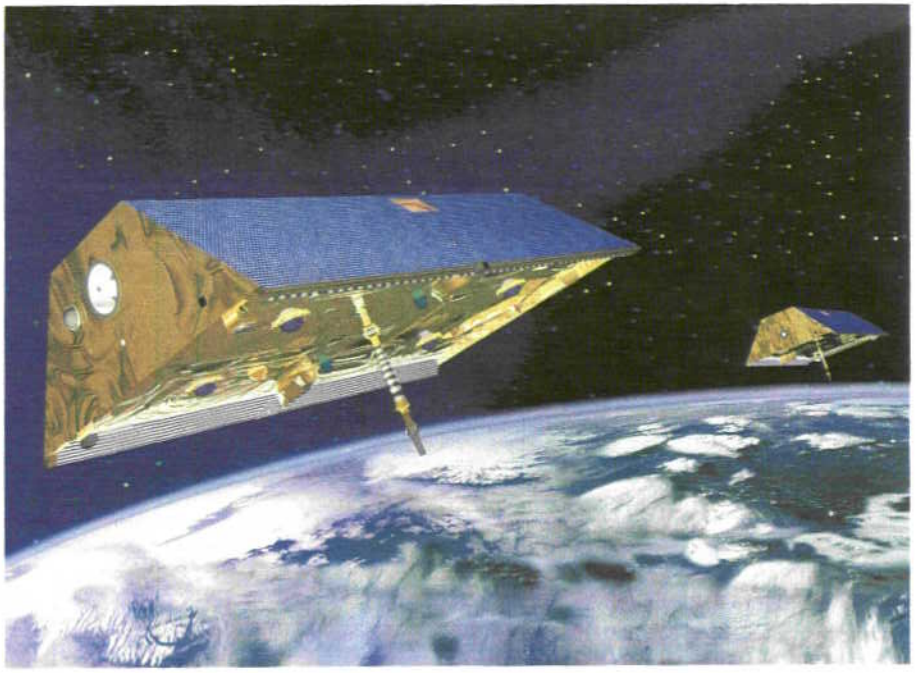
NASA is working with the National Oceanic and Atmospheric Administration and the University of Nebraska-Lincoln to incorporate Grace data into NOAA's U.S. and North American Drought Monitors, premier tools used to minimize drought impacts. The tools rely heavily on precipitation observations, but are limited by inadequate large-scale observations of soil moisture and groundwater levels. "Grace is the only satellite system that provides information on these deeper stores of water that are key indicators of long-term drought," Rodell said.
Grace is a partnership of NASA and the German Aerospace Center (DLR). The University of Texas Center for Space Research, Austin, has overall mission responsibility. JPL developed the satellites. DLR provided the launch, and GeoForschungsZentrum Potsdam, Germany, operates the mission. For more on Grace, see http://www.csr.utexas.edu/grace/ and http://grace.jpl.nasa.gov/ . Other media contacts: Margaret Baguio, University of Texas Center for Space Research, 512-471-6922; Jennifer Fitzenberger, University of California, Irvine, 949-824-3969.

JPL is managed for NASA by the California Institute of Technology in Pasadena.

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2009-194

NASA DATA REVEAL MAJOR GROUNDWATER LOSS IN CALIFORNIA'S HEARTLAND



American Geophysical Union Press Conference

December 14, 2009

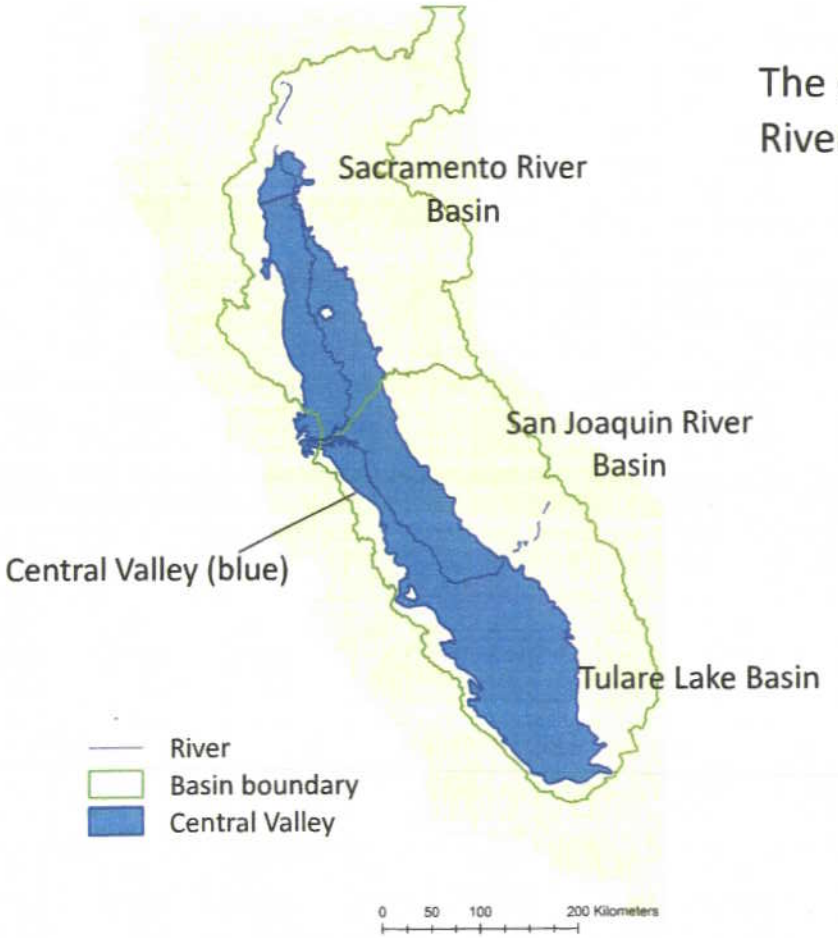
CSR GFZ POTSDAM DLR JPL

Water Storage Changes in California's Sacramento and San Joaquin River Basins, Including Groundwater Depletion in the Central Valley

Jay Famiglietti, UC Irvine
Sean Swenson, NCAR
Matt Rodell, NASA GSFC

with contributions from
Karli Anderson, James Bethune, Caroline de Linage, Stephanie Ho, MinHui Lo, J.T. Reager and Hassan Syed

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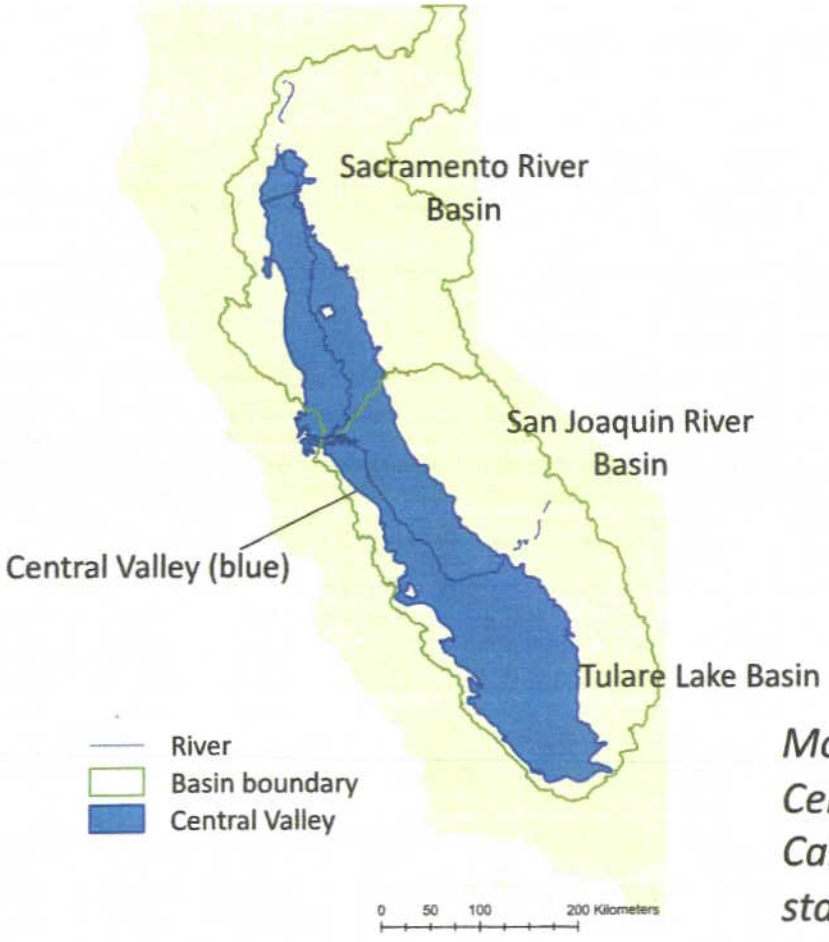


The combined Sacramento and San Joaquin River Basins

- Cover an area of approximately 154,000 km^2
- Includes California's major mountain water source, the snowpack in the Sierra Nevada mountain range
- Includes its primary agricultural region, the Central Valley (~52,000 km^2)

UCCHM

California's Central Valley



- Is one of the most productive agricultural regions in the world
- Produces more than 250 different crops worth $17 billion per year (2002), or 8% of the food produced in the U. S. by value
- Accounts for 1/6 of irrigated land in the U.S.
- Supplies 1/5 of the demand for groundwater in the U.S.
- Is the second most pumped aquifer in the U. S.

Monitoring groundwater availability in the Central Valley is critical to help manage California's water crisis, its impact on the state's economy and the Nation's food production

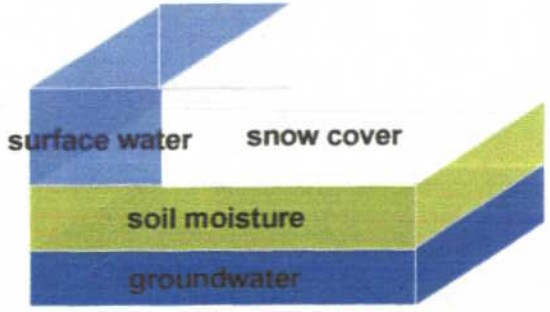
Water storage changes in the Sacramento-San Joaquin River Basins from GRACE and supplementary data, October, 2003 – March, 2009

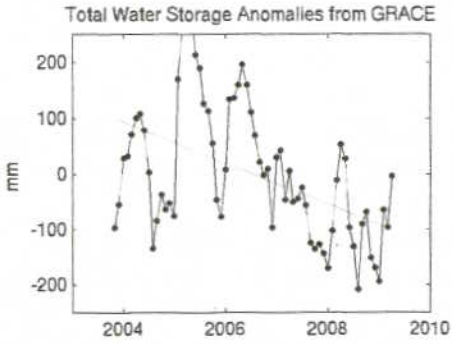
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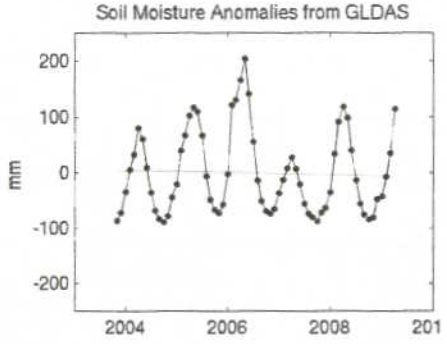
- Since GRACE 'sees' all the water storage changes on land, in order to estimate the groundwater storage change signal, the snow, surface water and soil moisture mass changes must be estimated and removed

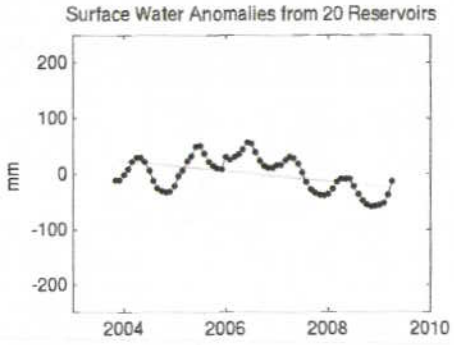
$$\Delta S_{Groundwater} = \Delta S_{Total} - \Delta S_{Snow} - \Delta S_{Surface\ Water} - \Delta S_{Soil\ Moisture}$$

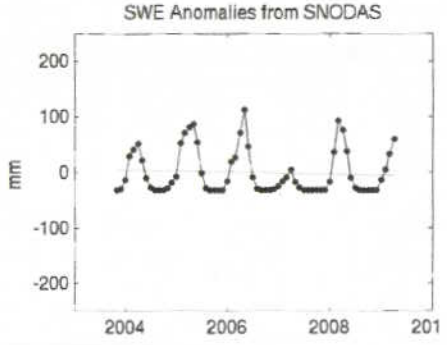
- The snow, surface water and soil moisture signals were estimated using best available observed and modeled data sets





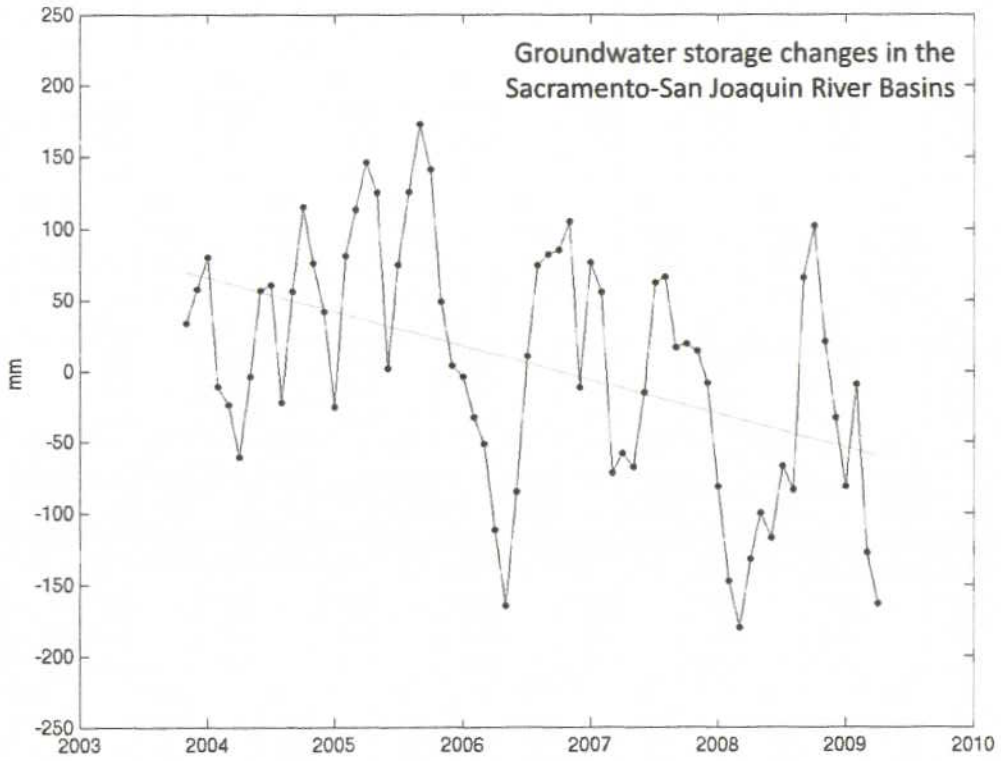






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Groundwater storage changes in the Sacramento-San Joaquin River Basins from GRACE and supplementary data, October, 2003 – March, 2009



	Trend (mm/yr)	Volume lost (km^3)
GRACE Total Water Storage	-37	31.3
Snow	-2	1.7
Surface Water	-9	7.6
Soil Moisture	-2	1.7
Groundwater	-24	20.3

- In the 66 month period analyzed, the water stored in the combined Sacramento-San Joaquin River Basin decreased by over 31 km^3, or nearly the volume of Lake Mead
- Nearly two-thirds of this, or roughly 20 km^3, came from changes in groundwater storage, primarily from the Central Valley

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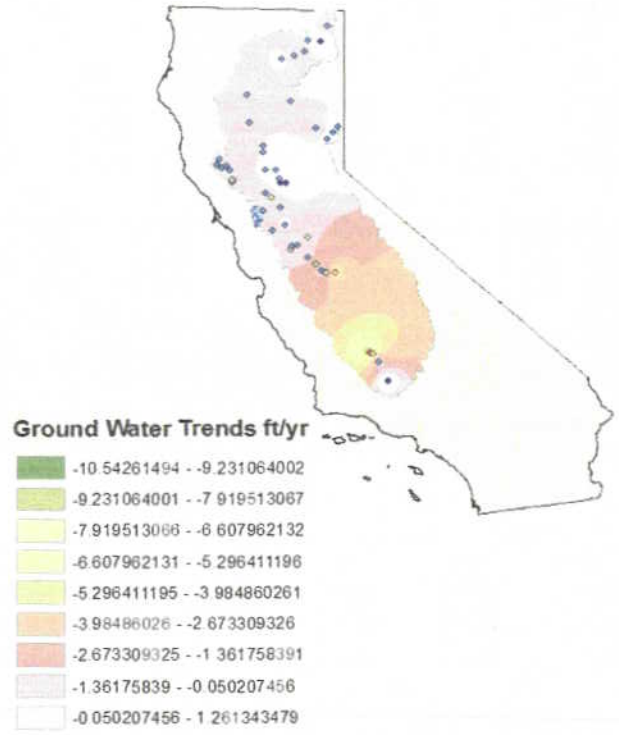
- Preliminary analyses suggest that as much as 75% of the groundwater loss is occurring in the San Joaquin River Basin, including the Tulare Lake basin, which is consistent with ground-based observations and other studies.

- Drought conditions since 2006 have minimized groundwater recharge and have resulted in constraints on surface water allocations to the Central Valley, triggering a reliance on groundwater resources, particularly in the San Joaquin Valley

- Groundwater is being used for irrigation at unsustainable rates, leading to declining water tables, decreasing crop sizes and continued land subsidence.

- In the long term, continued reliance on groundwater will deplete critical reserves that buffer cuts to surface water allocations. Continued depletions pose significant threats to food production in the U. S. and the state's economy

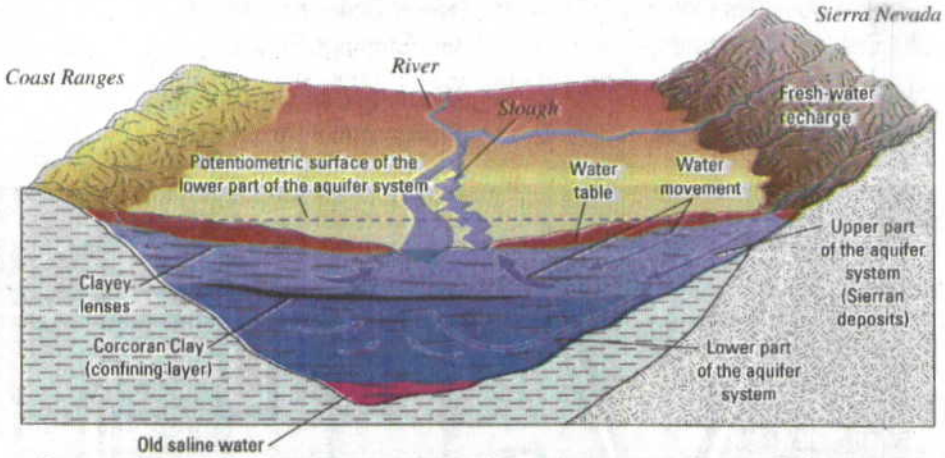
- Note that the trends are for the specified time period (October, 2003-March, 2009). This time period was selected because it maximized the overlap with the other datasets used in the study.



Observed trends in groundwater levels, October, 2003 – March, 2009

UNIVERSITY of CALIFORNIA CENTER for HYDROLOGIC MODELING

Valley Voice August 6, 2009



A slice of the San JoaquinValley and how groundwater flows.

New Hydrologic Model Provides Insights into Water Supplies

A new, three-dimensional water-modeling tool provides a detailed picture of how water flows below ground and how it relates to surface water in rivers and canals in California's Central Valley.

The Central Valley Hydrologic Model, developed by scientists at the U.S. Geological Survey, is available for use by water managers and other agencies. The model was designed to help resource agencies assess, understand and address the many issues affecting the joint use of surface- and groundwater supplies – known as "conjunctive use" – in the Central Valley.

"This new model not only details the current scarcity of groundwater, but also provides a scientific tool to help water managers remedy the situation in the future," said U.S. Secretary of the Interior Ken Salazar. "Science can be invaluable in helping to provide solutions."

The new model gives water managers the ability to simulate a number of water-management scenarios and assess possible changes in both groundwater and surface-water supplies. The model can also take into account the conversion of farmland to urban use and the potential future effects of climate change.

"The detail and breadth of this hydrologic model will make it invalu-

See WATER SUPPLY page 12

Attachment 9

WATER SUPPLY from page 2

able to water resource managers faced with increasing water-management challenges and constraints," said Claudia Faunt, a USGS hydrologist and lead scientist on the study that developed the model. "In the future, the Central Valley Hydrologic Model could be used to evaluate regional issues such as exportation of water from the Sacramento Valley to Southern California or the upcoming restoration of salmon habitat in the San Joaquin River."

A professional paper detailing her research, "Groundwater Availability of the Central Valley Aquifer, California," is available online.

To develop the model, scientists examined more than 8,500 drillers' logs, some dating back to the early 1900s. They also examined monthly ground- and surface-water data from 1962 to 2003 to paint a picture of how the system works and how water supplies have changed.

Among their findings:

• Overall, groundwater levels are declining in the southern, Tulare Basin portion of the San Joaquin Valley as more water is pumped out than recharges naturally. But the southern Valley also shows the most promise for large-scale artificial groundwater recharge, particularly along the eastern side with its coarse-grained soils from river and alluvial-fan sediments.

• By contrast, groundwater levels in the Sacramento Valley and the northern portion of the San Joaquin Valley are generally stable.

• As the state faces its third year of below-average precipitation, groundwater supplies are under increasing pressure, according to data gathered since 2003. Landowners are drilling more and deeper wells, and underground water levels are starting to drop once again – as they did during previous droughts in the 1970s and 1980s.

The Central Valley is more than 400 miles long, comprised of the water-rich Sacramento Valley in the north and the drier San Joaquin Valley in the south. One of the nation's most productive agricultural regions, the Central Valley has the largest groundwater system in the state. The groundwater basin, or aquifer, contains one-fifth of all groundwater pumped in the nation.

It is, in effect, California's largest reservoir.

California's continuing population increase has heightened competition for water within the Central Valley and statewide. That competition is likely to be exacerbated by reduced deliveries of Colorado River water to Southern California. As water resources become more valuable, a number of issues have gained prominence, including how to conserve agricultural land; the conjunctive use of surface and groundwater supplies; changing land-surface elevation in response to groundwater pumping; aquifer storage and recovery; the effect of land-use changes on water supplies, and climate change.

To help address these issues, the USGS Groundwater Resources Program started a study in 2005 to evaluate and project groundwater conditions that result from present and planned changes in the Central Valley. The research, which cost about $1 million over four years, is one of 30 regional aquifer studies the USGS is conducting across the country that collectively will lead to an assessment of the nation's groundwater availability.

To create enough detail to be practical for water management decisions, scientists designed an extensive three-dimensional hydrologic model that encompasses the Valley's entire groundwater basin. The model divided the aquifer horizontally into 20,000 cells of one square mile and vertically into ten layers ranging in thickness from 50 to 1,800 ft.

This new tool simultaneously accounts for changing water supply and demand. It simulates irrigated agriculture and surface-water and groundwater flow across the entire Central Valley hydrologic system.

Attachment 9

USGS
science for a changing world

California's Central Valley Groundwater Study:

A Powerful New Tool to Assess Water Resources in California's Central Valley

Competition for water resources is growing throughout California, particularly in the Central Valley. Since 1980, the Central Valley's population has nearly doubled to 3.8 million people. It is expected to increase to 6 million by 2020. Statewide population growth, anticipated reductions in Colorado River water deliveries, drought, and the ecological crisis in the Sacramento–San Joaquin Delta have created an intense demand for water. Tools and information can be used to help manage the Central Valley aquifer system, an important State and national resource.

The U.S. Geological Survey (USGS) has released results from a study on the largest water reservoir in the State of California, the Central Valley groundwater system. The findings show continued loss of stored groundwater in the southern part of the valley (see figure below). Since about 1960, groundwater has been depleted by almost 60 million acre-feet, which is, on average, enough to supply every resident of California with water for 8 years.

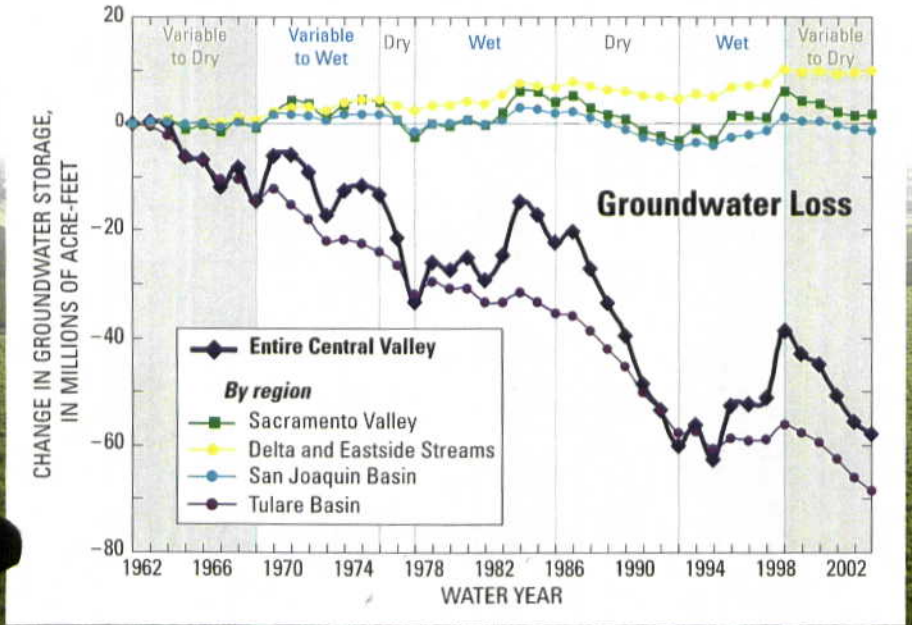
In order to complete the study, the USGS developed an extensive, detailed three-dimensional (3D) computer model of the hydrologic system of the Central Valley (Faunt, 2009). The Central Valley Hydrologic Model (CVHM) simultaneously accounts for changing water supply and demand across the landscape, and simulates surface water and groundwater flow across the entire Central Valley.

This new hydrologic modeling tool can be used by water managers to understand how water moves through the aquifer system, predict water-supply scenarios, and address issues related to water competition in California and the Central Valley including:

- Conjunctive water use (interdependent use of surface water and groundwater);
- Conservation of agricultural land;
- Land-use change, including environmental concerns and urbanization, and its effects on water resources; and
- Effects of climate change.

Central Valley Facts

- **California's Central Valley covers about 20,000 square miles, and is one of the most productive agricultural regions in the world.**
- **More than 250 different crops are grown in the Central Valley, with an estimated value of $17 billion per year.**
- **Approximately one-sixth of the Nation's irrigated land is in the Central Valley.**
- **About one-fifth of the Nation's groundwater pumpage is from the Central Valley aquifer system.**



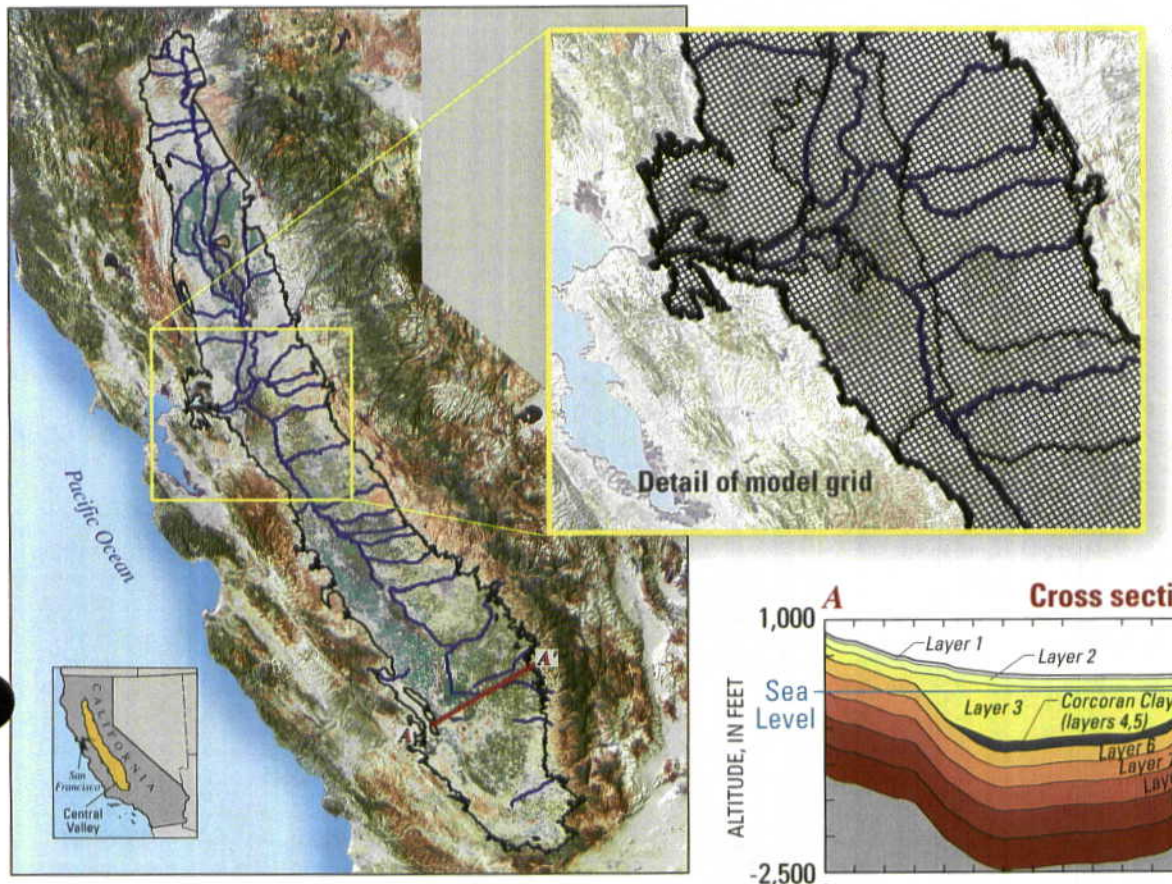
The USGS Groundwater Resources Program funded this study, one of 30 regional aquifer studies the USGS is conducting to assess the Nation's groundwater availability. Intense competition for groundwater resources in California was an important factor in choosing the Central Valley as one of the first studies undertaken and completed.



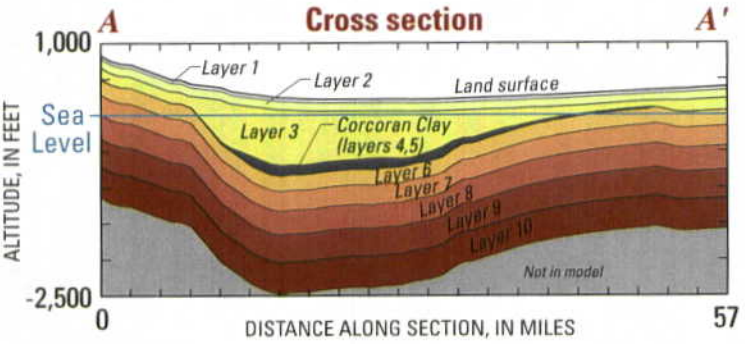
Attachment 10

The Central Valley Hydrologic Model

The CVHM is built on knowledge from USGS and other Federal, State, and local studies. The CVHM was constrained by comparing simulated and historically observed groundwater levels, streamflows, and subsidence. The detail and breadth of this hydrologic modeling tool provides a better understanding of valley-wide hydrologic processes. This tool also provides realistic boundary conditions so that finely gridded models of smaller areas can be easily developed.



To create enough detail to be practical for water-management decisions, the aquifer was divided spatially into 20,000 model cells of 1 square mile each, and vertically into ten layers ranging in thickness from 50 to 750 feet.

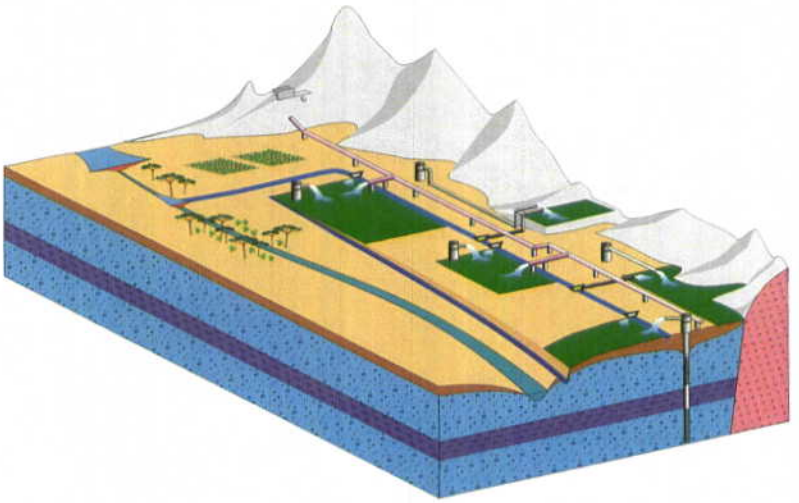


Model Features

- **A new tool for simulating the use and movement of water on the landscape, called "Farm Process", combined with the USGS MODFLOW groundwater/surface-water model to form a hydrologic model**
- **A comprehensive geospatial database developed using a Geographic Information System (GIS)**
- **A texture model to characterize the hydraulic properties of the valley-fill materials**

Farm Process

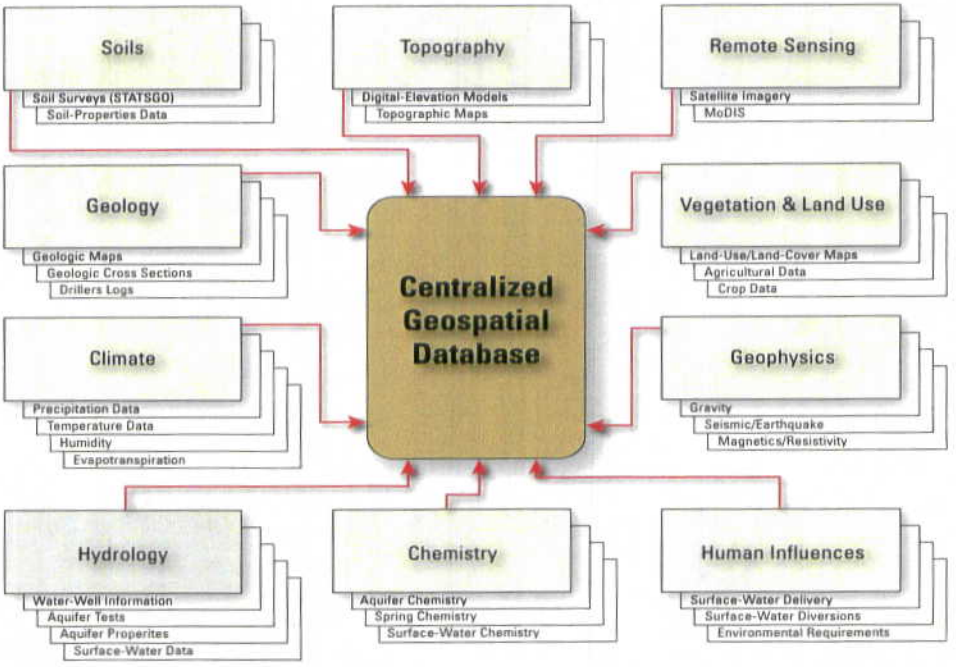
The complex hydrologic system of the Central Valley is simulated by using the USGS hydrologic model, MODFLOW. Combined with the Farm Process, MODFLOW provides a tool to simulate natural and human-induced water movement and consumption over the landscape. Groundwater and surface-water flow are fully coupled. The model accounts for supply-constrained and demand-driven conjunctive use of water in agricultural, urban, and natural settings. In the Central Valley, the tool simulates unmetered historical pumpage and the delivery of surface water for 21 water-balance regions for water years 1962 to 2003.



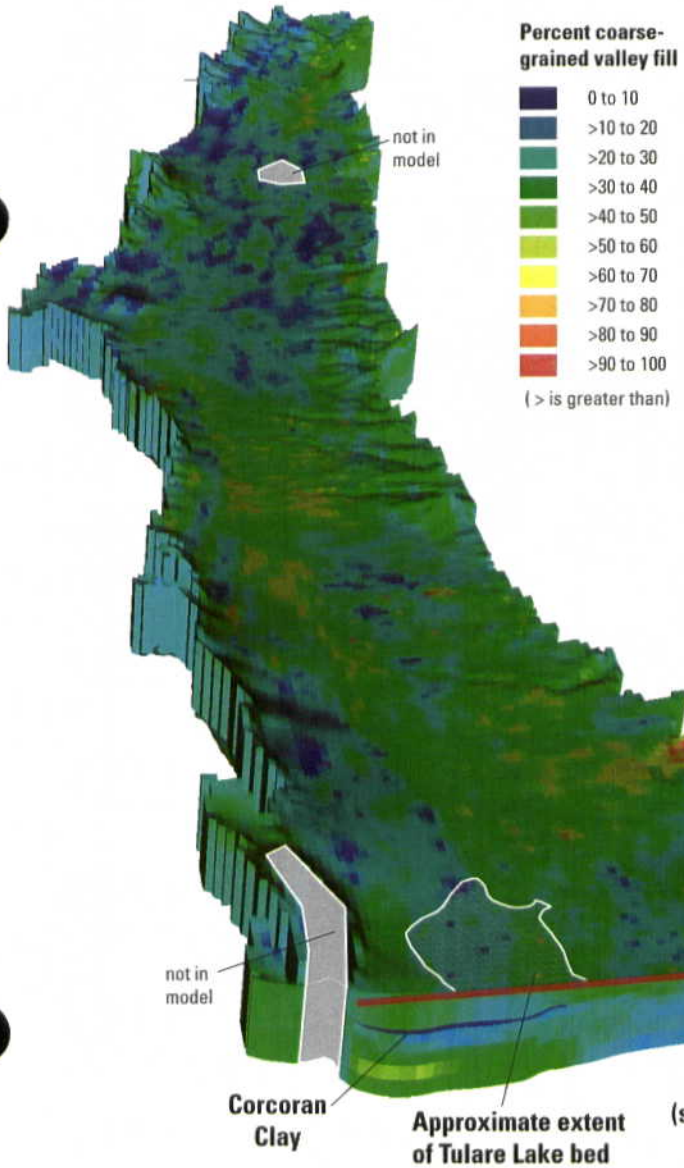
Geospatial Database

A comprehensive geospatial database was developed using a Geographic Information System (GIS). The GIS was used to compile, manage, store, and analyze the large quantities of data needed to run the model, and to understand and visualize the data output.

Because the 3D groundwater flow model of the heterogeneous Central Valley aquifer system includes complex surface-water management processes, the GIS is extremely useful for recognizing and understanding spatial relations within and among data sets.

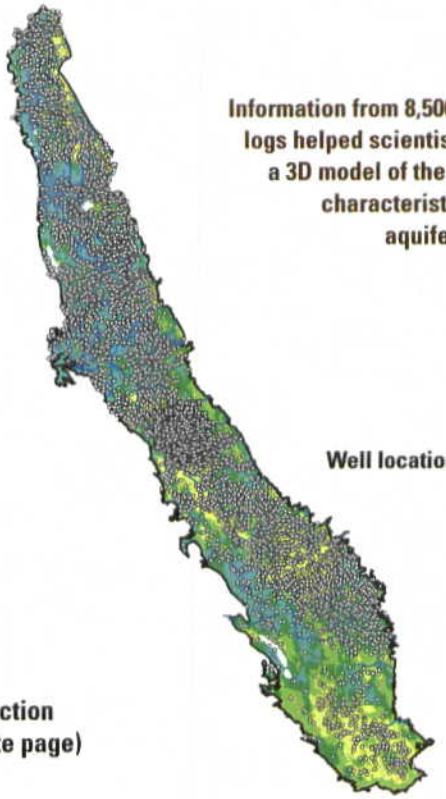


Many different types of data are managed within the Central Valley Hydrologic Model's extensive Geospatial database.



Texture Model

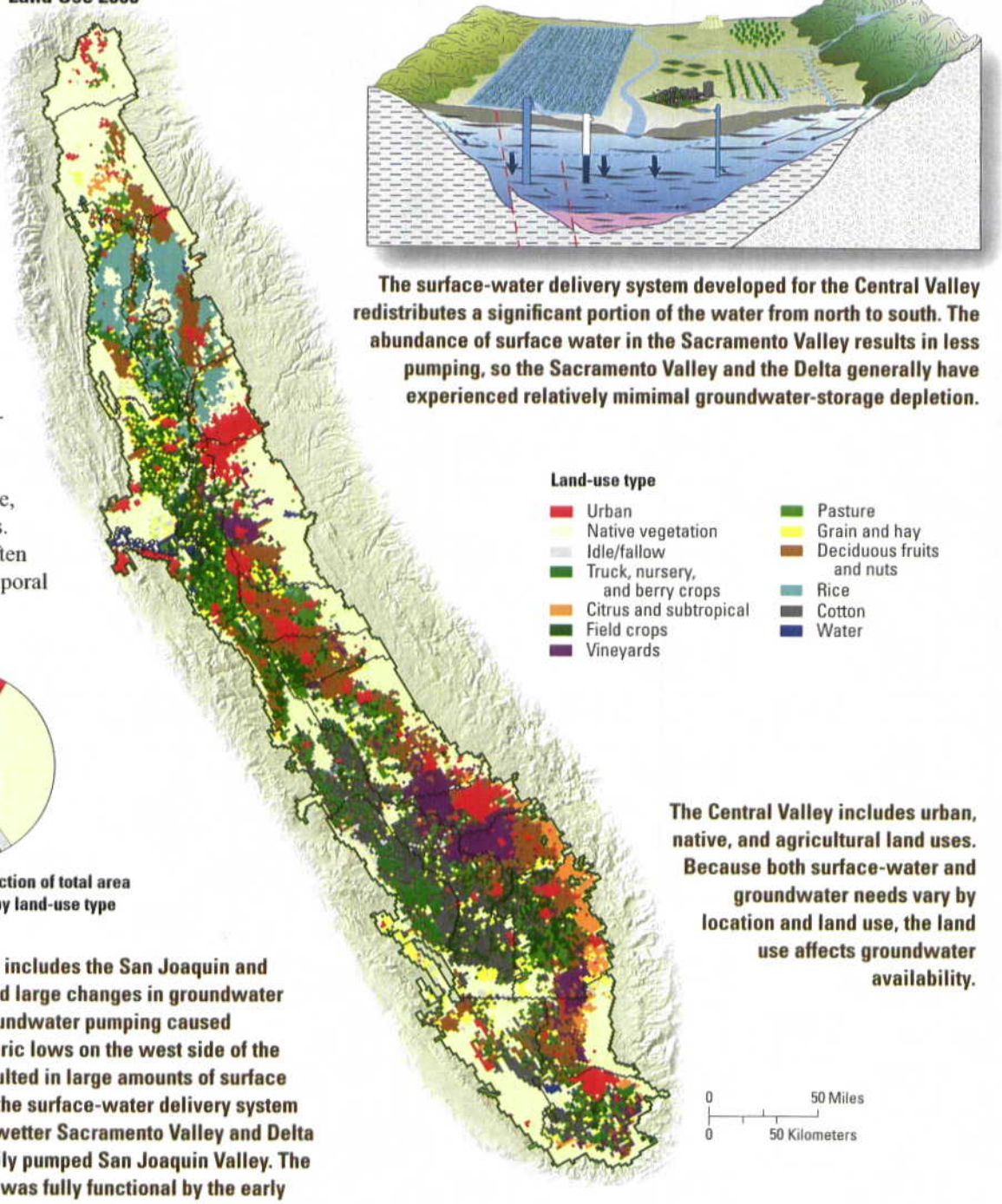
A geologic texture model was developed to characterize the coarseness of valley-fill materials that make up the aquifer system. Lithologic data from approximately 8,500 drillers' logs of boreholes ranging in depth from 12 to 3,000 feet below land surface, along with other information, were compiled and analyzed. The resulting geologic model was then used to estimate hydraulic properties for every cell in the model. The texture model is key to understanding how water moves through the Central Valley groundwater system.



Information from 8,500 drillers' logs helped scientists create a 3D model of the geologic characteristics of the aquifer system.

Results

Study results show that human activities such as surface-water deliveries and associated groundwater pumping have a dramatic influence on the present-day Central Valley hydrology. These human activities have increased flow through the groundwater system by roughly a factor of six compared to the pre-development period. Regional differences throughout the hydrologic system can be seen in variations in water availability and land use, and in water-delivery systems. These human activities are often in response to spatial and temporal climate variability.

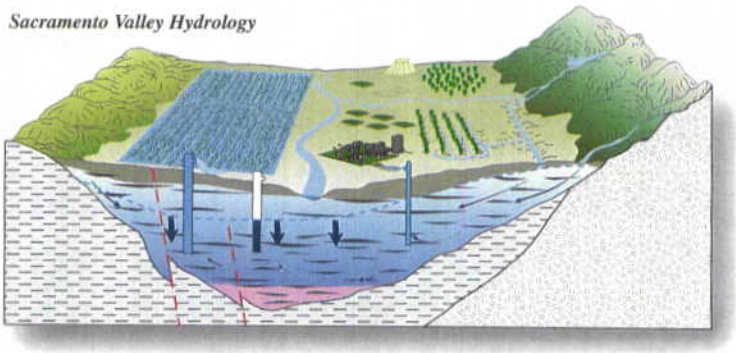


The Central Valley includes urban, native, and agricultural land uses. Because both surface-water and groundwater needs vary by location and land use, the land use affects groundwater availability.



Fraction of total area by land-use type

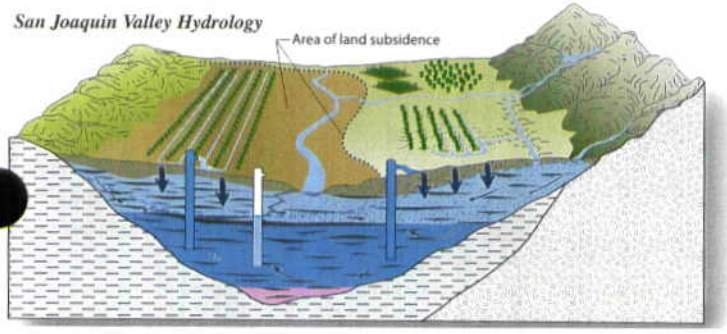
Sacramento Valley Hydrology



The surface-water delivery system developed for the Central Valley redistributes a significant portion of the water from north to south. The abundance of surface water in the Sacramento Valley results in less pumping, so the Sacramento Valley and the Delta generally have experienced relatively mimimal groundwater-storage depletion.

The San Joaquin Valley, which includes the San Joaquin and Tulare Basins, has experienced large changes in groundwater storage. In the early 1960s, groundwater pumping caused water levels to decline to historic lows on the west side of the San Joaquin Valley, which resulted in large amounts of surface subsidence. In the late 1960s, the surface-water delivery system began to route water from the wetter Sacramento Valley and Delta regions to the drier, more heavily pumped San Joaquin Valley. The surface-water delivery system was fully functional by the early 1970s, resulting in groundwater-level recovery in the northern and western parts of the San Joaquin Valley. Overall, the Tulare Basin portion of the San Joaquin Valley, the hottest and driest part of the Central Valley, is still showing declines in groundwater levels and accompanying depletion of groundwater storage.

San Joaquin Valley Hydrology



—Claudia C. Faunt, Randall T. Hanson, Kenneth Belitz, and Laurel Rogers

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Hydrologist
ccfaunt@usgs.gov

U.S. Geological Survey
California Water Science Center
4165 Spruance Road, Suite 200
San Diego, CA 92101

Reference:

Faunt, C.C. ed., 2009, Groundwater Availability of the Central Valley Aquifer: U.S. Geological Survey Professional Paper 1766, 225 p. Available at http://pubs.usgs.gov/pp/1766/

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VALLEY VOICE July 9, 2009

Groundwater Level Sets New Record

The Tulare Irrigation District is reporting spring groundwater levels set a record low, with the average depth across the district at about 125 feet.

This is about 10.9 feet lower than last spring.

Levels rose about 1.6 feet since the fall, but this was less than previous years.

Three years of drought have played a major role in the decline, along with heavier pumping, an increase in wells in the growing cities of Tulare and Visalia, and the intensive grain and corn irrigation by area farmers, officials said in the TID's latest newsletter.

Attachment 11

September 10, 2009

• www.valleyvoicenewspaper.com 711 West School Avenue • Visalia, CA 93291 • 635-3200 • voice@valleyvoicenewspaper.com

Water Table at Lowest Level Ever



Workers are finishing up construction of the million gallon water tank at Riggin and Roeben in northwest Visalia.

By Rick Elkins

The depth of water underneath the city of Visalia has fallen to its lowest level in history.

Phil Mirwald, manager of California Water Service, said water levels in Cal Water's wells now average 115 feet, down another 8 feet from last summer. The latest measurements were taken in June.

"Although the water table has dropped, operationally it has not affected us," said Mirwald of the fact Cal Water has not had any wells go dry or had to make any major adjustments this summer.

Mirwald said the depth of the water underneath the city continues to drop even though the city of Visalia and

See WATER page 14

WATER from page 1

Kaweah Delta Water Conservation District have taken major steps to recharge the underground water basin.

This summer, the city purchased water and ran it down several creeks in the city, one of the most effective ways to seep water into the underground system, said Mark Larsen, general manager of KDWCD. (See related story on Larsen and Bruce George on page 17 -- second front page.)

More than six years of below-average rainfall is taking its toll on the groundwater supply, not only in Visalia but throughout the Valley. Water officials say the best way to recharge the underground water supply is first, not pumping water from it, and second, having surface water or irrigation water that does seep down.

Since February of 2008, the water table has dropped 15 feet (from 100 feet to 115). However, the water table dropped just 2 feet between February and June, compared to a 7-foot drop during the same period last year.

The city of Visalia, and many others such as Tulare, gets all its domestic water from the underground. Mirwald said Visalians used 48 billion gallons of water during the month of August, an astronomical sounding amount. That was a little more than what was pumped in August of last year. The city uses about 200,000 acre feet of water a year, said George, former manager of KDWCD.

Mirwald and Larsen agreed that water recharge is getting a lot more attention these days. "We don't have surface water available so we have to be good stewards of our groundwater," said Mirwald.

Larsen said the Kaweah basin "is in a state of overdraft" and they expect the underground water table to drop further. He said as the supply dwindles, the drop gets more dramatic. On average, said Mirwald, the water level under Visalia has been dropping about a half of a foot a year.

Recharge is Important

What is needed, he said, is a wet year and some climatologists are suggesting that an El Nino condition might exist,

Attachment 12

spurring hopes of a wet year. Those wet years serve to not only reduce the need to pump as much water, but also provide surface water.

"In wet years, you have farmers using surface water," said Larsen.

Wet years usually provide enough water to put water in recharge basins and both Visalia and Tulare have been working to develop more basins. Both cities have ordinances that include water recharge basin development fees.

Larsen explained that part of the reason the water district was formed in 1927 was to protect the underground water supply. However, growth in both agriculture and residences has slowly cut into the underground supply.

He said there are 4,000 acres of recharge basins in the district, half of that developed before 1950.

But, in the last five years, he said, "cities have really focused on or understood the principal of recharge – that water comes from the underground."

He said there are four main sources of water recharge. About a third comes from water running down stream and river channels, a third from ag flood irrigation, 15 percent from heavy rain and 11 percent from recharge basins.

Even a wet year will not have immediate impact, with Mirwald saying it takes several years for the water table to recover. However, it would slow the overdraft.

Using Effluent Water

On Tuesday, the Visalia City Council got a report from Provost and Prichard's engineering of how it can use effluent water from the city's wastewater treatment plant to both reduce underground pumping and to exchange that water for cleaner water.

The recommendation is to use water from the wastewater plant, located west of Highway 99, to water Plaza Park, Valley Oaks Golf Course and agricultural areas near the airport.

According to the report, the plant discharges over 14,000 acre feet of water annually.

It is recommended the city upgrade is treatment of the effluent that would make it unrestricted in its use. Right now, the water can only be used on fodder and fiber crops such as alfalfa, silage, corn and cotton. The upgraded treatment would not allow the water to be used for domestic drinking, however.

By utilizing the water, the city can save approximately 3.2 million gallons a day of groundwater at the golf course alone.

The water exchange with the Tulare Irrigation District would allow the city to discharge some of its treated effluent into a TID ditch to be sold to its users or be used for underground recharge. In turn, the city would receive a proportional allotment of water upstream to be used for underground recharge.

The one potential stumbling block is the proposal would cost approximately $6 million.

Cal Water Upgrades

Mirwald said Cal Water continues to aggressively install as many domestic water meters as possible.

"It's going well," he said, adding that they are now about halfway to installing all the meters. The goal is to be finished by 2012.

"It will be interesting to see how that affects water usage," he said.

Work is also near completion on the system's million-gallon water tanks being installed along Riggin Avenue.

"The one at Roeben and Riggin should be online around the first of January," he said, with the second tank west of Road 76 expected to be completed by the middle of next year.

The tanks are completed. Workers are now constructing the boosters and buildings at the sites.

Attachment 12

Wells continue to dry up, get clogged

BY DAVID CASTELLON
dcastell@visalia.gannett.com



STEVE R. FUJIMOTO

The Friant-Kern Canal flows through Tulare County east of Exeter and supplies water to many farmers throughout the region.

When the amount of surface water diminishes, either because of drought-shrunken rivers or reductions in allotments from the California Aqueduct or the Friant-Kern Canal, the demand on groundwater increases.

That has meant that well-digging crews here have been busy for months, extending wells deeper or digging new ones.

"The water's getting awfully deep. We've been drafting the aquifer pretty hard for the last couple of years," said Charlie Pitigliano, owner of Pitigliano Farms in Tipton and Pixley, who estimated that his water from the Friant-Kern has been reduced about 50 percent this year.

"This time last year, we were pumping out at 250 feet [below ground]. Now we're at 360 feet," he said. "Everybody's in the same boat. We've been putting a lot of pressure on the aquifer beneath of us."

Besides having less water — forcing some farmers to let land go fallow or reduce irrigation — farmers are spending more as water pumps are working harder to draw the deeper water, or installing bigger pumps or dig new wells entirely.

Drilling and installing pumps for a new 300- to 500-foot-deep well can cost about $100,000, said Tom Barba, owner of Tom's Well Drilling in Exeter.

"Some places, you can dig 300 or 400 feet, and there's no water at all," he said, adding that many farmers with dry or broken wells simply can't afford to drill new ones right now.

"They're hoping that next year things go better."

In an April letter to the California State Board of Food and Agriculture, Tulare County Agricultural Commissioner Gary Kunkel stated that drought conditions had cost farm operations here about $3.3 million and about 615,000 acres of grasslands.

"Electricity and well costs are a major concern, as is the need to recharge the underground water system," Kunkel said.

Pitigliano, who farms about 1,500 acres and manages about 10,000 acres more in Tulare and Kings counties, said that "we cannot stand another year of drought because our aquifers are depleting so fast."

Usually in summer, the quantify of [water in] wells will drop 30 percent, but this summer, he estimated, his wells' water tables dropped 50 to 60 percent.

John Roeloffs, looking at his unplanted, 80-acre dirt field south of Tipton that last year grew winter wheat, shared those concerns. "We let it go fallow because we don't have the water to farm it," he said.

In fact, Roeloffs, who farms 2,800 acres in Tulare and Kings counties and runs two dairies with a total of 4,600 milking cows, said he has let more than 400 additional acres go fallow because he can't spare water for them.

To make matters worse, four of his wells have broken down. One, just a few dozen yards from this field, is plugged with about 40 feet of gravel and silt, likely sucked up by the pump because the groundwater table here is so low.

Workers trying to clear the clog Tuesday said the water table there had dropped 68 feet in two years. Roeloffs said the underground pipes on some of his wells have cracked, which he suspects resulted from the ground shifting in response to the groundwater levels dropping so low.

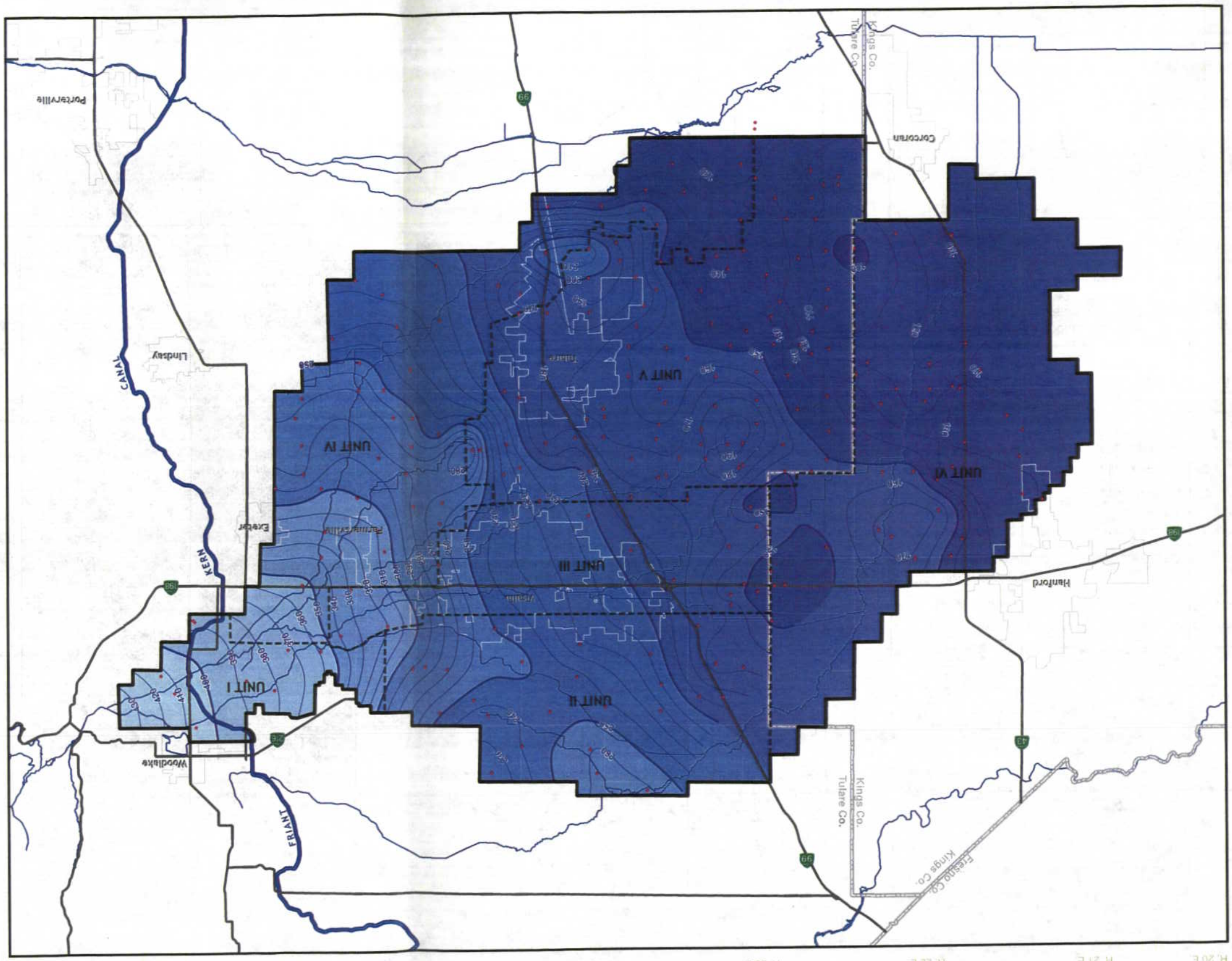
Attachment 13

KAWEAH DELTA WATER CONSERVATION DISTRICT

Annual Average Fall Groundwater Depths

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Attachment 14


UNIT I
UNIT II
UNIT III
UNIT IV
UNIT V
UNIT VI
Porterville
Lindsay
Exeter
Farmersville
Visalia
Tulare
Hanford
Corcoran
Woodlake
KERN
FRIANT
CANAL
Kings Co.
Tulare Co.
Fresno Co.
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Attachment 14

Valley Still Leads in Worst Air Report

The Central Valley continues to be the worst smog area of the United States, the American Lung Association reported last week.

Californians continue to be at risk from the dangerous air pollution they breathe every day. Despite significant progress that has been made in improving air quality over the past two decades, the American Lung Association's 2010 State of the Air Report shows that Californians breathe some of the worst air in the nation.

Of the state's worst air regions, none is worse than the Valley where Tulare County ranked third among the worst of the worst, with Bakersfield No. 2 and Fresno No. 4. Los Angeles ranked the worst. The Hanford-Corcoran area ranked No. 6.

Over 91 percent of Californians - more than 33 million - live in counties with failing air quality grades and are subject to persistent and pervasive ozone smog and harmful particle pollution, particularly in areas such as Bakersfield, Los Angeles, Sacramento, San Diego and the San Joaquin Valley. Californians also breathe unhealthy air more than 100 days annually.

The exposure to dangerous air pollution causes significant health problems, particularly for young people under 18, older people over 65 and people living in poverty. In fact, this year's report found that in California, 92 percent of people living in poverty live in counties with a failing grades. Moreover, poor air quality takes a disproportionate toll on people who suffer from lung diseases such as asthma and cardiovascular disease.

"California has led the nation in fighting pollution yet we still face enormous challenges to improve our air quality," Jane Warner, President and CEO of the American Lung Association in California. "More Californians die each year from air pollution than die in car accidents. We can and must do more to protect the health of the people of this great state," Warner continued.

Air pollution takes a considerable toll on California, not only in lives but in major health care costs.

Annually, the state's dirty air causes 19,000 premature deaths, 9,400 hospitalizations and more than 300,000 respiratory illnesses including asthma and acute bronchitis. Moreover, a recent study released by the RAND Corporation found that the state's dirty air costs $193 million in hospital and emergency room visits between 2005 and 2007.

The 2010 State Of The Air Report shows that for ozone pollution, 74 percent of California counties receive an "F" grade, compared to only 18 percent that receive an "A." For harmful 24-hour particle pollution, nearly 50 percent of counties receive an "F", another 15 percent a "D" with only 17percent receiving an "A." Moreover, many California cities and counties top the lists of the worst polluted areas in the country for ozone and particle pollution.

Specifically, of the top 10 cities in the nation with the worst air pollution, California ranked as follows: Eight in the top 10 for ozone; five in the top 10 for annual particle pollution; seven in top 10 for short-term particle pollution.

California's pollution problems are primarily driven by high emissions from a variety of transportation and diesel sources, busy ports, oil refineries and power plants as well as residential wood burning combined with unique weather and terrain that is conducive to trapping pollution. The air pollution grades were influenced by the wild fires experienced in various parts of the state during 2008, the last year of data included in this State of the Air Report.

Despite these grim numbers, the air quality overall has been improving during the 11 years the American Lung Association has been publishing this report all while the state underwent significant growth in population and cars on the road. For example, while Los Angeles has ranked number one in the U.S. for ozone pollution for the past two years, it has seen the number of high ozone day's drop 25 percent since the release of the 2000 report. Salinas and San Luis Obispo also rank in the top 25 cleanest cities for particle pollution.

Attachment 15

Traffic Pollution Linked to New Cases of Asthma, Says Study



SACRAMENTO – The California Air Resources Board heard the results of a study that found childhood asthma rates could increase as much as 30 percent with the exposure to higher levels of traffic-related air pollution.

The eight-year study followed 217 non-asthmatic children from a wide area of Southern California. Home air monitors allowed scientists to compare the children's exposure to air pollution and newly diagnosed cases of asthma. It was found that higher amounts of nitrogen dioxide, a constituent of smog, are associated with the development of childhood asthma.

"California's prosperity depends on the choices we make to protect our children," said ARB Chairman Mary D. Nichols. "This study underlines the need for clean air, giving us the benefits of a fully healthy population."

Published in the journal *Environmental Health Perspectives*, the study is the latest to come from the Southern California Children's Health Study, a project pioneered by the Air Resources Board in the early 1990s. This, the most extensive investigation into air pollution's impact on the young, has provided data that resulted in over 100 peer-reviewed articles with several ground breaking results.

One of these studies found that children exercising on days with high ozone concentrations also had an increased likelihood of developing asthma.

"Good air quality is fundamental to good health," added Nichols.

Recent studies have shown that the reduction of air pollution is also economically beneficial. It diminishes the costs associated with lost work and school days, medications to address illnesses, hospital visits and smog-related premature deaths."

Attachment 16

Carole Clum
45638 S Fork Dr.
Three Rivers CA 93271-9610
March 22, 2010

Dear Supervisors,

On March 17, 2010, on South Fork Drive in Three Rivers, Tulare County road maintenance people and a crew of inmates burned many piles of brush and branches. The County had previously sawn off the branches to improve visibility around blind curves and to eliminate branches protruding into the road. One third of the branches had been removed weeks earlier by chipping and shredding. On St. Patrick's Day the remaining branches were gathered into piles and set afire. A fire water truck was at the ready. I drove past them at 10:30 A.M. when the first bonfire shot flames 25 feet into the air, withering the overhanging branches of an oak and heating up the interior of my car to a surprising degree.

There are four good reasons not to burn greenwaste along narrow South Fork Drive:

1. Creation of greenhouse gas emissions,

2. Creation of smoky air pollution which remained in our narrow valley for hours,

3. Damage to the road berm by the heavy fire truck (the road berm serves safety and stormwater runoff functions), and

4. Soil erosion on the steep banks on both sides of the road. A wide area around each pile of branches was cleared to bare dirt. A trench was dug around that and a berm thrown up around the trench. These clear and disturbed areas extended onto slopes. Perhaps you don't realize that we foothill residents spend a considerable amount of time battling soil erosion. You just made our job harder.

The ash heaps were unattended that evening and overnight. Some of the ash and charred wood piles were still smoldering 24 hours later.

Why didn't the county use the chipper/shredder for <u>all</u> the branches? I want you to ban the road maintenance folks from burning branches ever again in the foothills. As a matter of fact, I want burning of greenwaste in the foothills banned completely. I am sick of breathing smoke.

Carole A. Clum
Carole Clum

Attachment 17

Visalia Times Delta May 15-16, 2010

Nitrate contamination spreading in California communities

BY JULIA SCOTT
California Watch

The water supply of more than 2 million Californians has been exposed to harmful levels of nitrates over the past 15 years — a time marked by lax regulatory efforts to contain the colorless and odorless contaminant, a California Watch investigation has found.

Nitrates are now the most common groundwater contaminant in California and across the country. A byproduct of nitrogen-based farm fertilizer, animal manure, wastewater treatment plants and leaky septic tanks, nitrates leach into the ground and can be expensive to extract.

The problem affects both rural Californians and wealthier big-city water systems. State law requires public water systems to remove nitrates. Many rural communities, however, don't have access to the kind of treatment systems available in metropolitan areas.

Nitrates have been linked to "blue baby syndrome," which cuts off an infant's oxygen supply. Some studies have found connections to certain cancers in lab animals.

The State Water Resources Control Board acknowledges that nitrates are a problem affecting vast regions of California. And the situation is worsening, especially in the Central Valley, Central Coast and the Los Angeles and Imperial Valley regions.

High-nitrate levels already have affected public water-system wells in many areas, and the contaminants continue to migrate toward groundwater supplies that could ultimately affect the water supply for millions of additional Californians.

Statewide, the number of wells that exceeded the health limit for nitrates jumped by a factor of 72 between 1980 and 2008. Scientists anticipate a growing wave of nitrate problems in some parts of the state if remedial steps aren't taken.

And yet the state's patchwork regulatory efforts remain riddled with gaps that have allowed nitrate contamination to spread virtually unchecked.

MORE ONLINE

To find out more about "blue baby syndrome," click on the link with this story at *www.VisaliaTimesDelta.com*.

ON THE NET

Learn more about nitrates at *www.CaliforniaWatch.org*.

Consider:

- Nothing is being done to regulate the use of the leading source of nitrate pollution in many regions of the state: nitrogen fertilizer. A lettuce farmer can apply as much fertilizer as he wants, within feet of the nearest water supply well, without having to worry how much of it might contaminate the groundwater with nitrates. Officials aren't even equipped to determine the sources of contamination, meaning no one is held accountable.
- Sixty-five percent of domestic wells at Central Valley dairies test over the public health limit for nitrates, putting local residents at risk of potential exposure. Yet, according to records obtained from the State Water Resources Control Board, none of the dairies was fined for a nitrate problem identified by the state.
- When polluters are found responsible for nitrate contamination, the state rarely does anything to correct it. California has issued 248 enforcement actions against 44 polluters for nitrate contamination in the past six years. But only once has the state ordered a polluter to clean up contaminated groundwater.

In one of life's ultimate ironies, families in poorer, rural communities typically pay more for tainted water than ratepayers hooked up to clean water systems.

Residents in the eastern Tulare County town of Seville pay a flat monthly fee of $60 for nitrate-laden water they have been warned not to drink. By comparison, the average metered bill is just $26.50 a month for San Francisco residents, who consume water from the pristine Hetch Hetchy water system.

"The people who are polluting the water, they don't pay for that cleanup — the ratepayer does," said Debbie Davis, a legislative analyst with the Oakland-based Environmental Justice Coalition for Water. "If California is going to meet the water challenges of the future, we have to figure out how to deal with nitrates."

Nitrate contamination is just one challenge facing regulators.

Darrin Polhemus, deputy director of the State Water Resources Control Board's division of water quality, said his agency has chosen to spend more time and resources dealing with chemicals such as perchlorate and dry-cleaning solvents, which cause more acute health effects when leached into groundwater.

"On the scale of things we deal with, while nitrates [are] certainly a concern and we're managing for it, I don't rank it [as] high up there as something that makes me stay awake at night," he said.

It's unclear how often nitrate exposure has led to serious health consequences. For instance, more than 2,000 cases of acute "blue baby syndrome" have been tied to excessive nitrate consumption around the world since the mid-1950s, but scientists say many cases go undiagnosed. Bottle-fed infants whose formula was prepared using water are at greatest risk if the water exceeds public health limits for nitrates. Pregnant women are also at risk.

'You would never imagine in this country that someone would have this problem'

Many of the state's fastest-growing regions overlie vast stores of nitrate-polluted groundwater. In the eastern San Joaquin Valley, one in every three domestic wells has nitrate levels that exceed public health limits.

One of those wells is located on property owned by Camelia and Manuel Lopez in East Orosi.

The Lopez family volunteered to have their family's private well tested by the state last winter. The water contained nearly three times the federal health limit for nitrates. Follow-up testing of the family's tap water by California Watch confirmed these results.

"You would never imagine in this country that someone would have this problem," said Camelia Lopez, who emigrated from Mexico as a young woman and moved to Tulare County from the Bay Area.

Now the family buys bottled water for drinking and cooking at $60 a month — a real hardship because Manuel Lopez, a contractor, is unemployed.

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Their three boys, ages 6, 16 and 18, take the bottles to school as a precaution. A local high school has had nitrate problems for years. Camelia Lopez has taught them how to brush their teeth with bottled water and keep their mouths closed when they're in the shower. Putting filters on all the taps in the house would cost at least $750.

Boiling water isn't an option. It can actually make matters worse, scientists say, because it concentrates the water without eliminating the nitrates, making the contaminants even more potent.

Much of the nitrates are only deep enough to affect private wells, which are shallower than their public counterparts. But the contaminant is starting to sink farther into aquifers, deep enough to affect towns and cities, according to Karen Burow, a Sacramento-based scientist with the U.S. Geological Survey.

"In the absence of some sort of mitigation, it's likely that the water that's in the domestic wells now is going to move downward and eventually reach the public supply wells," Burow said.

Enforcement doesn't keep pace with spreading nitrates

Nitrogen fertilizers are an essential component of California agriculture, but they are also the leading source of nitrates in many agricultural areas, scientists say. In 2008, farmers applied 855,699 tons of nitrogen-based fertilizer to 6.7 million acres of irrigated farmland.

In soils with enough oxygen to support it, nitrogen compounds convert to nitrates. Some of these eventually sink deep enough to affect drinking water.

Officials say nitrates are so common and mobile that they are difficult to track once they get into the groundwater, making the contaminant hard to monitor.

The regulatory challenges are even more vexing because so much of the nitrates seeping into the groundwater began their migration decades ago. It's nearly impossible to know if contamination identified in 2010 came from a modern-day farm or from the same farm owned by a different family in 1970.

"It is much more difficult to go out and identify a single cause of a nitrate problem in the area, and it can be also very difficult to identify responsible parties and figure out what corrective action needs to be taken," said Ken Landau, assistant executive officer of the Central Valley Regional Water Quality Control Board.

Even if the state board has reason to believe that a dairy farm or a food processor is leaching nitrates next to a residential area, it rarely requires farmers to test the nearest homeowner's well to see if the contaminants have spread.

Pollution yields few consequences

Monterey Mushrooms Inc. is the country's largest marketer of fresh mushrooms. Its wells have exceeded nitrate limits 17 times, according to records reviewed by California Watch.

In 2006, the Central Coast Regional Water Quality Control Board cited Monterey Mushrooms for four of those violations. "Nitrate out of control!" one staff member scrawled on a lab report obtained by California Watch.

Yet the facility has never been fined or required to limit the amount of nitrate-contaminated water it sprays onto adjacent fields.

Monterey Mushrooms is hardly alone. In the past six years, state regulators issued 248 enforcement actions against 44 polluters for problems specific to nitrates in groundwater, records show. Most received routine violation notices. Even repeat violators are rarely fined.

Wayne Bautista, general manager of Monterey Mushrooms, says the high nitrate readings come from a well that's closer to other fields on a ridge above the mushroom plant, and are not attributable to his plant's operations. He also said the company has "significantly" reduced the amount of wastewater it applies to land, due in part to five newly lined wastewater ponds that help the plant reuse water in its composting process.

In East Orosi, Camelia Lopez feels helpless about her family's nitrates problem, which testing has traced to animal manure, possibly from nearby cattle ranches or a leaky septic system.

She would like to tell lawmakers what it's like to be unable to drink water from her own tap. She has even been practicing her testimony.

"Please care a little bit about this community," she says. "Just like I'm worried about this, there are other mothers with a lot of kids who are worried about this issue, too. If it were you and your kids in this community, what would you think? What would you do?"

► *California Watch is a project of the Center for Investigative Reporting with offices in the Bay Area and Sacramento.*

Attachment 18

Jim May's presentation to the Tulare County Water Commission on stormwater, April 26, 2010.

Storm drain disconnects from irrigation district facilities:

Lower Tule River Irrigation District recently acknowledged that they will be disconnecting all storm runoff connections to their ditches and canals, in response to the State's Irrigated Lands Program (ILP). This appeared to place the County's ability to mitigate or minimize flood impacts to County Roads, Communities, and other facilities in jeopardy.

The ILP was intended to eliminate return flows from agricultural water users, from re-entering the supply to downstream users. In some cases the return waters could carry pesticides or other constituents that might impact downstream crops. Presently the California Regional Water Quality Control Board testing of canal flows has been identified as rigorous. This testing will audit the District's enforcement of identifying unnatural constituents entering the flow. Positive results will require the Irrigation Districts to identify the source and remedy the problem. This could be potentially an expensive mandate.

The problem in Tulare County is primarily that Irrigation District's distribution facilities typically will occupy, use, or block the natural surface water flow patterns, preventing storm water from moving in a natural manner. The consequence is ponding of water or flooding areas that historically had not experienced this impact, with damaging results to public and private property.

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Secondarily the County and the people of Tulare County have come to rely on and have developed lands in accordance with the certain expectations that the drainage patterns by which runoff has been handled in the past would continue in perpetuity.

To determine the scope of impact to the County, the Region, and the State. We have checked with other agencies that might similarly be impacted by this program.

-Caltrans has responded to a requirement from Madera Irrigation District and will implement localized ponding basins or other types of piped, pumped technologies to offset their lost flood water capabilities. These will be used only on future projects as a best management practice. Caltrans does not plan to retrofit their existing facilities.

-The City of Visalia has established volume controlled connection agreements to prevent overcapacity flows during non-emergency situations. Water quality restrictions are not addressed in these agreements.

-The City of Porterville has not been subjected to restriction of their storm runoff connections to irrigation facilities.

-The City of Tulare has long standing agreements with TID regarding only new City storm drain connections to TIDs irrigation facilities.

-In other adjacent Counties: Fresno County has only experienced problems with private property owners, no Water or Irrigation District problems have surfaced at

Attachment 20

this time. Kern County has not received any impacts or were they aware of the potential of the ILP.

Checking with California Regional Water Quality Control Board, which is the State Agency implementing this aspect of the Federal Clean Water Act. They were surprised to find that the Districts interpretation had been taken so far a field. Quoting the Fresno branch office following their call to Sacramento on this issue, "There is nothing in the regulation calling for the disconnection of storm drainage facilities."

Lower Tule River Irrigation District is the only District in Tulare County that has implemented a disconnection program on County facilities. Other Districts have indicated consideration of the process; however, they have not acted on it.

These connections have not been inventoried in the county, but a safe assumption would be in the hundreds occurring at most irrigation / road crossings. One of our municipal piped storm drains was disconnected over a year ago and the County has incurred significant cost, pumping storm water until the remedy can be constructed by Caltrans this summer. A roadside piped storm drain was recently disconnected on Road 128 north of Ave 188, in which the County had made significant improvements. Additionally we were informed that a large diameter municipal storm drain serving the community of Strathmore and carrying the South Branch of Frazier Creek, for which a 1980s era agreement is

Attachment 20

in place, is subject to LTRID disconnection which would leave the community at the mercy of flood flows. We are checking for this agreements cancellation requirements.

Research by Counsel has shown that the County is protected by Case Law. Litigation for similar issues of flood impacts has shown that ultimate responsibility for damages will fall upon the entity that eliminates the drainage flow, in this case the Irrigation District. The implied / parol license on which the County has relied and built structure has made the license irrevocable.

Any connection with the requirements of the National Pollution Discharge Elimination System (NPDES) is lost in the extent to which the ILP goes beyond the NPDES intent of environmental cleanup by development restrictions, to the more aggressive environmental restoration by elimination of historic land use.

How the County wishes to handle this problem will have to be decided by the Board of Supervisors. We are hopeful that your Commission will advise the Board of this problem and support their resolution as the Board sees fit.

Attachment 20

NOAA's Western Regional Climate Center Data

DELANO, CALIFORNIA (042346)

Period of Record Monthly Climate Summary

Period of Record : 3/ 1/1906 to 12/31/2009

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)					Insuff icient		Data						
Average Min. Temperature (F)					Insuff icient		Data						
Average Total Precipitation (in.)	1.34	1.28	1.25	0.71	0.31	0.06	0.00	0.01	0.16	0.33	0.83	0.87	7.17
Average Total SnowFall (in.)	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record.
Max. Temp.: 0% Min. Temp.: 0% Precipitation: 97.8% Snowfall: 97.7% Snow Depth: 97.5%
Check Station Metadata or Metadata graphics for more detail about data completeness.

Western Regional Climate Center, wrcc@dri.edu

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Attachment 21

LEMON COVE, CALIFORNIA (044890)

Period of Record Monthly Climate Summary

Period of Record : 1/ 1/1899 to 12/31/2009

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	56.4	62.9	68.6	75.7	84.5	92.8	99.4	97.5	91.1	80.3	66.7	56.7	77.7
Average Min. Temperature (F)	37.0	40.6	43.6	47.2	52.4	58.2	63.2	61.7	57.4	50.5	42.1	37.0	49.2
Average Total Precipitation (in.)	2.75	2.45	2.47	1.46	0.58	0.14	0.01	0.03	0.21	0.69	1.46	2.05	14.31
Average Total SnowFall (in.)	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record.
Max. Temp.: 99.9% Min. Temp.: 99.7% Precipitation: 99.9% Snowfall: 100% Snow Depth: 99.9%
Check Station Metadata or Metadata graphics for more detail about data completeness.

Western Regional Climate Center, wrcc@dri.edu

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Attachment 21

THREE RIVERS ED PH 2, CALIFORNIA (048914)

Period of Record Monthly Climate Summary

Period of Record : 8/ 1/1909 to 6/30/1971

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	57.6	62.5	67.3	74.3	82.4	91.1	98.3	96.8	90.9	80.6	68.7	58.9	77.5
Average Min. Temperature (F)	33.7	37.5	40.2	44.1	49.0	55.1	61.6	59.9	54.0	46.2	38.2	34.3	46.2
Average Total Precipitation (in.)	3.86	3.72	3.02	2.28	0.90	0.21	0.04	0.04	0.20	0.87	2.02	3.46	20.63
Average Total SnowFall (in.)	0.4	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record.
Max. Temp.: 95.4% Min. Temp.: 96% Precipitation: 97.3% Snowfall: 97.6% Snow Depth: 97.3%
Check Station Metadata or Metadata graphics for more detail about data completeness.

Western Regional Climate Center, wrcc@dri.edu

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Attachment 21

ASH MOUNTAIN, CALIFORNIA (040343)

Period of Record Monthly Climate Summary

Period of Record : 1/ 1/1927 to 12/31/2009

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	57.3	61.0	64.5	70.5	79.8	89.6	98.1	96.8	90.9	80.2	67.1	58.6	76.2
Average Min. Temperature (F)	36.2	39.2	41.8	45.9	52.6	60.5	67.9	66.9	61.0	52.3	42.8	37.1	50.4
Average Total Precipitation (in.)	4.78	4.72	4.27	2.57	1.05	0.32	0.07	0.07	0.40	1.08	2.67	4.01	26.01
Average Total SnowFall (in.)	1.1	0.5	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	2.5
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record.
Max. Temp.: 99.7% Min. Temp.: 99.7% Precipitation: 99.8% Snowfall: 99.8% Snow Depth: 99%
Check Station Metadata or Metadata graphics for more detail about data completeness.

Western Regional Climate Center, wrcc@dri.edu

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Attachment 21

PUBLIC WATER SUPPLY (PWS) VIOLATIONS

OF DBCP AND NITRATES

in Homes, Mobile homes Schools, Businesses, Farm Labor Camps, Motels, Food Processors, CSDs and Water Companies with more than 25 Connections in Tulare County

1995 – 2010

For more information contact:

Chuck Hemans
Environmental Health and Human Services
Tulare County, California
(559) 733-6441, ext. 2810

Attachment 19

PWS VIOLATION REPORT - DBCP: 38761

PWS ID #	NAME	FISCAL YR	VIOL #	STORET	TYPE	RESULTS	MAJ VIOL	START	END	AWARE	VIOLATION ID
5400526	[redacted] PACKING CO	1995	1	38761	01	.76		1/1/1995	12/31/1995	1/5/1995	WV0000352
5400526	[redacted] PACKING CO	98	2	38761	01	0.44		1/1/1998	1/31/1998	2/10/1998	WV0000358
5400526	[redacted] PACKING CO	2004	3	38761	01	1.3		1/1/2003	12/31/2003	5/6/2003	WV0001031
5400526	[redacted] PACKING CO	2004	4	38761	03		Y	1/1/2004	3/31/2004	4/10/2004	WV0001077
5400526	[redacted] PACKING CO	2004	5	38761	03		Y	4/1/2004	6/30/2004	7/10/2004	WV0001209
5400526	[redacted] PACKING CO	2004	6	38761	03		Y	7/1/2004	9/30/2004	10/10/2004	WV0001319
5400526	[redacted] PACKING CO	2005	7	38761	03		Y	4/1/2005	6/30/2005	7/10/2005	WV0001574
5400526	[redacted] PACKING CO	2005	8	38761	03		Y	7/1/2005	9/30/2005	10/10/2005	WV0001611
5400526	[redacted] PACKING CO	2006	9	38761	03		Y	10/1/2005	12/31/2005	1/10/2006	WV0001673
5400526	[redacted] PACKING CO	2006	10	38761	01	.22		7/1/2006	9/30/2006	7/20/2006	WV0001876
5403041	[redacted] TREE FARMS	96	2	38761	03	42	Y	1/1/1995	1/31/1995	2/10/1995	WV0000207
5403082	GIUMARRA BROS FRUIT CO	2003	3	38761	03		Y	10/1/2002	12/31/2002	1/10/2003	WV0000597
5403082	GIUMARRA BROS FRUIT CO	2001	4	38761	01	.95		1/1/2001	3/31/2001	3/21/2001	WV0000705
5403082	GIUMARRA BROS FRUIT CO	2002	5	38761	01	.47		7/1/2002	9/30/2002	7/16/2002	WV0000706
5403082	GIUMARRA BROS FRUIT CO	2002	6	38761	01	.34		7/1/2002	9/30/2002	7/16/2002	WV0000707
5403082	GIUMARRA BROS FRUIT CO	2003	7	38761	01	0.44		1/1/2003	3/31/2003	1/7/2003	WV0000710
5403045	IMMANUEL SCHOOL	98	12	38761	02	.46		1/1/1998	12/31/1998	8/26/1998	WV0000281
5403045	IMMANUEL SCHOOL	99	15	38761	01	.44		1/1/1999	3/31/1999	1/11/1999	WV0000349
5400634	LOVELL HIGH SCHOOL	1999	5	38761	01	.20		1/1/1999	12/31/1999	6/17/1999	WV0000702
5400634	LOVELL HIGH SCHOOL	2000	6	38761	03		Y	1/1/2000	12/31/2000	1/10/2001	WV0000703
5400634	LOVELL HIGH SCHOOL	2004	9	38761	03		Y	1/1/2003	12/31/2003	1/14/2004	WV0001030
5400634	LOVELL HIGH SCHOOL	2005	15	38761	03		Y	1/1/2004	12/31/2004	1/10/2005	WV0001414
5400634	LOVELL HIGH SCHOOL	2006	22	38761	01	0.36		1/1/2005	12/31/2005	10/19/2005	WV0001785

PWS ID #	NAME	FISCAL YR	VIOL #	STORET	TYPE	RESULTS	MAJ VIOL	START	END	AWARE	VIOLATION ID
5400634	LOVELL HIGH SCHOOL	2007	24	38761	03		Y	10/1/2006	12/31/2006	1/10/2007	WV0001951
5400634	LOVELL HIGH SCHOOL	2007	26	38761	03		Y	1/1/2007	3/31/2007	4/10/2007	WV0002102
5400634	LOVELL HIGH SCHOOL	2009	30	38761	03		Y	10/1/2008	12/31/2008	1/10/2009	WV0002597
5400558	SAUCELITO ELEM SCHOOL	2005	4	38761	03		Y	10/1/2004	12/31/2004	1/10/2005	WV0001416
5400558	SAUCELITO ELEM SCHOOL	2006	8	38761	01	0.24		10/1/2005	12/31/2005	10/5/2005	WV0001786
5400558	SAUCELITO ELEM SCHOOL	2006	10	38761	01	.26		7/1/2006	9/30/2006	8/17/2006	WV0001877
5400558	SAUCELITO ELEM SCHOOL	2007	13	38761	03		Y	10/1/2006	12/31/2006	1/10/2007	WV0001952
5400558	SAUCELITO ELEM SCHOOL	2007	19	38761	01	0.26		7/1/2007	9/30/2007	8/8/2007	WV0002235
5400558	SAUCELITO ELEM SCHOOL	2008	20	38761	03		Y	10/1/2007	12/31/2007	1/10/2008	WV0002247
5400558	SAUCELITO ELEM SCHOOL	2008	23	38761	01	0.21		1/1/2008	3/31/2008	3/26/2008	WV0002360
5400558	SAUCELITO ELEM SCHOOL	2008	28	38761	01	0.27		4/1/2008	6/30/2008	6/20/2008	WV0002475
5400558	SAUCELITO ELEM SCHOOL	2008	32	38761	01	.24		7/1/2008	9/30/2008	8/6/2008	WV0002546
5400917	[redacted]	2009	2	38761	03		Y	10/1/2008	12/31/2008	1/10/2009	WV0002598
5401004	STYROTEK	1999	5	38761	01	.19		1/1/1999	3/31/1999	1/20/1999	WV0000704
5401004	STYROTEK	2002	6	38761	01	.24		1/1/2002	12/31/2002	3/14/2002	WV0000711
5401004	STYROTEK	2004	11	38761	03		Y	10/1/2003	12/31/2003	1/14/2004	WV0001032
5401004	STYROTEK	2006	21	38761	01	.33		7/1/2006	9/30/2006	7/6/2006	WV0001878
5402022	[redacted]	1996	3	38761	01	.52		1/1/1995	12/31/1995	11/2/1995	WV0000699
5402022	[redacted]	2001	4	38761	01	.30		1/1/2001	12/31/2001	4/9/2001	WV0000700
5402022	[redacted] VALLEY FARMS - PWS	2002	5	38761	01	.21		1/1/2002	12/31/2002	7/16/2002	WV0000701

Created by Paul Charpentier 3/25/2010

PWS VIOLATION REPORT - NITRATE: 71850

PWS ID #	NAME	FISCAL YR	VIOL #	STORET	TYPE	RESULTS	MAJ VIOL	START	END	AWARE	VIOLATION ID
5400504	A & A MHP	2008	6	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002365
5400810	[redacted]AL TRAVEL PLAZA	1998	3	71850	01	52.0		1/1/1998	12/31/1998	8/11/1998	WV0000240
5400810	AK[redacted]TRAVEL PLAZA	2000	6	71850	01	54.4		1/1/2000	12/31/2000	4/18/2000	WV0000665
5400810	AKAL [redacted]VEL PLAZA	2001	7	71850	01	56.5		1/1/2001	12/31/2001	5/11/2001	WV0000666
5400810	AKAL TR[redacted]L PLAZA	2004	8	71850	01	95		1/1/2003	12/31/2003	10/17/2003	WV0000998
5400810	AKAL TRAV[redacted]PLAZA	2005	12	71850	01	64		1/1/2004	12/31/2004	11/16/2004	WV0001401
5400810	AKAL TRAVEL[redacted]AZA	2005	13	71850	03		Y	1/1/2005	12/31/2005	1/10/2006	WV0001708
5400810	AKAL TRAVEL P[redacted]A	2006	14	71850	01	69.0		1/1/2006	12/31/2006	2/8/2006	WV0001987
5400810	AKAL TRAVEL PL[redacted]	2008	15	71850	01	72		1/1/2007	12/31/2007	2/14/2007	WV0002281
5400810	AKAL TRAVEL PLA[redacted]	2009	16	71850	01	69		1/1/2008	12/31/2008	11/12/2008	WV0002613
5400810	AKAL TRAVEL PLAZA	2010	17	71850	01	78		1/1/2009	12/31/2009	4/20/2009	WV0002868
5401038	AKIN WATER CO	2001	1	71850	01	49		1/1/2000	12/31/2000	10/17/2000	WV0000070
5401038	AKIN WATER CO	2001	4	71850	01	45		1/1/2000	12/31/2000	10/17/2000	WV0000690
5401038	AKIN WATER CO	2004	5	71850	01	49		1/1/2003	12/31/2003	12/15/2003	WV0000999
5401038	AKIN WATER CO	2005	8	71850	03		Y	1/1/2005	12/31/2005	1/10/2006	WV0001715
5401038	AKIN WATER CO	2005	9	71850	03		Y	1/1/2005	12/31/2005	1/10/2006	WV0001716
5401038	AKIN WATER CO	2006	10	71850	01	47.0		1/1/2006	12/31/2006	2/8/2006	WV0001994
5401038	AKIN WATER CO	2006	11	71850	01	48.0		1/1/2006	12/31/2006	2/8/2006	WV0001995
5400544	ALLENSWORTH C S D	2007	10	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002002
5400544	ALLENSWORTH C S D	2007	11	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002003
5400708	ALPINE VILLAGE WATER CO.	2007	7	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002004
5400708	ALPINE VILLAGE WATER CO.	2007	8	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002005
5400548	[redacted]	2002	1	71850	01	48		1/1/2001	12/31/2001	12/7/2001	WV0000418

PWS ID #	NAME	FISCAL YR	VIOL #	STORET	TYPE	RESULTS	MAJ VIOL	START	END	AWARE	VIOLATION ID
5400548	AMERICAS BEST VALUE INN	2000	3	71850	01	48.0		1/1/1999	12/31/1999	10/6/1999	WV0000628
5400548	AMERICAS BEST VALUE INN	2000	4	71850	01	48.0		1/1/2000	12/31/2000	3/7/2000	WV0000669
5400548	AMERICAS BEST VALUE INN	2002	5	71850	01	46.0		1/1/2002	12/31/2002	6/7/2002	WV0000670
5400548	AMERICAS BEST VALUE INN	2003	6	71850	01	45.0		1/1/2002	12/31/2002	12/11/2002	WV0000716
5400548	AMERICAS BEST VALUE INN	2004	7	71850	01	46		1/1/2003	12/31/2003	8/19/2003	WV0001004
5400548	AMERICAS BEST VALUE INN	2005	8	71850	01	45		1/1/2004	12/31/2004	8/31/2004	WV0001386
5400548	AMERICAS BEST VALUE INN	2005	10	71850	01	49.0		7/1/2005	9/30/2005	8/8/2005	WV0001615
5400548	AMERICAS BEST VALUE INN	2005	11	71850	01	49		1/1/2005	12/31/2005	8/8/2005	WV0001692
5400548	AMERICAS BEST VALUE INN	2007	12	71850	01	51.0		1/1/2006	12/31/2006	11/28/2006	WV0001971
5400548	AMERICAS BEST VALUE INN	2008	14	71850	01	52		1/1/2007	12/31/2007	11/20/2007	WV0002259
5400548	AMERICAS BEST VALUE INN	2009	16	71850	01	53		1/1/2008	12/31/2008	2/28/2008	WV0002622
5400548	AMERICAS BEST VALUE INN	2010	17	71850	01	58		1/1/2009	12/31/2009	3/26/2009	WV0002877
5400816	BEDEL MUTUAL WATER CO.	2008	13	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002367
5400651	BEVERLY GRAND MUTUAL	2004	15	71850	01	62		1/1/2004	12/31/2004	2/24/2004	WV0001071
5400651	BEVERLY GRAND MUTUAL	2004	16	71850	01	72		4/1/2004	6/30/2004	4/15/2004	WV0001224
5400651	BEVERLY GRAND MUTUAL	2004	17	71850	01	65		7/1/2004	9/30/2004	7/13/2004	WV0001311
5400651	BEVERLY GRAND MUTUAL	2005	18	71850	01	50		10/1/2004	12/31/2004	10/5/2004	WV0001377
5400651	BEVERLY GRAND MUTUAL	2005	19	71850	01	73		1/1/2005	3/31/2005	1/4/2005	WV0001474
5400651	BEVERLY GRAND MUTUAL	2005	21	71850	01	71		4/1/2005	6/30/2005	4/4/2005	WV0001571
5400651	BEVERLY GRAND MUTUAL	2005	22	71850	01	65.0		7/1/2005	9/30/2005	7/18/2005	WV0001626
5400651	BEVERLY GRAND MUTUAL	2006	23	71850	01	65		10/1/2005	12/31/2005	10/4/2005	WV0001687
5400651	BEVERLY GRAND MUTUAL	2006	24	71850	01	62.0		1/1/2006	3/31/2006	1/3/2006	WV0001759
5400651	BEVERLY GRAND MUTUAL	2006	25	71850	01	71.0		4/1/2006	6/30/2006	4/4/2006	WV0001822
5400651	BEVERLY GRAND MUTUAL	2006	26	71850	01	75.0		7/1/2006	9/30/2006	7/18/2006	WV0001897
5400651	BEVERLY GRAND MUTUAL	2007	27	71850	01	71.0		10/1/2006	12/31/2006	10/3/2006	WV0001968
5400651	BEVERLY GRAND MUTUAL	2008	28	71850	01	79		1/1/2007	12/31/2007	1/4/2007	WV0002288

PWS ID #	[redacted]	FISCAL YR	VIOL #	STORET	[redacted]	RESULTS	MAJ VIOL	START	END	AWARE	[redacted]
5400651	BEVERLY GRAND MUTUAL	2009	29	71850	01	91		1/1/2008	12/31/2008	5/2/2008	WV0002614
5400651	BEVERLY GRAND MUTUAL	2010	30	71850	01	75		1/1/2009	12/31/2009	4/6/2009	WV0002869
5402019	[redacted]	2008	2	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002369
5400637	[redacted]	2007	19	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002008
5400919	BUENA VISTA SCHOOL	2005	3	71850	01	50.3		10/1/2004	12/31/2004	11/8/2004	WV0001371
5400919	BUENA VISTA SCHOOL	2005	4	71850	01	51.2		1/1/2005	3/31/2005	1/11/2005	WV0001468
5400919	BUENA VISTA SCHOOL	2005	5	71850	01	49		4/1/2005	6/30/2005	4/5/2005	WV0001565
5400919	BUENA VISTA SCHOOL	2005	6	71850	01	46.2		7/1/2005	9/30/2005	7/7/2005	WV0001620
5400919	BUENA VISTA SCHOOL	2006	7	71850	01	52.6		1/1/2006	3/31/2006	1/18/2006	WV0001753
5400919	BUENA VISTA SCHOOL	2006	8	71850	01	53.0		4/1/2006	6/30/2006	4/20/2006	WV0001819
5400919	BUENA VISTA SCHOOL	2006	9	71850	01	47.0		7/1/2006	9/30/2006	7/12/2006	WV0001891
5400919	BUENA VISTA SCHOOL	2007	10	71850	01	67.4		10/1/2006	12/31/2006	10/17/2006	WV0001962
5400919	BUENA VISTA SCHOOL	2007	12	71850	01	57.4		4/1/2007	6/30/2007	5/15/2007	WV0002154
5400919	BUENA VISTA SCHOOL	2007	13	71850	01	55		7/1/2007	9/30/2007	7/12/2007	WV0002215
5400919	BUENA VISTA SCHOOL	2008	14	71850	01	62		10/1/2007	12/31/2007	11/20/2007	WV0002282
5400919	BUENA VISTA SCHOOL	2008	16	71850	01	56		1/1/2008	3/31/2008	1/22/2008	WV0002336
5400919	BUENA VISTA SCHOOL	2009	18	71850	01	120		1/1/2008	12/31/2008	11/13/2008	WV0002615
5400919	BUENA VISTA SCHOOL	2010	19	71850	01	77.1		1/1/2009	12/31/2009	4/15/2009	WV0002870
5400513	[redacted]	2008	2	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002370
5403042	[redacted]ALIFORNIA DAIRIES INC	2008	1	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002371
5400894	[redacted] SAN JOAQUIN	2009	1	71850	03		Y	1/1/2008	12/31/2008	1/10/2009	WV0002643
5400894	CAMP [redacted]	2010	2	71850	03		Y	1/1/2009	12/31/2009	1/10/2010	WV0002896
5403076	CENTRAL CAL TRISTEZA ERAD	2001	1	71850	01	49.6		1/1/2001	12/31/2001	4/9/2001	WV0000623
5403076	CENTRAL CAL TRISTEZA ERAD	2003	2	71850	01	52.6		7/1/2003	9/30/2003	7/28/2003	WV0000939
5403076	CENTRAL CAL TRISTEZA ERAD	2004	3	71850	01	51.1		10/1/2003	12/31/2003	10/6/2003	WV0000986
5403076	CENTRAL CAL TRISTEZA ERAD	2004	4	71850	01	54.4		4/1/2004	6/30/2004	4/19/2004	WV0001220

PWS ID #	NAME	FISCAL YR	VIOL #	STORET	TYPE	RESULTS	MAJ VIOL	START	END	AWARE	VIOLATION ID
5403076	CENTRAL CAL TRISTEZA ERAD	2004	5	71850	01	49.6		7/1/2004	9/30/2004	7/19/2004	WV0001312
5403076	CENTRAL CAL TRISTEZA ERAD	2005	6	71850	01	50.7		10/1/2004	12/31/2004	10/5/2004	WV0001372
5403076	CENTRAL CAL TRISTEZA ERAD	2005	7	71850	01	51.4		1/1/2005	3/31/2005	1/4/2005	WV0001469
5403076	CENTRAL CAL TRISTEZA ERAD	2005	8	71850	01	61.2		4/1/2005	6/30/2005	4/5/2005	WV0001566
5403076	CENTRAL CAL TRISTEZA ERAD	2005	9	71850	01	57.1		7/1/2005	9/30/2005	7/11/2005	WV0001621
5403076	CENTRAL CAL TRISTEZA ERAD	2006	10	71850	01	53.9		10/1/2005	12/31/2005	10/20/2005	WV0001682
5403076	CENTRAL CAL TRISTEZA ERAD	2006	11	71850	01	58.1		1/1/2006	3/31/2006	1/19/2006	WV0001754
5403076	CENTRAL CAL TRISTEZA ERAD	2006	12	71850	03		Y	4/1/2006	6/30/2006	7/10/2006	WV0001820
5403076	CENTRAL CAL TRISTEZA ERAD	2006	13	71850	01	55.1		7/1/2006	9/30/2006	8/22/2006	WV0001892
5403076	CENTRAL CAL TRISTEZA ERAD	2007	14	71850	01	47.3		10/1/2006	12/31/2006	10/4/2006	WV0001963
5403076	CENTRAL CAL TRISTEZA ERAD	2007	15	71850	01	79.0		1/1/2007	3/31/2007	1/4/2007	WV0002091
5403076	CENTRAL CAL TRISTEZA ERAD	2007	16	71850	01	57.5		4/1/2007	6/30/2007	4/23/2007	WV0002155
5403076	CENTRAL CAL TRISTEZA ERAD	2007	17	71850	01	50.5		7/1/2007	9/30/2007	7/5/2007	WV0002216
5403076	CENTRAL CAL TRISTEZA ERAD	2008	18	71850	01	64		10/1/2007	12/31/2007	10/15/2007	WV0002283
5403076	CENTRAL CAL TRISTEZA ERAD	2008	19	71850	01	59.4		1/1/2008	3/31/2008	1/8/2008	WV0002337
5403076	CENTRAL CAL TRISTEZA ERAD	2009	20	71850	01	53.4		1/1/2008	12/31/2008	10/20/2008	WV0002616
5403076	CENTRAL CAL TRISTEZA ERAD	2010	21	71850	01	51.8		1/1/2009	12/31/2009	11/5/2009	WV0002871
5400682	CENTRAL WATER CO	2008	6	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002372
5401053	[redacted]HARLIE'S	2002	1	71850	03		Y	7/1/2002	9/30/2002	10/10/2002	WV0000600
5401053	[redacted]ARLIE'S	2002	2	71850	01	180		1/1/2002	12/31/2002	11/21/2002	WV0000613
5401053	C[redacted]RLIE'S	2003	3	71850	01	180		1/1/2003	3/31/2003	1/9/2003	WV0000770
5401053	CHA[redacted]IE'S	2003	4	71850	01	180		4/1/2003	6/30/2003	4/7/2003	WV0000826
5401053	CHAR[redacted]E'S	2003	5	71850	01	200		7/1/2003	9/30/2003	7/8/2003	WV0000942
5401053	CHARL[redacted]S	2004	6	71850	03		Y	10/1/2003	12/31/2003	1/13/2004	WV0000990
5401053	CHARLI[redacted]	2004	7	71850	01	170		1/1/2004	3/31/2004	1/30/2004	WV0001079
5401053	CHARLIE[redacted]	2004	8	71850	01	190		4/1/2004	6/30/2004	6/23/2004	WV0001225

PWS ID #	[redacted]	FISCAL YR	VIOL #	STORET	[redacted]	RESULTS	MAJ VIOL	START	END	AWARE	[redacted]
5401053	[redacted]HARLIE'S	2004	9	71850	03		Y	7/1/2004	9/30/2004	10/10/2004	WV0001313
5401053	[redacted]ARLIE'S	2005	10	71850	01	170		10/1/2004	12/31/2004	10/4/2004	WV0001378
5401053	[redacted]RLIE'S	2005	11	71850	01	170		1/1/2005	3/31/2005	1/12/2005	WV0001475
5401053	[redacted]LIE'S	2005	12	71850	01	170		4/1/2005	6/30/2005	4/19/2005	WV0001572
5401053	[redacted]LIE'S	2005	13	71850	01	170.0		7/1/2005	9/30/2005	7/21/2005	WV0001627
5401053	[redacted]IE'S	2006	14	71850	01	160		10/1/2005	12/31/2005	10/13/2005	WV0001688
5401053	[redacted]IE'S	2006	15	71850	01	140		1/1/2006	3/31/2006	2/2/2006	WV0001760
5401053	[redacted]IE'S	2006	16	71850	01	150.0		4/1/2006	6/30/2006	4/11/2006	WV0001823
5401053	[redacted]E'S	2006	17	71850	01	160.0		7/1/2006	9/30/2006	7/13/2006	WV0001898
5401053	[redacted]'S	2007	18	71850	01	140.0		10/1/2006	12/31/2006	10/20/2006	WV0001969
5401053	[redacted]S	2007	19	71850	01	160.0		1/1/2007	3/31/2007	1/25/2007	WV0002095
5401053	[redacted]'S	2007	20	71850	03		Y	4/1/2007	6/30/2007	7/10/2007	WV0002160
5401053	[redacted]S	2007	21	71850	01	120		7/1/2007	9/30/2007	7/25/2007	WV0002222
5401053	[redacted]S	2008	22	71850	01	100		1/1/2008	3/31/2008	1/10/2008	WV0002338
5401053	[redacted]S	2008	23	71850	01	110		4/1/2008	6/30/2008	4/17/2008	WV0002479
5401053	[redacted]S	2009	24	71850	01	148		10/1/2008	12/31/2008	10/22/2008	WV0002602
5401053	[redacted]S	2009	25	71850	01	126		1/1/2009	3/31/2009	1/6/2009	WV0002697
5401053	[redacted]S	2009	27	71850	01	188		4/1/2009	6/30/2009	4/14/2009	WV0002749
5401053	[redacted]	2010	28	71850	01	91		7/1/2009	9/30/2009	9/18/2009	WV0002821
5401053	[redacted]	2010	29	71850	03		Y	10/1/2009	12/31/2009	1/10/2010	WV0002858
5401041	[redacted]'S HIDDEN LAKES	2007	5	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002010
5401041	CHUCK'S [redacted]	2009	6	71850	03		Y	1/1/2008	12/31/2008	1/10/2009	WV0002644
5400555	CITRUS SOUTH TULE SCHOOL	2003	1	71850	03		Y	1/1/2002	12/31/2002	1/10/2003	WV0000608
5400555	CITRUS SOUTH TULE SCHOOL	2000	2	71850	01	75.0		1/1/2000	12/31/2000	1/13/2000	WV0000625
5400555	CITRUS SOUTH TULE SCHOOL	2002	3	71850	01	55.3		1/1/2001	12/31/2001	12/14/2001	WV0000667
5400555	CITRUS SOUTH TULE SCHOOL	2004	5	71850	01	61		1/1/2003	12/31/2003	10/30/2003	WV0001000

PWS ID #	NAME	FISCAL YR	VIOL #	STORET	TYPE	RESULTS	MAJ VIOL	START	END	AWARE	VIOLATION ID
5400555	CITRUS SOUTH TULE SCHOOL	2005	10	71850	01	48		1/1/2004	12/31/2004	2/17/2004	WV0001403
5400555	CITRUS SOUTH TULE SCHOOL	2005	12	71850	01	48		1/1/2005	12/31/2005	3/29/2005	WV0001710
5400555	CITRUS SOUTH TULE SCHOOL	2007	14	71850	01	50.0		1/1/2006	12/31/2006	11/14/2006	WV0001989
5400555	CITRUS SOUTH TULE SCHOOL	2008	16	71850	01	62		1/1/2007	12/31/2007	8/21/2007	WV0002289
5400555	CITRUS SOUTH TULE SCHOOL	2009	19	71850	01	60		10/1/2008	12/31/2008	12/2/2008	WV0002617
5400555	CITRUS SOUTH TULE SCHOOL	2010	22	71850	01	67		1/1/2009	12/31/2009	5/5/2009	WV0002872
5400890	[redacted]	2010	1	71850	03		Y	1/1/2009	12/31/2009	1/10/2010	WV0002897
5403062	[redacted]MFORT INN & SUITES	2007	3	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002011
5403062	[redacted] INN & SUITES	2008	5	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002373
5400563	[redacted] MHP	2007	7	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002012
5400563	[redacted] MHP	2007	8	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002013
5400563	[redacted]	2007	9	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002014
5401026	DEER MEADOW MUTUAL	2008	7	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002374
5403023	DELFT COLONY WATER	2008	13	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002375
5400542	DUCOR CSD	2005	6	71850	03		Y	1/1/2005	3/31/2005	4/10/2005	WV0001463
5400542	DUCOR CSD	2005	7	71850	03		Y	4/1/2005	6/30/2005	7/10/2005	WV0001563
5400542	DUCOR CSD	2009	10	71850	01	47		1/1/2009	12/31/2009	1/5/2009	WV0002675
5403007	[redacted]M THARP INC	2007	1	71850	01	71		3/1/2007	3/31/2007	3/30/2007	WV0002143
5403007	[redacted] THARP INC	2007	2	71850	01	104		4/1/2007	4/30/2007	4/17/2007	WV0002144
5403007	E M [redacted]ARP INC	2008	3	71850	01	76		10/1/2007	12/31/2007	10/23/2007	WV0002290
5403007	E M TH[redacted]P INC	2008	4	71850	01	63		1/1/2008	3/31/2008	1/25/2008	WV0002339
5403007	E M THA[redacted]NC	2008	5	71850	03		Y	4/1/2008	6/30/2008	7/10/2008	WV0002481
5403007	E M THARP [redacted]C	2008	6	71850	03		Y	7/1/2008	9/30/2008	10/10/2008	WV0002550
5403007	E M THARP I[redacted]	2009	7	71850	01	46		10/1/2008	12/31/2008	10/23/2008	WV0002603
5403007	E M THARP INC[redacted]	2009	9	71850	01	47.2		4/1/2009	6/30/2009	4/8/2009	WV0002751
5400602	[redacted]	2008	1	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002376

PWS ID #	[redacted]E	FISCAL YR	VIOL #	STORET	[redacted]YPE	RESULTS	MAJ VIOL	START	END	AWARE	[redacted]ATION ID
5401003	EAST OROSI CSD	2003	10	71850	01	50.2		1/1/2003	12/31/2003	4/14/2003	WV0000798
5401003	EAST OROSI CSD	2004	16	71850	03		Y	4/1/2004	6/30/2004	7/10/2004	WV0001211
5401003	EAST OROSI CSD	2005	20	71850	03		Y	7/1/2005	9/30/2005	10/10/2005	WV0001613
5401003	EAST OROSI CSD	2006	23	71850	03		Y	10/1/2005	12/31/2005	1/10/2006	WV0001674
5401003	EAST OROSI CSD	2006	24	71850	03		Y	10/1/2005	12/31/2005	1/10/2006	WV0001675
5401003	EAST OROSI CSD	2006	25	71850	01	55.8		1/1/2006	3/31/2006	3/2/2006	WV0001747
5401003	EAST OROSI CSD	2006	26	71850	01	48.0		7/1/2006	9/30/2006	8/1/2006	WV0001882
5401003	EAST OROSI CSD	2007	27	71850	01	45.7		10/1/2006	12/31/2006	10/24/2006	WV0001954
5401003	EAST OROSI CSD	2007	29	71850	01	47		7/1/2007	9/30/2007	7/17/2007	WV0002206
5401003	EAST OROSI CSD	2008	30	71850	01	54		10/1/2007	12/31/2007	10/10/2007	WV0002256
5401003	EAST OROSI CSD	2010	40	71850	01	45.4		10/1/2009	12/31/2009	10/22/2009	WV0002859
5401003	EAST OROSI CSD	2010	41	71850	01	45.9		10/1/2009	12/31/2009	10/22/2009	WV0002860
5400523	EL MONTE VILLAGE M H P	2007	12	71850	01	62		4/1/2007	6/30/2007	5/16/2007	WV0002145
5400523	EL MONTE VILLAGE M H P	2007	13	71850	03		Y	7/1/2007	9/30/2007	10/10/2007	WV0002207
5400523	EL MONTE VILLAGE M H P	2008	14	71850	03		Y	10/1/2007	12/31/2007	1/10/2008	WV0002257
5400523	EL MONTE VILLAGE M H P	2008	15	71850	01	52.8		4/1/2008	6/30/2008	5/6/2008	WV0002480
5400523	EL MONTE VILLAGE M H P	2009	16	71850	01	48.2		1/1/2009	3/31/2009	2/17/2009	WV0002698
5400523	EL MONTE VILLAGE M H P	2009	17	71850	01	54.5		4/1/2009	6/30/2009	5/7/2009	WV0002750
5400523	EL MONTE VILLAGE M H P	2010	18	71850	01	52.7		7/1/2009	9/30/2009	8/24/2009	WV0002822
5400523	EL MONTE VILLAGE M H P	2010	19	71850	01	54.6		10/1/2009	12/31/2009	11/12/2009	WV0002861
5403084	FAIRWAY MUTUAL WATER CO	2008	14	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002377
5400663	FAIRWAYS TRACT MUTUAL	95	1	71850	02			1/1/1995	12/31/1995	3/25/1995	WV0000019
5400663	FAIRWAYS TRACT MUTUAL	2000	3	71850	01	110		1/1/2000	12/31/2000	6/22/2000	WV0000244
5400663	FAIRWAYS TRACT MUTUAL	1997	6	71850	01	99		1/1/1997	12/31/1997	3/26/1997	WV0000626
5400663	FAIRWAYS TRACT MUTUAL	2002	7	71850	01	120		1/1/2002	12/31/2002	2/11/2002	WV0000724
5400663	FAIRWAYS TRACT MUTUAL	2004	8	71850	01	123		1/1/2003	12/31/2003	6/5/2003	WV0001001

PWS ID #	NAME	FISCAL YR	VIOL #	STORET	TYPE	RESULTS	MAJ VIOL	START	END	AWARE	VIOLATION ID
5400663	FAIRWAYS TRACT MUTUAL	2004	9	71850	01	47		7/1/2004	9/30/2004	9/29/2004	WV0001318
5400663	FAIRWAYS TRACT MUTUAL	2005	10	71850	01	47		1/1/2004	12/31/2004	9/29/2004	WV0001411
5400663	FAIRWAYS TRACT MUTUAL	2006	11	71850	01	131		1/1/2005	12/31/2005	11/15/2005	WV0001718
5400663	FAIRWAYS TRACT MUTUAL	2007	13	71850	01	139.0		1/1/2006	12/31/2006	11/13/2006	WV0001996
5400663	FAIRWAYS TRACT MUTUAL	2008	19	71850	01	130		1/1/2007	12/31/2007	3/21/2007	WV0002296
5400663	FAIRWAYS TRACT MUTUAL	2009	24	71850	01	116		1/1/2008	12/31/2008	4/24/2008	WV0002618
5400663	FAIRWAYS TRACT MUTUAL	2010	25	71850	03		Y	1/1/2009	12/31/2009	1/10/2010	WV0002873
5400896	[redacted]	2009	3	71850	03		Y	1/1/2008	12/31/2008	1/10/2009	WV0002645
5403030	OOTHILL FRUIT CO	2002	2	71850	03		Y	10/1/2001	12/31/2001	1/10/2002	WV0000598
5403030	OTHILL FRUIT CO	2002	3	71850	03		Y	7/1/2002	9/30/2002	10/10/2002	WV0000601
5403030	THILL FRUIT CO	2003	4	71850	03		Y	10/1/2002	12/31/2002	1/10/2003	WV0000609
5403030	HILL FRUIT CO	1996	5	71850	01	150		1/1/1996	12/31/1996	3/19/1996	WV0000615
5403030	ILL FRUIT CO	2001	6	71850	01	106		1/1/2000	12/31/2000	10/9/2000	WV0000693
5403030	LL FRUIT CO	2003	7	71850	03		Y	1/1/2003	3/31/2003	4/10/2003	WV0000767
5403030	L FRUIT CO	2003	8	71850	03		Y	4/1/2003	6/30/2003	7/10/2003	WV0000828
5403030	FRUIT CO	2003	9	71850	01	96.0		7/1/2003	9/30/2003	8/11/2003	WV0000929
5403030	FRUIT CO	2004	10	71850	03		Y	10/1/2003	12/31/2003	1/13/2004	WV0000983
5403030	RUIT CO	2004	12	71850	01	106		1/1/2004	3/31/2004	1/5/2004	WV0001080
5403030	UIT CO	2004	13	71850	03		Y	7/1/2004	9/30/2004	10/10/2004	WV0001304
5403030	IT CO	2005	14	71850	01	108		10/1/2004	12/31/2004	10/25/2004	WV0001368
5403030	T CO	2005	15	71850	03		Y	1/1/2005	3/31/2005	4/10/2005	WV0001461
5403030	CO	2005	16	71850	03		Y	1/1/2005	12/31/2005	1/10/2006	WV0001698
5403030	CO	2006	17	71850	03		Y	1/1/2006	12/31/2006	1/10/2007	WV0001978
5403030	O	2008	19	71850	01	81		1/1/2007	12/31/2007	2/14/2007	WV0002266
5403030	D	2009	20	71850	01	84.1		1/1/2008	12/31/2008	12/22/2008	WV0002619
5403030		2010	21	71850	03		Y	1/1/2009	12/31/2009	1/10/2010	WV0002898

PWS ID #	[redacted]E	FISCAL YR	VIOL #	STORET	[redacted]PE	RESULTS	MAJ VIOL	START	END	AWARE	[redacted]ATION ID
5400987	[redacted]OUNTAIN SPRINGS EL TAPATIO	2000	1	71850	01	53		1/1/2000	12/31/2000	8/31/2000	WV0000157
5400987	FO[redacted]TAIN SPRINGS EL TAPATIO	2001	5	71850	01	52.1		1/1/2001	12/31/2001	9/19/2001	WV0000685
5400987	FOUNT[redacted]SPRINGS EL TAPATIO	2003	6	71850	01	50.0		1/1/2002	12/31/2002	12/3/2002	WV0000723
5400987	FOUNTAIN S[redacted]RINGS EL TAPATIO	2004	7	71850	01	50.0		1/1/2003	12/31/2003	9/16/2003	WV0001002
5400987	FOUNTAIN SPRI[redacted]S EL TAPATIO	2005	9	71850	01	45		1/1/2004	12/31/2004	10/27/2004	WV0001412
5400987	FOUNTAIN SPRINGS [redacted]TAPATIO	2005	10	71850	03		Y	1/1/2005	12/31/2005	1/10/2006	WV0001719
5400987	FOUNTAIN SPRINGS EL [redacted]PATIO	2007	11	71850	01	57.0		1/1/2006	12/31/2006	11/14/2006	WV0001997
5400987	FOUNTAIN SPRINGS EL TAP[redacted]IO	2008	12	71850	01	48		1/1/2007	12/31/2007	11/13/2007	WV0002297
5400987	FOUNTAIN SPRINGS EL TAPATI[redacted]	2010	16	71850	01	57		1/1/2009	12/31/2009	2/16/2009	WV0002874
5403051	[redacted]	2008	3	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002378
5403080	FRUIT PATCH INC	2007	2	71850	03		Y	7/1/2007	9/30/2007	10/10/2007	WV0002208
5403080	FRUIT PATCH INC	2009	3	71850	03		Y	10/1/2008	12/31/2008	1/10/2009	WV0002604
5403080	FRUIT PATCH INC	2009	4	71850	03		Y	4/1/2009	6/30/2009	7/10/2009	WV0002752
5400692	[redacted]	2007	3	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002015
5400749	[redacted]	2007	8	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002016
5400762	G[redacted]ARRA VINEYARDS 3 & 4	2008	4	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002379
5400762	GIUMA[redacted]VINEYARDS 3 & 4	2010	7	71850	03		Y	1/1/2009	12/31/2009	1/10/2010	WV0002899
5400763	GIUMARRA VI[redacted]RDS 5 & 6	2006	2	71850	03		Y	7/1/2006	9/30/2006	10/10/2006	WV0001904
5400763	GIUMARRA VINEYA[redacted]5 & 6	2008	3	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002380
5400763	GIUMARRA VINEYARDS [redacted]	2010	5	71850	03		Y	1/1/2009	12/31/2009	1/10/2010	WV0002900
5402047	GLEANINGS FOR THE HUNGRY	1995	1	71850	03	81	Y	1/1/1995	12/31/1995	1/10/1996	WV0000354
5402047	GLEANINGS FOR THE HUNGRY	2002	3	71850	03		Y	7/1/2002	9/30/2002	10/10/2002	WV0000602
5402047	GLEANINGS FOR THE HUNGRY	2003	4	71850	03		Y	10/1/2002	12/31/2002	1/10/2003	WV0000610
5402047	GLEANINGS FOR THE HUNGRY	2002	5	71850	01	130		1/1/2002	12/31/2002	1/18/2002	WV0000616
5402047	GLEANINGS FOR THE HUNGRY	2003	6	71850	01	98		1/1/2003	3/31/2003	1/10/2003	WV0000772
5402047	GLEANINGS FOR THE HUNGRY	2003	7	71850	01	110		4/1/2003	6/30/2003	4/10/2003	WV0000829

PWS ID #	NAME	FISCAL YR	VIOL #	STORET	TYPE	RESULTS	MAJ VIOL	START	END	AWARE	VIOLATION ID
5402047	GLEANINGS FOR THE HUNGRY	2003	8	71850	03		Y	7/1/2003	9/30/2003	10/10/2003	WV0000945
5402047	GLEANINGS FOR THE HUNGRY	2004	9	71850	01	105		10/1/2003	12/31/2003	10/8/2003	WV0000981
5402047	GLEANINGS FOR THE HUNGRY	2004	10	71850	03		Y	1/1/2004	3/31/2004	4/10/2004	WV0001081
5402047	GLEANINGS FOR THE HUNGRY	2004	11	71850	01	98.9		4/1/2004	6/30/2004	4/20/2004	WV0001215
5402047	GLEANINGS FOR THE HUNGRY	2005	14	71850	01	84.7		10/1/2004	12/31/2004	11/1/2004	WV0001363
5402047	GLEANINGS FOR THE HUNGRY	2005	15	71850	03		Y	1/1/2005	3/31/2005	4/10/2005	WV0001460
5402047	GLEANINGS FOR THE HUNGRY	2005	16	71850	03		Y	4/1/2005	6/30/2005	7/10/2005	WV0001556
5402047	GLEANINGS FOR THE HUNGRY	2005	17	71850	03		Y	7/1/2005	9/30/2005	10/10/2005	WV0001614
5402047	GLEANINGS FOR THE HUNGRY	2006	18	71850	01	97		10/1/2005	12/31/2005	10/12/2005	WV0001678
5402047	GLEANINGS FOR THE HUNGRY	2006	19	71850	03		Y	1/1/2006	3/31/2006	4/10/2006	WV0001748
5402047	GLEANINGS FOR THE HUNGRY	2006	21	71850	01	96.2		4/1/2006	6/30/2006	4/24/2006	WV0001814
5402047	GLEANINGS FOR THE HUNGRY	2006	22	71850	01	98.0		7/1/2006	9/30/2006	7/19/2006	WV0001883
5402047	GLEANINGS FOR THE HUNGRY	2007	23	71850	01	95.3		10/1/2006	12/31/2006	10/9/2006	WV0001955
5402047	GLEANINGS FOR THE HUNGRY	2007	24	71850	01	97.4		1/1/2007	3/31/2007	1/10/2007	WV0002084
5402047	GLEANINGS FOR THE HUNGRY	2007	25	71850	01	107		4/1/2007	6/30/2007	4/16/2007	WV0002147
5402047	GLEANINGS FOR THE HUNGRY	2007	28	71850	01	95.8		7/1/2007	9/30/2007	7/23/2007	WV0002209
5402047	GLEANINGS FOR THE HUNGRY	2008	29	71850	01	107		10/1/2007	12/31/2007	10/10/2007	WV0002258
5402047	GLEANINGS FOR THE HUNGRY	2008	31	71850	01	74.9		4/1/2008	6/30/2008	4/2/2008	WV0002482
5402047	GLEANINGS FOR THE HUNGRY	2008	33	71850	01	65.7		7/1/2008	9/30/2008	7/15/2008	WV0002551
5402047	GLEANINGS FOR THE HUNGRY	2009	34	71850	01	103		10/1/2008	12/31/2008	10/14/2008	WV0002605
5402047	GLEANINGS FOR THE HUNGRY	2009	35	71850	01	66.5		1/1/2009	3/31/2009	1/13/2009	WV0002699
5402047	GLEANINGS FOR THE HUNGRY	2009	36	71850	01	60.6		4/1/2009	6/30/2009	4/13/2009	WV0002753
5402047	GLEANINGS FOR THE HUNGRY	2010	37	71850	01	101		7/1/2009	9/30/2009	7/13/2009	WV0002823
5402047	GLEANINGS FOR THE HUNGRY	2010	39	71850	01	104		10/1/2009	12/31/2009	10/12/2009	WV0002862
5402046	[redacted]WATERMAN LLC	1997	1	71850	01	49		1/1/1996	12/31/1996	11/11/1996	WV0000686
5402046	GNI WATE[redacted]	1999	2	71850	01	52.4		1/1/1999	12/31/1999	8/31/1999	WV0000687

PWS ID #	[redacted]E	FISCAL YR	VIOL #	STORET [redacted]YPE	RESULTS	MAJ VIOL	START	END	AWARE [redacted]ATION ID
5402046	[redacted] WATERMAN LLC	2001	3	71850 01	50.4		1/1/2001	12/31/2001	4/25/2001 WV0000688
5402046	GN[redacted]ATERMAN LLC	2002	4	71850 01	57		1/1/2002	12/31/2002	9/30/2002 WV0000689
5402046	GNI W[redacted]TERMAN LLC	2004	5	71850 01	59		1/1/2003	12/31/2003	9/22/2003 WV0001025
5402046	GNI WA[redacted]RMAN LLC	2005	7	71850 03		Y	1/1/2004	12/31/2004	1/10/2005 WV0001400
5402046	GNI WATE[redacted]AN LLC	2005	9	71850 01	60.6		1/1/2005	12/31/2005	2/3/2005 WV0001707
5402046	GNI WATERM[redacted]N LLC	2007	10	71850 01	84.0		1/1/2006	12/31/2006	10/27/2006 WV0001986
5402046	GNI WATERMA[redacted]LC	2008	11	71850 01	100		1/1/2007	12/31/2007	6/21/2007 WV0002279
5402046	GNI WATERMAN[redacted]C	2009	12	71850 01	54.5		1/1/2008	12/31/2008	3/7/2008 WV0002620
5402046	GNI WATERMAN L[redacted]	2010	14	71850 01	47.2		1/1/2009	12/31/2009	2/25/2009 WV0002875
5400600	GOLDEN KEY APARTMENTS	2008	8	71850 03		Y	1/1/2007	12/31/2007	2/10/2008 WV0002381
5403010	GOLDEN STATE CITRUS	1998	2	71850 02	94		1/1/1998	12/31/1998	2/26/1998 WV0000173
5403010	GOLDEN STATE CITRUS	1998	7	71850 02	110		1/1/1998	12/31/1998	9/30/1998 WV0000280
5403010	GOLDEN STATE CITRUS	1995	8	71850 01	69		1/1/1995	12/31/1995	1/10/1996 WV0000356
5403010	GOLDEN STATE CITRUS	1999	9	71850 02	111.		1/1/1999	12/31/1999	9/14/1999 WV0000409
5403010	GOLDEN STATE CITRUS	1999	10	71850 01	110		1/1/1999	12/31/1999	9/30/1999 WV0000410
5403010	GOLDEN STATE CITRUS	1998	11	71850 01	94.0		1/1/1998	12/31/1998	2/26/1998 WV0000627
5403010	GOLDEN STATE CITRUS	1999	12	71850 01	102		1/1/1998	12/31/1998	10/1/1998 WV0000708
5403010	GOLDEN STATE CITRUS	2002	13	71850 01	127		1/1/2002	12/31/2002	8/8/2002 WV0000727
5403010	GOLDEN STATE CITRUS	2004	14	71850 01	126		1/1/2003	12/31/2003	7/14/2003 WV0001003
5403010	GOLDEN STATE CITRUS	2005	15	71850 01	120		1/1/2004	12/31/2004	7/8/2004 WV0001393
5403010	GOLDEN STATE CITRUS	2005	16	71850 01	95		1/1/2005	12/31/2005	8/10/2005 WV0001699
5403010	GOLDEN STATE CITRUS	2006	17	71850 01	66.0		1/1/2006	12/31/2006	9/22/2006 WV0001979
5403010	GOLDEN STATE CITRUS	2008	18	71850 01	59		1/1/2007	12/31/2007	9/21/2007 WV0002267
5403010	GOLDEN STATE CITRUS	2009	19	71850 01	58		1/1/2008	12/31/2008	4/24/2008 WV0002621
5403010	GOLDEN STATE CITRUS	2010	20	71850 01	49		1/1/2009	12/31/2009	7/24/2009 WV0002876
5400728	GRIER MUTUAL WATER CO	2007	8	71850 03		Y	1/1/2006	12/31/2006	2/10/2007 WV0002017

PWS ID #	NAME	FISCAL YR	VIOL #	STORET	TYPE	RESULTS	MAJ VIOL	START	END	AWARE	VIOLATION ID
5400657	HESTER SCHOOL	2008	1	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002382
5400994	HOPE ELEMENTARY SCHOOL	2008	2	71850	03		Y	10/1/2007	12/31/2007	1/10/2008	WV0002298
5400994	HOPE ELEMENTARY SCHOOL	2009	3	71850	03		Y	4/1/2009	6/30/2009	7/10/2009	WV0002754
5402008	HOT SPRINGS SCHOOL	2008	11	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002383
5402008	HOT SPRINGS SCHOOL	2010	13	71850	03		Y	1/1/2009	12/31/2009	1/10/2010	WV0002901
5403045	IMMANUEL SCHOOL	98	13	71850	02	74		7/1/1998	9/30/1998	8/26/1998	WV0000282
5403045	IMMANUEL SCHOOL	99	16	71850	01	70		1/1/1999	3/31/1999	1/11/1999	WV0000350
5403045	IMMANUEL SCHOOL	99	17	71850	01	79		4/1/1999	6/30/1999	4/20/1999	WV0000351
5403045	IMMANUEL SCHOOL	2010	31	71850	01	53.4		1/1/2009	12/31/2009	10/6/2009	WV0002878
5400968	[redacted]	2009	14	71850	03		Y	1/1/2008	12/31/2008	1/10/2009	WV0002646
5403121	INTERNATIONAL PAPER - TRI	2007	2	71850	01	45.0		1/1/2007	3/31/2007	2/1/2007	WV0002089
5403121	INTERNATIONAL PAPER - TRI	2008	5	71850	03		Y	4/1/2008	6/30/2008	7/10/2008	WV0002490
5403121	INTERNATIONAL PAPER - TRI	2009	6	71850	03		Y	4/1/2009	6/30/2009	7/10/2009	WV0002762
5400536	KINGS RIVER ESTATES	2008	16	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002384
5401048	[redacted]	2010	7	71850	03		Y	1/1/2009	12/31/2009	1/10/2010	WV0002902
5402024	[redacted]NGS RIVER MARKET	2002	1	71850	03		Y	7/1/2002	9/30/2002	10/10/2002	WV0000603
5402024	[redacted]GS RIVER MARKET	2003	2	71850	03		Y	10/1/2002	12/31/2002	1/10/2003	WV0000611
5402024	KIN[redacted] RIVER MARKET	2000	3	71850	01	55		1/1/2000	12/31/2000	1/3/2000	WV0000617
5402024	KING[redacted]IVER MARKET	2000	4	71850	01	52.7		1/1/2000	12/31/2000	3/29/2000	WV0000695
5402024	KINGS [redacted]VER MARKET	2003	5	71850	03		Y	1/1/2003	3/31/2003	4/10/2003	WV0000768
5402024	KINGS RI[redacted]R MARKET	2003	6	71850	03		Y	4/1/2003	6/30/2003	7/10/2003	WV0000830
5402024	KINGS RIVE[redacted]MARKET	2003	7	71850	01	46.6		7/1/2003	9/30/2003	9/9/2003	WV0000927
5402024	KINGS RIVER[redacted]ARKET	2004	8	71850	03		Y	10/1/2003	12/31/2003	1/13/2004	WV0000980
5402024	KINGS RIVER M[redacted]RKET	2005	9	71850	03		Y	10/1/2004	12/31/2004	1/10/2005	WV0001364
5402024	KINGS RIVER MA[redacted]ET	2005	10	71850	01	56.7		1/1/2005	3/31/2005	1/11/2005	WV0001464
5402024	KINGS RIVER MARK[redacted]	2005	11	71850	03		Y	4/1/2005	6/30/2005	7/10/2005	WV0001557

PWS ID #	[redacted]E	FISCAL YR	VIOL #	STORET	[redacted]PE	RESULTS	MAJ VIOL	START	END	AWARE	[redacted]ATION ID
5402024	[redacted]GS RIVER MARKET	2005	12	71850	03		Y	7/1/2005	9/30/2005	10/10/2005	WV0001616
5402024	KI[redacted]S RIVER MARKET	2006	13	71850	03		Y	10/1/2005	12/31/2005	1/10/2006	WV0001676
5402024	KING[redacted]IVER MARKET	2006	14	71850	03		Y	1/1/2006	3/31/2006	4/10/2006	WV0001749
5402024	KINGS R[redacted]ER MARKET	2006	15	71850	03		Y	4/1/2006	6/30/2006	7/10/2006	WV0001815
5402024	KINGS RIV[redacted] MARKET	2006	16	71850	03		Y	7/1/2006	9/30/2006	10/10/2006	WV0001884
5402024	KINGS RIVER[redacted]ARKET	2007	17	71850	01	52.9		10/1/2006	12/31/2006	12/6/2006	WV0001956
5402024	KINGS RIVER M[redacted]RKET	2007	18	71850	01	46.2		1/1/2007	3/31/2007	3/21/2007	WV0002085
5402024	KINGS RIVER MA[redacted]KET	2007	19	71850	01	59.1		4/1/2007	6/30/2007	5/29/2007	WV0002148
5402024	KINGS RIVER MAR[redacted]T	2007	20	71850	01	52.7		7/1/2007	9/30/2007	7/9/2007	WV0002210
5402024	KINGS RIVER MARK[redacted]	2008	21	71850	01	52.4		1/1/2008	3/31/2008	1/11/2008	WV0002340
5402024	KINGS RIVER MARKE[redacted]	2009	22	71850	01	52.6		1/1/2008	12/31/2008	10/20/2008	WV0002623
5402024	KINGS RIVER MARKET[redacted]	2010	23	71850	01	49.9		1/1/2009	12/31/2009	7/22/2009	WV0002879
5403074	KRAFT FOODS - TULARE SO	2008	3	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002385
5400761	[redacted]	2009	5	71850	03		Y	1/1/2008	12/31/2008	1/10/2009	WV0002647
5401080	[redacted]KE EXPRESS MARKET	2006	7	71850	01	46.0		1/1/2006	12/31/2006	2/28/2006	WV0001746
5401080	LA[redacted]EXPRESS MARKET	2006	8	71850	03		Y	4/1/2006	6/30/2006	7/10/2006	WV0001832
5401080	LAKE[redacted]PRESS MARKET	2006	10	71850	03		Y	7/1/2006	9/30/2006	10/10/2006	WV0001903
5401080	LAKE EX[redacted]ESS MARKET	2007	12	71850	03		Y	1/1/2007	3/31/2007	4/10/2007	WV0002083
5401080	LAKE EXPR[redacted]S MARKET	2008	16	71850	03		Y	7/1/2008	9/30/2008	10/10/2008	WV0002552
5401080	LAKE EXPRESS[redacted]ARKET	2009	17	71850	01	45		10/1/2008	12/31/2008	11/5/2008	WV0002606
5401080	LAKE EXPRESS [redacted]ARKET	2009	19	71850	01	48		1/1/2009	3/31/2009	1/28/2009	WV0002700
5401080	LAKE EXPRESS M[redacted]KET	2009	20	71850	03		Y	4/1/2009	6/30/2009	7/10/2009	WV0002755
5401080	LAKE EXPRESS MAR[redacted]	2010	21	71850	01	48		7/1/2009	9/30/2009	8/6/2009	WV0002824
5400660	LAKE SUCCESS MOBILE LODGE	98	1	71850	01	60		1/1/1998	1/31/1998	3/31/1998	WV0000014
5400660	LAKE SUCCESS MOBILE LODGE	98	2	71850	01	52		1/1/1998	1/31/1998	4/29/1998	WV0000104
5400660	LAKE SUCCESS MOBILE LODGE	1996	4	71850	01	48		1/1/1996	12/31/1996	6/5/1996	WV0000618

PWS ID #	NAME	FISCAL YR	VIOL #	STORET	TYPE	RESULTS	MAJ VIOL	START	END	AWARE	VIOLATION ID
5400660	LAKE SUCCESS MOBILE LODGE	1999	5	71850	01	57		1/1/1999	12/31/1999	2/18/1999	WV0000696
5400660	LAKE SUCCESS MOBILE LODGE	2003	6	71850	01	57		1/1/2003	12/31/2003	1/2/2003	WV0000725
5400660	LAKE SUCCESS MOBILE LODGE	2003	7	71850	01	56		1/1/2003	3/31/2003	3/31/2003	WV0000773
5400660	LAKE SUCCESS MOBILE LODGE	2003	8	71850	01	56		4/1/2003	6/30/2003	7/10/2003	WV0000831
5400660	LAKE SUCCESS MOBILE LODGE	2003	9	71850	01	45.0		7/1/2003	9/30/2003	7/2/2003	WV0000943
5400660	LAKE SUCCESS MOBILE LODGE	2004	11	71850	01	55		10/1/2003	12/31/2003	10/2/2003	WV0000991
5400660	LAKE SUCCESS MOBILE LODGE	2004	12	71850	01	66		1/1/2004	3/31/2004	1/5/2004	WV0001082
5400660	LAKE SUCCESS MOBILE LODGE	2004	14	71850	01	63		4/1/2004	6/30/2004	4/5/2004	WV0001226
5400660	LAKE SUCCESS MOBILE LODGE	2004	15	71850	01	55		7/1/2004	9/30/2004	7/6/2004	WV0001314
5400660	LAKE SUCCESS MOBILE LODGE	2005	17	71850	01	67		10/1/2004	12/31/2004	10/4/2004	WV0001379
5400660	LAKE SUCCESS MOBILE LODGE	2005	18	71850	01	72.4		1/1/2005	3/31/2005	1/6/2005	WV0001476
5400660	LAKE SUCCESS MOBILE LODGE	2005	19	71850	01	67		4/1/2005	6/30/2005	4/5/2005	WV0001573
5400660	LAKE SUCCESS MOBILE LODGE	2005	20	71850	01	61.0		7/1/2005	9/30/2005	7/6/2005	WV0001628
5400660	LAKE SUCCESS MOBILE LODGE	2006	21	71850	03		Y	10/1/2005	12/31/2005	1/10/2006	WV0001689
5400660	LAKE SUCCESS MOBILE LODGE	2006	22	71850	01	69.0		1/1/2006	3/31/2006	1/5/2006	WV0001761
5400660	LAKE SUCCESS MOBILE LODGE	2006	23	71850	03		Y	7/1/2006	9/30/2006	10/10/2006	WV0001899
5400660	LAKE SUCCESS MOBILE LODGE	2007	25	71850	01	73.0		10/1/2006	12/31/2006	10/16/2006	WV0001970
5400660	LAKE SUCCESS MOBILE LODGE	2007	26	71850	01	73.0		1/1/2007	3/31/2007	1/3/2007	WV0002096
5400660	LAKE SUCCESS MOBILE LODGE	2007	28	71850	01	68		4/1/2007	6/30/2007	4/4/2007	WV0002161
5400660	LAKE SUCCESS MOBILE LODGE	2007	29	71850	01	63		7/1/2007	9/30/2007	7/5/2007	WV0002223
5400660	LAKE SUCCESS MOBILE LODGE	2007	30	71850	01	63		7/1/2007	9/30/2007	7/5/2007	WV0002225
5400660	LAKE SUCCESS MOBILE LODGE	2008	31	71850	01	68		10/1/2007	12/31/2007	10/2/2007	WV0002291
5400660	LAKE SUCCESS MOBILE LODGE	2008	32	71850	01	66		1/1/2008	3/31/2008	1/2/2008	WV0002342
5400660	LAKE SUCCESS MOBILE LODGE	2008	33	71850	01	58		4/1/2008	6/30/2008	4/8/2008	WV0002483
5400660	LAKE SUCCESS MOBILE LODGE	2008	34	71850	01	61		7/1/2008	9/30/2008	7/25/2008	WV0002553
5400660	LAKE SUCCESS MOBILE LODGE	2009	35	71850	01	62		10/1/2008	12/31/2008	10/2/2008	WV0002607

PWS ID #	[redacted]E	FISCAL YR	VIOL #	STORET [redacted]PE	RESULTS	MAJ VIOL	START	END	AWARE	V[redacted]ATION ID
5400660	LAKE SUCCESS MOBILE LODGE	2009	36	71850 01	64		1/1/2009	3/31/2009	1/6/2009	WV0002701
5400660	LAKE SUCCESS MOBILE LODGE	2009	37	71850 01	56		4/1/2009	6/30/2009	4/22/2009	WV0002756
5400660	LAKE SUCCESS MOBILE LODGE	2010	38	71850 01	64		7/1/2009	9/30/2009	9/8/2009	WV0002825
5400660	LAKE SUCCESS MOBILE LODGE	2010	39	71850 03		Y	10/1/2009	12/31/2009	1/10/2010	WV0002863
5402025	[redacted]KESIDE MINNIT MART	2003	2	71850 01	60		1/1/2003	12/31/2003	5/8/2003	WV0000832
5402025	L[redacted]ESIDE MINNIT MART	2003	3	71850 01	64.0		7/1/2003	9/30/2003	7/25/2003	WV0000944
5402025	LA[redacted]SIDE MINNIT MART	2004	4	71850 03		Y	10/1/2003	12/31/2003	1/13/2004	WV0000992
5402025	LAK[redacted]DE MINNIT MART	2004	5	71850 03		Y	4/1/2004	6/30/2004	7/10/2004	WV0001213
5402025	LAKES[redacted]E MINNIT MART	2005	6	71850 03		Y	10/1/2004	12/31/2004	1/10/2005	WV0001380
5402025	LAKESID[redacted]MINNIT MART	2005	7	71850 03		Y	4/1/2005	6/30/2005	7/10/2005	WV0001561
5402025	LAKESIDE[redacted]INNIT MART	2005	8	71850 01	45.0		7/1/2005	9/30/2005	8/31/2005	WV0001629
5402025	LAKESIDE M[redacted]NIT MART	2006	9	71850 03		Y	10/1/2005	12/31/2005	1/10/2006	WV0001690
5402025	LAKESIDE MI[redacted]IT MART	2006	10	71850 03		Y	4/1/2006	6/30/2006	7/10/2006	WV0001824
5402025	LAKESIDE MINN[redacted] MART	2007	12	71850 03		Y	1/1/2007	3/31/2007	4/10/2007	WV0002082
5402025	LAKESIDE MINNI[redacted]MART	2007	13	71850 01	60		4/1/2007	6/30/2007	6/11/2007	WV0002162
5402025	LAKESIDE MINNIT [redacted]ART	2007	14	71850 03		Y	7/1/2007	9/30/2007	10/10/2007	WV0002224
5402025	LAKESIDE MINNIT MA[redacted]	2009	15	71850 03		Y	1/1/2009	3/31/2009	4/10/2009	WV0002702
5402025	LAKESIDE MINNIT MAR[redacted]	2010	16	71850 01	69		1/1/2009	12/31/2009	6/29/2009	WV0002880
5400518	LAKESIDE TRAILER PARK	2008	7	71850 03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002386
5400616	LEMON COVE WATER CO	95	1	71850 01	69		1/1/1995	12/31/1995	3/24/1995	WV0000062
5400616	LEMON COVE WATER CO	98	2	71850 01	84		1/1/1998	12/31/1998	1/28/1998	WV0000287
5400616	LEMON COVE WATER CO	99	3	71850 01	88		1/1/1999	12/31/1999	1/19/1999	WV0000337
5400616	LEMON COVE WATER CO	2002	4	71850 01	73		1/1/2002	12/31/2002	6/12/2002	WV0000629
5400616	LEMON COVE WATER CO	2004	5	71850 01	61		1/1/2003	12/31/2003	6/27/2003	WV0001006
5400616	LEMON COVE WATER CO	2005	6	71850 01	54		1/1/2004	12/31/2004	6/3/2004	WV0001395
5400616	LEMON COVE WATER CO	2005	7	71850 01	52.8		1/1/2005	12/31/2005	4/21/2005	WV0001701

PWS ID #	NAME	FISCAL YR	VIOL #	STORET	TYPE	RESULTS	MAJ VIOL	START	END	AWARE	VIOLATION ID
5400616	LEMON COVE WATER CO	2007	8	71850	01	54.2		1/1/2006	12/31/2006	6/6/2006	WV0001981
5400616	LEMON COVE WATER CO	2008	9	71850	01	51.5		1/1/2007	12/31/2007	5/3/2007	WV0002270
5400616	LEMON COVE WATER CO	2009	10	71850	01	51.3		1/1/2008	12/31/2008	6/10/2008	WV0002625
5400616	LEMON COVE WATER CO	2010	11	71850	01	51.9		1/1/2009	12/31/2009	1/14/2009	WV0002882
5400628	LEMON COVE-SEQUOIA CAMP	1999	2	71850	01	77.0		1/1/1998	12/31/1998	10/15/1998	WV0000268
5400628	LEMON COVE-SEQUOIA CAMP	2002	3	71850	01	73.0		1/1/2002	12/31/2002	9/10/2002	WV0000671
5400628	LEMON COVE-SEQUOIA CAMP	2004	4	71850	01	60		1/1/2003	12/31/2003	7/25/2003	WV0001005
5400628	LEMON COVE-SEQUOIA CAMP	2005	5	71850	03		Y	1/1/2004	12/31/2004	1/10/2005	WV0001394
5400628	LEMON COVE-SEQUOIA CAMP	2005	6	71850	03		Y	1/1/2005	12/31/2005	1/10/2006	WV0001700
5400628	LEMON COVE-SEQUOIA CAMP	2006	7	71850	01	48.0		1/1/2006	12/31/2006	2/15/2006	WV0001980
5400628	LEMON COVE-SEQUOIA CAMP	2008	8	71850	03		Y	1/1/2007	12/31/2007	1/10/2008	WV0002269
5400628	LEMON COVE-SEQUOIA CAMP	2009	9	71850	03		Y	1/1/2008	12/31/2008	1/10/2009	WV0002624
5400628	LEMON COVE-SEQUOIA CAMP	2009	10	71850	03		Y	1/1/2008	12/31/2008	1/10/2009	WV0002648
5400628	LEMON COVE-SEQUOIA CAMP	2010	11	71850	01	46		1/1/2009	12/31/2009	3/2/2009	WV0002881
5400815	LIBERTY SCHOOL	2007	8	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002020
5400537	LINDYS LANDING	2007	2	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002021
5400537	LINDYS LANDING	2008	4	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002387
5400537	LINDYS LANDING	2010	6	71850	03		Y	1/1/2009	12/31/2009	1/10/2010	WV0002903
5401079	[redacted]	2008	1	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002388
5400634	LOVELL HIGH SCHOOL	2002	3	71850	01	57.7		1/1/2002	12/31/2002	4/25/2002	WV0000630
5400634	LOVELL HIGH SCHOOL	1999	4	71850	01	68		1/1/1999	12/31/1999	9/1/1999	WV0000631
5400634	LOVELL HIGH SCHOOL	2004	8	71850	03		Y	1/1/2003	12/31/2003	1/13/2004	WV0001007
5400634	LOVELL HIGH SCHOOL	2005	14	71850	01	47		1/1/2004	12/31/2004	6/8/2004	WV0001387
5400634	LOVELL HIGH SCHOOL	2006	25	71850	01	66.0		1/1/2006	12/31/2006	7/13/2006	WV0001972
5400634	LOVELL HIGH SCHOOL	2009	31	71850	01	56.2		1/1/2008	12/31/2008	3/26/2008	WV0002626
5403001	LOWER SPRINGS WATER CO	2008	2	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002389

PWS ID #	E	FISCAL YR	VIOL #	STORET	PE	RESULTS	MAJ VIOL	START	END	AWARE	ATION ID
5403086	[redacted]	2008	2	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002390
5402043	ONSON MARKET	1999	1	71850	01	56.8		1/1/1999	12/31/1999	1/10/2000	WV0000633
5402043	NSON MARKET	2002	2	71850	01	47.2		1/1/2002	12/31/2002	1/9/2002	WV0000713
5402043	M SON MARKET	2003	3	71850	01	55.6		1/1/2003	12/31/2003	1/7/2003	WV0000714
5402043	MO N MARKET	2004	4	71850	01	66.9		1/1/2003	12/31/2003	10/8/2003	WV0001009
5402043	MONS MARKET	2004	5	71850	01	65.3		4/1/2004	6/30/2004	4/20/2004	WV0001216
5402043	MONSO ARKET	2004	6	71850	01	63.1		7/1/2004	9/30/2004	7/19/2004	WV0001300
5402043	MONSON RKET	2005	7	71850	01	66		1/1/2004	12/31/2004	10/5/2004	WV0001388
5402043	MONSON MA ET	2005	8	71850	01	57.9		1/1/2005	12/31/2005	1/6/2005	WV0001693
5402043	MONSON MAR T	2007	11	71850	01	74.1		1/1/2006	12/31/2006	10/9/2006	WV0001973
5402043	MONSON MARK	2008	12	71850	01	78.1		1/1/2007	12/31/2007	4/12/2007	WV0002260
5402043	MONSON MARKE	2009	14	71850	01	75.7		1/1/2008	12/31/2008	4/8/2008	WV0002627
5402043	MONSON MARKET	2010	15	71850	01	78.1		1/1/2009	12/31/2009	7/20/2009	WV0002883
5400898	NTECITO LAKE RESORT	2007	2	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002022
5400898	MON CITO LAKE RESORT	2007	3	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002023
5400898	MONTEC LAKE RESORT	2007	4	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002024
5400898	MONTECITO L RESORT	2007	5	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002025
5400898	MONTECITO LAKE R ORT	2007	6	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002026
5400898	MONTECITO LAKE RESO	2008	7	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002391
5400679	TEL 99	2007	2	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002060
5400679	MO	2008	3	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002419
5400604	MOUNTAIN VIEW DUPLEXES	2007	4	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002027
5400819	MOUNTAIN VIEW M H P	2007	9	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002028
5400819	MOUNTAIN VIEW M H P	2009	10	71850	03		Y	1/1/2008	12/31/2008	1/10/2009	WV0002649
5403128	[redacted]	2009	1	71850	03		Y	1/1/2008	12/31/2008	1/10/2009	WV0002650
5403102	[redacted] COLD STORAGE	2007	1	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002029

PWS ID #	NAME	FISCAL YR	VIOL #	STORET	TYPE	RESULTS	MAJ VIOL	START	END	AWARE	VIOLATION ID
5400506	[redacted]	2010	21	71850	03		Y	1/1/2009	12/31/2009	1/10/2010	WV0002904
5403053	MINI MART	2008	15	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002392
5403053	NS [illegible] MART	2009	20	71850	03		Y	1/1/2008	12/31/2008	1/10/2009	WV0002651
5403053	NS MINI [illegible]	2010	24	71850	03		Y	1/1/2009	12/31/2009	1/10/2010	WV0002905
5400713	OAK VALLEY SCHOOL	2007	1	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002031
5400918	[illegible]EN COUNTRY SWAP MEET	2002	1	71850	01	51		1/1/2001	12/31/2001	12/5/2001	WV0000328
5400918	O[illegible]N COUNTRY SWAP MEET	2002	2	71850	01	50		1/1/2002	12/31/2002	6/26/2002	WV0000697
5400918	OP[illegible]COUNTRY SWAP MEET	2003	3	71850	01	58		4/1/2003	6/30/2003	6/5/2003	WV0000834
5400918	OPE[illegible]OUNTRY SWAP MEET	2003	4	71850	03		Y	7/1/2003	9/30/2003	10/10/2003	WV0000923
5400918	OPEN [illegible]OUNTRY SWAP MEET	2004	5	71850	03		Y	10/1/2003	12/31/2003	1/13/2004	WV0000987
5400918	OPEN COUNTRY SWAP MEET	2004	6	71850	01	66		1/1/2004	3/31/2004	1/9/2004	WV0001084
5400918	OPEN COUNTRY SWAP MEET	2004	7	71850	01	63		4/1/2004	6/30/2004	4/6/2004	WV0001221
5400918	OPEN COUNTRY SWAP MEET	2004	8	71850	03		Y	7/1/2004	9/30/2004	10/10/2004	WV0001307
5400918	OPEN COUNTRY SWAP MEET	2005	9	71850	01	65		10/1/2004	12/31/2004	10/13/2004	WV0001373
5400918	OPEN COUNTRY SWAP MEET	2005	10	71850	01	68		1/1/2005	3/31/2005	1/25/2005	WV0001470
5400918	OPEN COUNTRY SWAP MEET	2005	11	71850	01	70		4/1/2005	6/30/2005	4/12/2005	WV0001567
5400918	OPEN COUNTRY SWAP MEET	2005	12	71850	03		Y	7/1/2005	9/30/2005	10/10/2005	WV0001622
5400918	OPEN COUNTRY SWAP MEET	2006	13	71850	03		Y	10/1/2005	12/31/2005	1/10/2006	WV0001683
5400918	OPEN COUNTRY SWAP MEET	2006	14	71850	01	69		1/1/2006	3/31/2006	1/12/2006	WV0001755
5400918	OPEN COUNTRY SWAP MEET	2006	15	71850	03		Y	4/1/2006	6/30/2006	7/10/2006	WV0001821
5400918	OPEN COUNTRY SWAP MEET	2006	16	71850	01	68.0		7/1/2006	9/30/2006	7/11/2006	WV0001893
5400918	OPEN COUNTRY SWAP MEET	2007	17	71850	03		Y	10/1/2006	12/31/2006	1/10/2007	WV0001964
5400918	OPEN COUNTRY SWAP MEET	2007	20	71850	01	69		7/1/2007	9/30/2007	7/18/2007	WV0002217
5400918	OPEN COUNTRY SWAP MEET	2008	21	71850	01	75		10/1/2007	12/31/2007	12/19/2007	WV0002284
5400918	OPEN COUNTRY SWA[illegible]MEET	2008	22	71850	03		Y	1/1/2008	3/31/2008	4/10/2008	WV0002345
5400918	OPEN COUNTRY SWAP [illegible]ET	2008	23	71850	03		Y	4/1/2008	6/30/2008	7/10/2008	WV0002485

PWS ID #	NAME	FISCAL YR	VIOL #	STORET	TYPE	RESULTS	MAJ VIOL	START	END	AWARE	VIOLATION ID
5400918	OPEN COUNTRY SWAP MEET	2008	25	71850	03		Y	7/1/2008	9/30/2008	10/10/2008	WV0002555
5400918	OPEN COUNTRY SWAP MEET	2009	26	71850	01	70		10/1/2008	12/31/2008	11/5/2008	WV0002608
5400918	OPEN COUNTRY SWAP MEET	2009	27	71850	01	73		1/1/2009	3/31/2009	2/11/2009	WV0002703
5400918	OPEN COUNTRY SWAP MEET	2009	28	71850	01	75		4/1/2009	6/30/2009	5/20/2009	WV0002757
5400918	OPEN COUNTRY SWAP MEET	2010	29	71850	03		Y	7/1/2009	9/30/2009	10/10/2009	WV0002826
5400918	OPEN COUNTRY SWAP MEET	2010	30	71850	01	74		10/1/2009	12/31/2009	11/4/2009	WV0002864
5400687	ORANGE BLOSSOM JUNCTION	2008	4	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002394
5400687	ORANGE BLOSSOM JUNCTION	2010	8	71850	03		Y	1/1/2009	12/31/2009	1/10/2010	WV0002906
5400636	OROSI HIGH SCHOOL	2000	3	71850	01	59		1/1/2000	12/31/2000	3/13/2000	WV0000634
5400636	OROSI HIGH SCHOOL	2002	4	71850	01	75.3		1/1/2002	12/31/2002	9/10/2002	WV0000674
5400636	OROSI HIGH SCHOOL	2004	7	71850	03		Y	1/1/2003	12/31/2003	1/13/2004	WV0001010
5400636	OROSI HIGH SCHOOL	2005	10	71850	01	77		1/1/2004	12/31/2004	6/8/2004	WV0001389
5400636	OROSI HIGH SCHOOL	2006	16	71850	01	66		1/1/2005	12/31/2005	10/20/2005	WV0001694
5400636	OROSI HIGH SCHOOL	2007	19	71850	03		Y	1/1/2006	12/31/2006	1/10/2007	WV0001974
5400636	OROSI HIGH SCHOOL	2008	20	71850	01	47.7		1/1/2007	12/31/2007	6/11/2007	WV0002261
5400636	OROSI HIGH SCHOOL	2009	23	71850	01	90.1		1/1/2008	12/31/2008	3/26/2008	WV0002628
5403120	[redacted]	2008	1	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002395
5400509	PANORAMA HEIGHTS PROP	2007	5	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002032
5400509	PANORAMA HEIGHTS PROP	2007	6	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002033
5400509	PANORAMA HEIGHTS PROP	2007	7	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002034
5400509	PANORAMA HEIGHTS PROP	2009	10	71850	03		Y	1/1/2008	12/31/2008	1/10/2009	WV0002652
5400541	PARAMOUNT CITRUS	95	1	71850	02	60		1/1/1995	12/31/1995	3/10/1995	WV0000128
5400541	PARAMOUNT CITRUS	98	2	71850	01	77		1/1/1998	12/31/1998	2/10/1998	WV0000285
5400541	PARAMOUNT CITRUS	1999	5	71850	01	110		1/1/1999	12/31/1999	6/10/1999	WV0000635
5400541	PARAMOUNT CITRUS	2002	6	71850	01	110		1/1/2002	12/31/2002	9/16/2002	WV0000675
5400541	PARAMOUNT CITRUS	2004	8	71850	03		Y	1/1/2003	12/31/2003	1/13/2004	WV0001011

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PWS ID #	NAME	FISCAL YR	VIOL #	STORET	TYPE	RESULTS	MAJ VIOL	START	END	AWARE	VIOLATION ID
5400541	PARAMOUNT CITRUS	2005	15	71850	03		Y	1/1/2004	12/31/2004	1/10/2005	WV0001396
5400541	PARAMOUNT CITRUS	2005	18	71850	01	91		1/1/2005	12/31/2005	3/10/2005	WV0001702
5400541	PARAMOUNT CITRUS	2006	20	71850	01	100.0		1/1/2006	12/31/2006	3/23/2006	WV0001982
5400541	PARAMOUNT CITRUS	2008	22	71850	03		Y	1/1/2007	12/31/2007	1/10/2008	WV0002273
5400541	PARAMOUNT CITRUS	2009	23	71850	01	88		1/1/2008	12/31/2008	4/24/2008	WV0002629
5400541	PARAMOUNT CITRUS	2010	24	71850	01	73		1/1/2009	12/31/2009	11/25/2009	WV0002884
5400887	PARK WATER SYSTEM	2007	7	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002035
5402038	PATTERSON TRACT CSD	2008	4	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002396
5402038	PATTERSON TRACT CSD	2009	5	71850	03		Y	1/1/2008	12/31/2008	1/10/2009	WV0002653
5402056	PEOPLES GROCERY	1998	1	71850	01	52		1/1/1998	12/31/1998	5/20/1998	WV0000360
5402056	PEOPLES GROCERY	2001	2	71850	01	73		1/1/2001	12/31/2001	8/14/2001	WV0000637
5402056	PEOPLES GROCERY	2002	3	71850	01	110		1/1/2002	12/31/2002	6/5/2002	WV0000717
5402056	PEOPLES GROCERY	2003	4	71850	01	78		1/1/2003	3/31/2003	3/7/2003	WV0000776
5402056	PEOPLES GROCERY	2004	5	71850	03		Y	10/1/2003	12/31/2003	1/13/2004	WV0000982
5402056	PEOPLES GROCERY	2004	6	71850	01	98		1/1/2004	3/31/2004	2/17/2004	WV0001085
5402056	PEOPLES GROCERY	2004	7	71850	01	120		4/1/2004	6/30/2004	5/11/2004	WV0001217
5402056	PEOPLES GROCERY	2004	8	71850	01	130		7/1/2004	9/30/2004	8/4/2004	WV0001302
5402056	PEOPLES GROCERY	2005	9	71850	01	120		10/1/2004	12/31/2004	11/1/2004	WV0001366
5402056	PEOPLES GROCERY	2005	10	71850	01	100		1/1/2005	3/31/2005	1/25/2005	WV0001466
5402056	PEOPLES GROCERY	2005	11	71850	01	120		4/1/2005	6/30/2005	5/11/2005	WV0001564
5402056	PEOPLES GROCERY	2005	12	71850	01	120		7/1/2005	9/30/2005	8/23/2005	WV0001617
5402056	PEOPLES GROCERY	2006	13	71850	03		Y	10/1/2005	12/31/2005	1/10/2006	WV0001677
5402056	PEOPLES GROCERY	2006	14	71850	01	110		1/1/2006	3/31/2006	1/23/2006	WV0001750
5402056	PEOPLES GROCERY	2006	15	71850	01	96.0		4/1/2006	6/30/2006	5/4/2006	WV0001816
5402056	PEOPLES GROCERY	2006	16	71850	01	56.0		7/1/2006	9/30/2006	7/18/2006	WV0001885
5402056	PEOPLES GROCERY	2007	17	71850	01	100.0		10/1/2006	12/31/2006	12/8/2006	WV0001957

PWS ID #	[redacted]E	FISCAL YR	VIOL #	STORET	[redacted]PE	RESULTS	MAJ VIOL	START	END	AWARE	[redacted]ATION ID
5402056	[redacted]OPLES GROCERY	2007	18	71850	01	99.0		1/1/2007	3/31/2007	2/5/2007	WV0002086
5402056	PEOPLES GROCERY	2008	19	71850	01	120		1/1/2007	12/31/2007	8/14/2007	WV0002262
5402056	PEOPLES GROCERY	2009	21	71850	01	120		1/1/2008	12/31/2008	5/6/2008	WV0002630
5402056	PEOPLES GRO[redacted]	2010	22	71850	01	150		1/1/2009	12/31/2009	7/21/2009	WV0002885
5403081	PETERS FRUIT FARMS, INC	2008	5	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002397
5400732	PIERPOINT SPRINGS WATER	2007	2	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002036
5400732	PIERPOINT SPRINGS WATER	2007	3	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002037
5400732	PIERPOINT SPRINGS WATER	2009	4	71850	03		Y	1/1/2008	12/31/2008	1/10/2009	WV0002655
5400934	PONDEROSA CSD	2007	8	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002038
5400934	PONDEROSA CSD	2007	9	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002039
5400934	PONDEROSA CSD	2007	10	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002040
5400934	PONDEROSA CSD	2007	11	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002041
5400611	PORTERVILLE TRAILER PARK	2008	8	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002398
5402031	[redacted]EET MARKET	2007	1	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002042
5402031	PREET MA[redacted]	2009	2	71850	03		Y	1/1/2008	12/31/2008	1/10/2009	WV0002656
5403013	[redacted]RINCE MART	1998	5	71850	01	130		1/1/1998	12/31/1998	4/30/1998	WV0000619
5403013	[redacted]NCE MART	2000	6	71850	01	97		1/1/2000	12/31/2000	3/29/2000	WV0000620
5403013	PR[redacted]CE MART	2003	7	71850	03		Y	1/1/2003	3/31/2003	4/10/2003	WV0000766
5403013	PRI[redacted]E MART	2003	8	71850	03		Y	4/1/2003	6/30/2003	7/10/2003	WV0000833
5403013	PRIN[redacted]E MART	2003	9	71850	01	105		7/1/2003	9/30/2003	8/11/2003	WV0000930
5403013	PRINC[redacted]MART	2004	10	71850	01	118		10/1/2003	12/31/2003	10/28/2003	WV0000984
5403013	PRINCE[redacted]MART	2004	11	71850	03		Y	1/1/2004	3/31/2004	4/10/2004	WV0001083
5403013	PRINCE[redacted]MART	2004	12	71850	01	129		4/1/2004	6/30/2004	4/27/2004	WV0001218
5403013	PRINCE [redacted]ART	2004	13	71850	01	137		7/1/2004	9/30/2004	8/17/2004	WV0001305
5403013	PRINCE M[redacted]RT	2005	14	71850	01	139		10/1/2004	12/31/2004	10/25/2004	WV0001369
5403013	PRINCE MA[redacted]T	2005	16	71850	03		Y	1/1/2005	3/31/2005	4/10/2005	WV0001462

PWS ID #	NAME	FISCAL YR	VIOL #	STORET	TYPE	RESULTS	MAJ VIOL	START	END	AWARE	VIOLATION ID
5403013	[redacted]INCE MART	2006	17	71850	01	127		10/1/2005	12/31/2005	10/10/2005	WV0001680
5403013	P[redacted]CE MART	2006	18	71850	01	132		1/1/2006	3/31/2006	2/7/2006	WV0001752
5403013	PRI[redacted] MART	2006	19	71850	01	156.0		7/1/2006	9/30/2006	8/10/2006	WV0001888
5403013	PRINC[redacted]ART	2007	20	71850	01	161.0		10/1/2006	12/31/2006	11/9/2006	WV0001959
5403013	PRINCE [redacted]RT	2007	21	71850	03		Y	1/1/2007	3/31/2007	4/10/2007	WV0002079
5403013	PRINCE MA[redacted]	2008	22	71850	01	128		1/1/2007	12/31/2007	5/23/2007	WV0002272
5403013	PRINCE MAR[redacted]	2009	24	71850	01	134		1/1/2008	12/31/2008	6/25/2008	WV0002631
5403013	PRINCE MART	2010	25	71850	01	126		1/1/2009	12/31/2009	8/10/2009	WV0002886
5402050	PROVISIONS FOODS	2007	2	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002018
5402050	PROVISIONS FOODS	2007	3	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002019
5400895	[redacted]THIAN YOUTH CAMP	2007	5	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002043
5400895	PYTHI[redacted]UTH CAMP	2007	6	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002044
5400895	PYTHIAN YOUTH [redacted]	2010	8	71850	03		Y	1/1/2009	12/31/2009	1/10/2010	WV0002907
5400703	[redacted]	2008	4	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002399
5400961	QUAKER MEADOW CAMP	2007	4	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002045
5400961	QUAKER MEADOW CAMP	2008	5	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002400
5400929	[redacted]	2008	1	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002401
5403061	[redacted]	2007	26	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002046
5403061	[redacted]	2009	30	71850	03		Y	1/1/2008	12/31/2008	1/10/2009	WV0002658
5401094	[redacted] TRAVEL CENTER	2006	1	71850	01	100		1/1/2006	12/31/2006	8/2/2006	WV0001875
5401094	RJ'S [redacted]AVEL CENTER	2006	2	71850	01	100.0		7/1/2006	9/30/2006	8/2/2006	WV0001886
5401094	RJ'S TRAVE[redacted]CENTER	2007	3	71850	03		Y	10/1/2006	12/31/2006	1/10/2007	WV0001958
5401094	RJ'S TRAVEL CE[redacted]	2007	4	71850	01	62.0		1/1/2007	3/31/2007	2/14/2007	WV0002087
5400884	ROCKFORD SCHOOL	2007	4	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002047
5400884	ROCKFORD SCHOOL	2008	5	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002402
5400884	ROCKFORD SCHOOL	2009	6	71850	03		Y	1/1/2008	12/31/2008	1/10/2009	WV0002659

PWS ID #	[redacted]E	FISCAL YR	VIOL #	STORET	[redacted]YPE	RESULTS	MAJ VIOL	START	END	AWARE	[redacted]ATION ID
5400735	RODRIGUEZ LABOR CAMP	96	1	71850	03		Y	1/1/1996	3/31/1996	4/10/1996	WV0000004
5400735	RODRIGUEZ LABOR CAMP	98	2	71850	03	100	Y	1/1/1998	12/31/1998	1/10/1999	WV0000005
5400735	RODRIGUEZ LABOR CAMP	98	3	71850	03	110	Y	1/1/1998	12/31/1998	1/10/1999	WV0000245
5400735	RODRIGUEZ LABOR CAMP	2002	8	71850	03		Y	10/1/2001	12/31/2001	1/10/2002	WV0000599
5400735	RODRIGUEZ LABOR CAMP	1997	9	71850	01	130		1/1/1997	12/31/1997	2/17/1997	WV0000639
5400735	RODRIGUEZ LABOR CAMP	2000	10	71850	01	150		1/1/2000	12/31/2000	8/11/2000	WV0000678
5400735	RODRIGUEZ LABOR CAMP	2002	11	71850	01	130		1/1/2002	12/31/2002	1/21/2002	WV0000679
5400735	RODRIGUEZ LABOR CAMP	2004	12	71850	01	130		1/1/2003	12/31/2003	6/30/2003	WV0001013
5400735	RODRIGUEZ LABOR CAMP	2005	14	71850	01	130		1/1/2004	12/31/2004	6/7/2004	WV0001413
5400735	RODRIGUEZ LABOR CAMP	2005	17	71850	01	130		1/1/2005	12/31/2005	6/27/2005	WV0001720
5400735	RODRIGUEZ LABOR CAMP	2006	19	71850	01	130.0		1/1/2006	12/31/2006	7/21/2006	WV0001998
5400735	RODRIGUEZ LABOR CAMP	2008	20	71850	01	130		1/1/2007	12/31/2007	7/27/2007	WV0002300
5400735	RODRIGUEZ LABOR CAMP	2009	22	71850	03		Y	1/1/2008	12/31/2008	1/10/2009	WV0002632
5400735	RODRIGUEZ LABOR CAMP	2009	23	71850	03		Y	1/1/2008	12/31/2008	1/10/2009	WV0002660
5400735	RODRIGUEZ LABOR CAMP	2010	25	71850	01	121		1/1/2009	12/31/2009	10/20/2009	WV0002887
5403072	ROGERS CAMP HOMEOWNERS	2007	2	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002048
5403072	ROGERS CAMP HOMEOWNERS	2010	3	71850	03		Y	1/1/2009	12/31/2009	1/10/2010	WV0002908
5400549	[redacted]YAL OAK RESORT	2007	1	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002049
5400549	ROYAL OAK RE[redacted]	2009	2	71850	03		Y	1/1/2008	12/31/2008	1/10/2009	WV0002661
5403068	[redacted]	2008	8	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002403
5400558	SAUCELITO ELEM SCHOOL	2004	2	71850	01	46		1/1/2004	12/31/2004	6/11/2004	WV0001210
5400558	SAUCELITO ELEM SCHOOL	2004	3	71850	03		Y	7/1/2004	9/30/2004	10/10/2004	WV0001308
5400558	SAUCELITO ELEM SCHOOL	2005	7	71850	03		Y	4/1/2005	6/30/2005	7/10/2005	WV0001560
5400558	SAUCELITO ELEM SCHOOL	2006	9	71850	03		Y	4/1/2006	6/30/2006	7/10/2006	WV0001827
5400558	SAUCELITO ELEM SCHOOL	2007	15	71850	03		Y	1/1/2007	3/31/2007	4/10/2007	WV0002080
5400558	SAUCELITO ELEM SCHOOL	2007	16	71850	03		Y	1/1/2007	3/31/2007	4/10/2007	WV0002081

PWS ID #	NAME	FISCAL YR	VIOL #	STORET	TYPE	RESULTS	MAJ VIOL	START	END	AWARE	VIOLATION ID
5400558	SAUCELITO ELEM SCHOOL	2007	17	71850	01	51		4/1/2007	6/30/2007	6/8/2007	WV0002157
5400558	SAUCELITO ELEM SCHOOL	2007	18	71850	01	54		7/1/2007	9/30/2007	8/8/2007	WV0002218
5400558	SAUCELITO ELEM SCHOOL	2008	21	71850	03		Y	10/1/2007	12/31/2007	1/10/2008	WV0002285
5400558	SAUCELITO ELEM SCHOOL	2008	22	71850	01	47		1/1/2008	3/31/2008	3/26/2008	WV0002346
5400558	SAUCELITO ELEM SCHOOL	2008	29	71850	01	56		4/1/2008	6/30/2008	6/20/2008	WV0002486
5400558	SAUCELITO ELEM SCHOOL	2008	33	71850	01	54		7/1/2008	9/30/2008	8/6/2008	WV0002556
5400558	SAUCELITO ELEM SCHOOL	2009	35	71850	01	54		10/1/2008	12/31/2008	10/9/2008	WV0002609
5400558	SAUCELITO ELEM SCHOOL	2009	38	71850	01	55		4/1/2009	6/30/2009	4/21/2009	WV0002758
5400558	SAUCELITO ELEM SCHOOL	2010	39	71850	03		Y	7/1/2009	9/30/2009	10/10/2009	WV0002827
5400558	SAUCELITO ELEM SCHOOL	2010	40	71850	01	52		10/1/2009	12/31/2009	10/5/2009	WV0002865
5401001	[redacted]OIA CIDER MILL	2007	12	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002050
5401001	SEQU[redacted]ER MILL	2007	13	71850	01	45		4/1/2007	6/30/2007	6/15/2007	WV0002150
5401001	SEQUOIA CIDE[redacted]	2007	14	71850	01	45.0		4/1/2007	6/30/2007	6/15/2007	WV0002178
5400709	SEQUOIA UNION SCHOOL	2000	1	71850	01	49		1/1/1999	12/31/1999	10/28/1999	WV0000269
5400709	SEQUOIA UNION SCHOOL	2000	2	71850	01	46		1/1/1997	12/31/1997	11/13/1997	WV0000286
5400709	SEQUOIA UNION SCHOOL	2004	5	71850	01	45		1/1/2003	12/31/2003	11/3/2003	WV0001014
5400709	SEQUOIA UNION SCHOOL	2005	7	71850	01	45		1/1/2004	12/31/2004	5/10/2004	WV0001397
5400709	SEQUOIA UNION SCHOOL	2005	11	71850	03		Y	1/1/2005	12/31/2005	1/10/2006	WV0001703
5400709	SEQUOIA UNION SCHOOL	2007	14	71850	01	47.0		1/1/2006	12/31/2006	10/13/2006	WV0001983
5400709	SEQUOIA UNION SCHOOL	2008	16	71850	03		Y	1/1/2007	12/31/2007	1/10/2008	WV0002274
5400709	SEQUOIA UNION SCHOOL	2009	17	71850	01	47		1/1/2008	12/31/2008	3/21/2008	WV0002633
5400644	[redacted]	2007	23	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002051
5402039	[redacted]T	2007	4	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002052
5400550	SEVILLE WATER CO	2008	12	71850	01	46		10/1/2007	12/31/2007	11/5/2007	WV0002263
5400550	SEVILLE WATER CO	2008	13	71850	03		Y	1/1/2008	3/31/2008	4/10/2008	WV0002347
5400550	SEVILLE WATER CO	2008	14	71850	03		Y	4/1/2008	6/30/2008	7/10/2008	WV0002487

PWS ID #	[redacted]	FISCAL YR	VIOL #	STORET	[redacted]	RESULTS	MAJ VIOL	START	END	AWARE	[redacted]
5400550	SEVILLE WATER CO	2008	17	71850	03		Y	7/1/2008	9/30/2008	10/10/2008	WV0002557
5400550	SEVILLE WATER CO	2009	18	71850	03		Y	10/1/2008	12/31/2008	1/10/2009	WV0002610
5400550	SEVILLE WATER CO	2009	19	71850	03		Y	1/1/2008	12/31/2008	1/10/2009	WV0002662
5400529	SHADY GROVE M H P	2008	19	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002404
5400527	SHILOH WATER CO.	2007	6	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002053
5401099	[redacted]	2010	5	71850	03		Y	1/1/2009	12/31/2009	1/10/2010	WV0002909
5400747	[redacted]	2008	9	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002406
5403110	SIERRA MUTUAL WATER CO	2002	2	71850	01	109		1/1/2002	12/31/2002	1/7/2002	WV0000719
5403110	SIERRA MUTUAL WATER CO	2002	3	71850	01	119		1/1/2002	12/31/2002	1/7/2002	WV0000720
5403110	SIERRA MUTUAL WATER CO	2004	5	71850	03		Y	1/1/2003	12/31/2003	1/13/2004	WV0001015
5403110	SIERRA MUTUAL WATER CO	2004	6	71850	03		Y	1/1/2003	12/31/2003	1/13/2004	WV0001016
5403110	SIERRA MUTUAL WATER CO	2005	11	71850	01	90		1/1/2004	12/31/2004	3/16/2004	WV0001406
5403110	SIERRA MUTUAL WATER CO	2005	12	71850	01	110		1/1/2004	12/31/2004	3/16/2004	WV0001407
5403110	SIERRA MUTUAL WATER CO	2005	14	71850	01	98		1/1/2005	12/31/2005	1/25/2005	WV0001711
5403110	SIERRA MUTUAL WATER CO	2005	15	71850	01	110		1/1/2005	12/31/2005	1/25/2005	WV0001712
5403110	SIERRA MUTUAL WATER CO	2006	20	71850	03		Y	1/1/2006	12/31/2006	1/10/2007	WV0001990
5403110	SIERRA MUTUAL WATER CO	2006	21	71850	03		Y	1/1/2006	12/31/2006	1/10/2007	WV0001991
5403110	SIERRA MUTUAL WATER CO	2008	27	71850	03		Y	1/1/2007	12/31/2007	1/10/2008	WV0002292
5403110	SIERRA MUTUAL WATER CO	2008	28	71850	03		Y	1/1/2007	12/31/2007	1/10/2008	WV0002293
5403110	SIERRA MUTUAL WATER CO	2009	30	71850	01	93		1/1/2008	12/31/2008	6/19/2008	WV0002634
5403110	SIERRA MUTUAL WATER CO	2009	31	71850	01	90		1/1/2008	12/31/2008	6/19/2008	WV0002635
5403110	SIERRA MUTUAL WATER CO	2010	32	71850	01	96		1/1/2009	12/31/2009	11/23/2009	WV0002888
5400638	SIERRA SCHOOL	2007	15	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002054
5400638	SIERRA SCHOOL	2007	16	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002055
5400638	SIERRA SCHOOL	2008	18	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002407
5400711	[redacted]	2002	8	71850	01	62		1/1/2002	12/31/2002	9/18/2002	WV0000640

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PWS ID #	NAME	FISCAL YR	VIOL #	STORET	TYPE	RESULTS	MAJ VIOL	START	END	AWARE	VIOLATION ID
5400711	SIERRA VIEW JR ACADEMY	2003	9	71850	03		Y	4/1/2003	6/30/2003	7/10/2003	WV0000835
5400711	SIERRA VIEW JR ACADEMY	2003	10	71850	01	55.0		7/1/2003	9/30/2003	10/10/2003	WV0000931
5400711	SIERRA VIEW JR ACADEMY	2004	12	71850	01	53		10/1/2003	12/31/2003	10/22/2003	WV0000985
5400711	SIERRA VIEW JR ACADEMY	2004	13	71850	03		Y	1/1/2004	3/31/2004	4/10/2004	WV0001092
5400711	SIERRA VIEW JR ACADEMY	2004	14	71850	01	50		4/1/2004	6/30/2004	5/3/2004	WV0001219
5400711	SIERRA VIEW JR ACADEMY	2004	15	71850	01	53		7/1/2004	9/30/2004	7/21/2004	WV0001306
5400711	SIERRA VIEW JR ACADEMY	2005	16	71850	03		Y	10/1/2004	12/31/2004	1/10/2005	WV0001370
5400711	SIERRA VIEW JR ACADEMY	2005	17	71850	03		Y	4/1/2005	6/30/2005	7/10/2005	WV0001559
5400711	SIERRA VIEW JR ACADEMY	2005	18	71850	03		Y	7/1/2005	9/30/2005	10/10/2005	WV0001619
5400711	SIERRA VIEW JR ACADEMY	2006	19	71850	03		Y	10/1/2005	12/31/2005	1/10/2006	WV0001681
5400711	SIERRA VIEW JR ACADEMY	2006	20	71850	03		Y	4/1/2006	6/30/2006	7/10/2006	WV0001818
5400711	SIERRA VIEW JR ACADEMY	2006	21	71850	01	47.0		7/1/2006	9/30/2006	8/3/2006	WV0001889
5400711	SIERRA VIEW JR ACADEMY	2007	22	71850	03		Y	10/1/2006	12/31/2006	1/10/2007	WV0001960
5400711	SIERRA VIEW JR ACADEMY	2007	23	71850	01	49.0		1/1/2007	3/31/2007	1/31/2007	WV0002088
5400711	SIERRA VIEW JR ACADEMY	2007	24	71850	01	52		4/1/2007	6/30/2007	5/24/2007	WV0002151
5400711	SIERRA VIEW JR ACADEMY	2007	25	71850	01	50		7/1/2007	9/30/2007	7/23/2007	WV0002213
5400711	SIERRA VIEW JR ACADEMY	2008	26	71850	01	52		10/1/2007	12/31/2007	10/18/2007	WV0002275
5400711	SIERRA VIEW JR ACADEMY	2008	27	71850	03		Y	1/1/2008	3/31/2008	4/10/2008	WV0002348
5400711	SIERRA VIEW JR ACADEMY	2008	28	71850	03		Y	4/1/2008	6/30/2008	7/10/2008	WV0002488
5400711	SIERRA VIEW JR ACADEMY	2008	29	71850	01	45		7/1/2008	9/30/2008	8/4/2008	WV0002558
5400711	SIERRA VIEW JR ACADEMY	2009	30	71850	03		Y	10/1/2008	12/31/2008	1/10/2009	WV0002611
5400711	SIERRA VIEW JR ACADEMY	2009	31	71850	03		Y	4/1/2009	6/30/2009	7/10/2009	WV0002759
5400711	SIERRA VIEW JR ACADEMY	2010	33	71850	01	50		7/1/2009	9/30/2009	8/7/2009	WV0002828
5400711	SIERRA VIEW JR ACADEMY	2010	34	71850	01	45		10/1/2009	12/31/2009	11/3/2009	WV0002866
5401071	SILVER CITY WATER CO	2010	8	71850	03		Y	1/1/2009	12/31/2009	1/10/2010	WV0002910
5401084	[redacted]	2007	6	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002056

PWS ID #	NAME	FISCAL YR	VIOL #	STORET	TYPE	RESULTS	MAJ VIOL	START	END	AWARE	VIOLATION ID
5401084	[redacted]	2010	7	71850	03		Y	1/1/2009	12/31/2009	1/10/2010	WV0002911
5400652	SNOWDEN SCHOOL	2008	1	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002408
5400754	[redacted]	2008	14	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002409
5400805	SOULTS MUTUAL WATER CO	2004	2	71850	01	67.1		1/1/2003	12/31/2003	11/4/2003	WV0001093
5400805	SOULTS MUTUAL WATER CO	2004	4	71850	03		Y	7/1/2004	9/30/2004	10/10/2004	WV0001309
5400805	SOULTS MUTUAL WATER CO	2005	5	71850	03		Y	10/1/2004	12/31/2004	1/10/2005	WV0001374
5400805	SOULTS MUTUAL WATER CO	2005	6	71850	01	79		1/1/2005	3/31/2005	1/25/2005	WV0001471
5400805	SOULTS MUTUAL WATER CO	2005	8	71850	01	68.6		4/1/2005	6/30/2005	4/20/2005	WV0001568
5400805	SOULTS MUTUAL WATER CO	2005	9	71850	01	77.4		7/1/2005	9/30/2005	7/7/2005	WV0001623
5400805	SOULTS MUTUAL WATER CO	2006	10	71850	01	56		10/1/2005	12/31/2005	10/19/2005	WV0001684
5400805	SOULTS MUTUAL WATER CO	2006	11	71850	01	65.9		1/1/2006	3/31/2006	1/18/2006	WV0001756
5400805	SOULTS MUTUAL WATER CO	2006	12	71850	01	74.0		4/1/2006	6/30/2006	4/6/2006	WV0001828
5400805	SOULTS MUTUAL WATER CO	2006	13	71850	01	90.0		7/1/2006	9/30/2006	7/12/2006	WV0001894
5400805	SOULTS MUTUAL WATER CO	2007	15	71850	01	96.0		10/1/2006	12/31/2006	10/9/2006	WV0001965
5400805	SOULTS MUTUAL WATER CO	2007	16	71850	01	97.0		1/1/2007	3/31/2007	1/30/2007	WV0002092
5400805	SOULTS MUTUAL WATER CO	2007	17	71850	01	118		4/1/2007	6/30/2007	4/18/2007	WV0002158
5400805	SOULTS MUTUAL WATER CO	2007	18	71850	01	93.6		7/1/2007	9/30/2007	7/9/2007	WV0002219
5400805	SOULTS MUTUAL WATER CO	2008	19	71850	01	69		1/1/2008	3/31/2008	1/22/2008	WV0002349
5400805	SOULTS MUTUAL WATER CO	2009	20	71850	01	85		1/1/2008	12/31/2008	7/15/2008	WV0002636
5400805	SOULTS MUTUAL WATER CO	2010	21	71850	01	82.6		1/1/2009	12/31/2009	6/8/2009	WV0002889
5400737	[redacted]	2010	10	71850	03		Y	1/1/2009	12/31/2009	1/10/2010	WV0002912
5400552	[redacted]	2007	2	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002057
5400552	[redacted]	2010	3	71850	03		Y	1/1/2009	12/31/2009	1/10/2010	WV0002913
5401004	STYROTEK	2002	1	71850	03		Y	7/1/2002	9/30/2002	10/10/2002	WV0000604
5401004	STYROTEK	1998	2	71850	01	67.2		1/1/1998	12/31/1998	3/25/1998	WV0000621
5401004	STYROTEK	2001	3	71850	01	75.6		1/1/2000	12/31/2000	10/18/2000	WV0000691

PWS ID #	NAME	FISCAL YR	VIOL #	STORET	TYPE	RESULTS	MAJ VIOL	START	END	AWARE	VIOLATION ID
5401004	STYROTEK	2002	4	71850	01	74.2		1/1/2002	12/31/2002	3/14/2002	WV0000692
5401004	STYROTEK	2003	7	71850	01	66		1/1/2003	3/31/2003	1/21/2003	WV0000774
5401004	STYROTEK	2003	8	71850	01	68.3		4/1/2003	6/30/2003	4/3/2003	WV0000836
5401004	STYROTEK	2003	9	71850	01	72.1		7/1/2003	9/30/2003	7/28/2003	WV0000940
5401004	STYROTEK	2004	10	71850	03		Y	10/1/2003	12/31/2003	1/13/2004	WV0000988
5401004	STYROTEK	2004	12	71850	01	67.9		1/1/2004	3/31/2004	2/2/2004	WV0001094
5401004	STYROTEK	2004	13	71850	01	72.6		4/1/2004	6/30/2004	4/12/2004	WV0001222
5401004	STYROTEK	2005	14	71850	01	69.1		10/1/2004	12/31/2004	10/21/2004	WV0001375
5401004	STYROTEK	2005	15	71850	01	71		1/1/2005	3/31/2005	1/4/2005	WV0001472
5401004	STYROTEK	2005	16	71850	01	78		4/1/2005	6/30/2005	4/20/2005	WV0001569
5401004	STYROTEK	2005	17	71850	01	75.1		7/1/2005	9/30/2005	7/12/2005	WV0001624
5401004	STYROTEK	2006	18	71850	01	76.5		10/1/2005	12/31/2005	10/20/2005	WV0001685
5401004	STYROTEK	2006	19	71850	01	77.6		1/1/2006	3/31/2006	1/19/2006	WV0001757
5401004	STYROTEK	2006	20	71850	03		Y	4/1/2006	6/30/2006	7/10/2006	WV0001829
5401004	STYROTEK	2006	22	71850	01	76.3		7/1/2006	9/30/2006	8/22/2006	WV0001895
5401004	STYROTEK	2007	23	71850	01	69.0		10/1/2006	12/31/2006	10/27/2006	WV0001966
5401004	STYROTEK	2007	24	71850	01	68.7		1/1/2007	3/31/2007	1/4/2007	WV0002093
5401004	STYROTEK	2007	25	71850	01	80.4		4/1/2007	6/30/2007	4/4/2007	WV0002166
5401004	STYROTEK	2007	26	71850	01	69.2		7/1/2007	9/30/2007	7/5/2007	WV0002220
5401004	STYROTEK	2008	27	71850	01	68.6		10/1/2007	12/31/2007	10/8/2007	WV0002286
5401004	STYROTEK	2008	28	71850	01	78		1/1/2008	3/31/2008	1/8/2008	WV0002350
5401004	STYROTEK	2008	30	71850	01	81.1		4/1/2008	6/30/2008	4/2/2008	WV0002489
5401004	STYROTEK	2008	31	71850	01	71.2		7/1/2008	9/30/2008	7/8/2008	WV0002559
5401004	STYROTEK	2009	32	71850	01	82.1		10/1/2008	12/31/2008	10/7/2008	WV0002612
5401004	STYROTEK	2009	33	71850	01	80.6		1/1/2009	3/31/2009	1/7/2009	WV0002704
5401004	STYROTEK	2009	34	71850	01	78.2		4/1/2009	6/30/2009	4/13/2009	WV0002760

PWS ID #	[redacted]	FISCAL YR	VIOL #	STORET	[redacted]	RESULTS	MAJ VIOL	START	END	AWARE	[redacted]
5401004	STYROTEK	2010	35	71850	01	78.8		7/1/2009	9/30/2009	7/6/2009	WV0002829
5401004	STYROTEK	2010	36	71850	01	79.1		10/1/2009	12/31/2009	10/6/2009	WV0002867
5400984	[redacted]	2008	6	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002410
5400984	[redacted]	2009	10	71850	03		Y	1/1/2008	12/31/2008	1/10/2009	WV0002663
5403040	SUHOVY WATER SYSTEM	2008	1	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002411
5402013	SUN PACIFIC SHIPPERS LP - [redacted]	1997	1	71850	02	055.		1/1/1996	12/31/1996	6/26/1997	WV0000068
5402013	SUN PACIFIC SHIPPERS LP - [redacted]	1999	2	71850	01	049.		1/1/1999	12/31/1999	4/20/1999	WV0000340
5402013	SUN PACIFIC SHIPPERS LP - [redacted]	2002	8	71850	01	52		1/1/2002	12/31/2002	2/14/2002	WV0000680
5402013	SUN PACIFIC SHIPPERS LP - [redacted]	2004	14	71850	01	59.7		1/1/2003	12/31/2003	5/14/2003	WV0001018
5402013	SUN PACIFIC SHIPPERS LP - [redacted]	2005	18	71850	01	63		1/1/2004	12/31/2004	2/3/2004	WV0001399
5402013	SUN PACIFIC SHIPPERS LP - [redacted]	2005	23	71850	01	63		1/1/2005	12/31/2005	2/24/2005	WV0001705
5402013	SUN PACIFIC SHIPPERS LP - [redacted]	2006	25	71850	01	66.0		1/1/2006	12/31/2006	2/21/2006	WV0001984
5402013	SUN PACIFIC SHIPPERS LP - [redacted]	2008	26	71850	01	66		1/1/2007	12/31/2007	9/5/2007	WV0002277
5402013	SUN PACIFIC SHIPPERS LP - [redacted]	2009	29	71850	01	64		1/1/2008	12/31/2008	3/13/2008	WV0002637
5402013	SUN PACIFIC SHIPPERS LP - [redacted]	2010	31	71850	01	65		1/1/2009	12/31/2009	10/6/2009	WV0002890
5403009	[redacted]	2008	10	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002412
5400641	TEVISTON C S D	2008	4	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002413
5401063	THARP REAL PROPERTIES	2008	1	71850	01	69.0		1/1/2007	12/31/2007	10/22/2007	WV0002334
5401063	THARP REAL PROPERTIES	2008	2	71850	01	97		1/1/2008	3/31/2008	1/25/2008	WV0002351
5401063	THARP REAL PROPERTIES	2008	3	71850	03		Y	7/1/2008	9/30/2008	10/10/2008	WV0002560
5401063	THARP REAL PROPERTIES	2009	4	71850	01	55.9		4/1/2009	6/30/2009	4/8/2009	WV0002761
5403105	[redacted]	2008	1	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002414
5400975	[redacted]	2008	4	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002416
5400975	[redacted]	2009	5	71850	03		Y	1/1/2008	12/31/2008	1/10/2009	WV0002665
5403071	[redacted]	2008	1	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002417
5403071	THREE RIVERS CHEVRON	2010	2	71850	03		Y	1/1/2009	12/31/2009	1/10/2010	WV0002914

PWS ID #	NAME	FISCAL YR	VIOL #	STORET	TYPE	RESULTS	MAJ VIOL	START	END	AWARE	VIOLATION ID
5401022	[redacted]	2002	1	71850	03		Y	7/1/2002	9/30/2002	10/10/2002	WV0000605
5401022	[redacted] GOLF COURSE	2000	2	71850	01	73		1/1/2000	12/31/2000	7/18/2000	WV0000622
5400751	[redacted]	2009	27	71850	03		Y	1/1/2008	12/31/2008	1/10/2009	WV0002666
5400838	THREE RIVERS VILLAGE	2008	7	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002418
5400838	THREE RIVERS VILLAGE	2010	8	71850	03		Y	1/1/2009	12/31/2009	1/10/2010	WV0002915
5400920	TIPTON ELEMENTARY SCHOOL	2007	3	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002059
5400920	TIPTON ELEMENTARY SCHOOL	2010	4	71850	03		Y	1/1/2009	12/31/2009	1/10/2010	WV0002916
5403011	[redacted]	2009	2	71850	03		Y	1/1/2008	12/31/2008	1/10/2009	WV0002657
5400567	TOOLEVILLE WATER COMPANY	1997	4	71850	01	87		1/1/1997	12/31/1997	6/2/1997	WV0000681
5400567	TOOLEVILLE WATER COMPANY	2000	5	71850	01	47.9		1/1/2000	12/31/2000	7/19/2000	WV0000682
5400567	TOOLEVILLE WATER COMPANY	2001	6	71850	01	54		1/1/2001	12/31/2001	8/30/2001	WV0000683
5400567	TOOLEVILLE WATER COMPANY	2002	7	71850	01	45		1/1/2002	12/31/2002	2/14/2002	WV0000721
5400567	TOOLEVILLE WATER COMPANY	2002	8	71850	01	67.1		1/1/2002	12/31/2002	5/9/2002	WV0000722
5400567	TOOLEVILLE WATER COMPANY	2003	13	71850	03		Y	4/1/2003	6/30/2003	7/10/2003	WV0000837
5400567	TOOLEVILLE WATER COMPANY	2004	20	71850	03		Y	1/1/2003	12/31/2003	1/13/2004	WV0001019
5400567	TOOLEVILLE WATER COMPANY	2005	26	71850	01	46.2		1/1/2005	12/31/2005	1/20/2005	WV0001706
5400567	TOOLEVILLE WATER COMPANY	2007	28	71850	01	65.0		1/1/2006	12/31/2006	11/29/2006	WV0001985
5400567	TOOLEVILLE WATER COMPANY	2007	29	71850	01	51.90		4/1/2007	6/30/2007	4/26/2007	WV0002152
5400567	TOOLEVILLE WATER COMPANY	2008	30	71850	01	51.90		1/1/2007	12/31/2007	4/26/2007	WV0002278
5403103	TRACT 327 MUTUAL WATER CO	2007	20	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002061
5403103	TRACT 327 MUTUAL WATER CO	2009	31	71850	03		Y	1/1/2008	12/31/2008	1/10/2009	WV0002667
5403103	TRACT 327 MUTUAL WATER CO	2010	42	71850	03		Y	1/1/2009	12/31/2009	1/10/2010	WV0002917
5400903	TRACT 92 C S D	2007	1	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002062
5400903	TRACT 92 C S D	2009	10	71850	03		Y	1/1/2008	12/31/2008	1/10/2009	WV0002668
5400639	TRAVER SCHOOL	2008	7	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002420
5402022	[redacted]	2000	1	71850	01	50.2		1/1/2000	12/31/2000	1/5/2000	WV0000654

PWS ID #	[redacted]E	FISCAL YR	VIOL #	STORET [redacted]PE	RESULTS	MAJ VIOL	START	END	AWARE	[redacted]ATION ID
5402022	[redacted]AVER VALLEY FARMS - PWS	2002	2	71850 01	63.9		1/1/2002	12/31/2002	7/16/2002	WV0000655
5402022	TRAV[redacted]ALLEY FARMS - PWS	2004	7	71850 01	64		1/1/2003	12/31/2003	1/7/2003	WV0001023
5402022	TRAVER VALL[redacted]ARMS - PWS	2005	8	71850 01	64.1		1/1/2004	12/31/2004	1/8/2004	WV0001391
5402022	TRAVER VALLEY FARM[redacted]WS	2005	12	71850 01	57.3		1/1/2005	12/31/2005	1/6/2005	WV0001696
5402022	TRAVER VALLEY FARMS - PWS	2007	14	71850 01	68.8		1/1/2006	12/31/2006	10/9/2006	WV0001976
5403046	TRI COUNTY CITRUS	2002	4	71850 03		Y	7/1/2002	9/30/2002	10/10/2002	WV0000606
5403046	TRI COUNTY CITRUS	1998	5	71850 01	99		1/1/1998	12/31/1998	9/30/1998	WV0000656
5403046	TRI COUNTY CITRUS	2000	6	71850 01	111		1/1/2000	12/31/2000	5/17/2000	WV0000657
5403046	TRI COUNTY CITRUS	2002	7	71850 01	88.7		1/1/2002	12/31/2002	4/23/2002	WV0000709
5403046	TRI COUNTY CITRUS	2004	9	71850 01	116		1/1/2003	12/31/2003	8/26/2003	WV0001020
5403046	TRI COUNTY CITRUS	2005	11	71850 01	110		1/1/2004	12/31/2004	6/17/2004	WV0001390
5403046	TRI COUNTY CITRUS	2005	12	71850 01	110		1/1/2005	12/31/2005	7/15/2005	WV0001695
5403046	TRI COUNTY CITRUS	2006	14	71850 01	120.0		1/1/2006	12/31/2006	9/22/2006	WV0001975
5403046	TRI COUNTY CITRUS	2008	15	71850 01	120		1/1/2007	12/31/2007	2/23/2007	WV0002264
5403046	TRI COUNTY CITRUS	2009	16	71850 01	130		1/1/2008	12/31/2008	2/8/2008	WV0002638
5403046	TRI COUNTY CITRUS	2010	17	71850 01	47		1/1/2009	12/31/2009	6/5/2009	WV0002891
5400670	TRIPLE R MUTUAL WATER CO	98	1	71850 04	58	Y	1/1/1998	1/31/1998	2/10/1998	WV0000297
5400670	TRIPLE R MUTUAL WATER CO	98	2	71850 04	55	Y	1/1/1998	1/31/1998	2/10/1998	WV0000298
5400670	TRIPLE R MUTUAL WATER CO	98	3	71850 04	52	Y	1/1/1998	1/31/1998	2/10/1998	WV0000299
5400670	TRIPLE R MUTUAL WATER CO	1996	4	71850 01	55		1/1/1996	12/31/1996	2/12/1996	WV0000658
5400670	TRIPLE R MUTUAL WATER CO	1997	5	71850 01	76		1/1/1996	12/31/1996	12/2/1996	WV0000659
5400670	TRIPLE R MUTUAL WATER CO	1996	6	71850 01	64		1/1/1996	12/31/1996	2/12/1996	WV0000660
5400670	TRIPLE R MUTUAL WATER CO	2000	7	71850 01	86		1/1/2000	12/31/2000	3/15/2000	WV0000661
5400670	TRIPLE R MUTUAL WATER CO	2000	8	71850 01	65.1		1/1/2000	12/31/2000	3/15/2000	WV0000662
5400670	TRIPLE R MUTUAL WATER CO	2000	9	71850 01	53.6		1/1/2000	12/31/2000	3/15/2000	WV0000663
5400670	TRIPLE R MUTUAL WATER CO	2002	10	71850 01	59.1		1/1/2002	12/31/2002	2/18/2002	WV0000664

PWS ID #	NAME	FISCAL YR	VIOL #	STORET	TYPE	RESULTS	MAJ VIOL	START	END	AWARE	VIOLATION ID
5400670	TRIPLE R MUTUAL WATER CO	2003	13	71850	01	58.7		1/1/2003	12/31/2003	9/11/2003	WV0000966
5400670	TRIPLE R MUTUAL WATER CO	2004	14	71850	01	65.8		1/1/2003	12/31/2003	5/12/2003	WV0001021
5400670	TRIPLE R MUTUAL WATER CO	2004	15	71850	01	70.9		1/1/2003	12/31/2003	5/12/2003	WV0001022
5400670	TRIPLE R MUTUAL WATER CO	2004	16	71850	01	51		1/1/2004	12/31/2004	3/16/2004	WV0001132
5400670	TRIPLE R MUTUAL WATER CO	2005	17	71850	01	54		1/1/2004	12/31/2004	9/21/2004	WV0001408
5400670	TRIPLE R MUTUAL WATER CO	2005	18	71850	01	55		1/1/2004	12/31/2004	9/21/2004	WV0001409
5400670	TRIPLE R MUTUAL WATER CO	2005	19	71850	01	59.2		1/1/2005	12/31/2005	4/27/2005	WV0001713
5400670	TRIPLE R MUTUAL WATER CO	2005	20	71850	01	56.1		1/1/2005	12/31/2005	4/27/2005	WV0001714
5400670	TRIPLE R MUTUAL WATER CO	2006	21	71850	01	58.0		4/1/2006	6/30/2006	5/8/2006	WV0001825
5400670	TRIPLE R MUTUAL WATER CO	2006	22	71850	01	66.0		4/1/2006	6/30/2006	5/8/2006	WV0001826
5400670	TRIPLE R MUTUAL WATER CO	2006	23	71850	01	58.0		7/1/2006	9/30/2006	7/17/2006	WV0001900
5400670	TRIPLE R MUTUAL WATER CO	2006	24	71850	01	60.0		7/1/2006	9/30/2006	7/17/2006	WV0001901
5400670	TRIPLE R MUTUAL WATER CO	2007	25	71850	01	55.0		1/1/2006	12/31/2006	10/9/2006	WV0001992
5400670	TRIPLE R MUTUAL WATER CO	2007	26	71850	01	56.0		1/1/2006	12/31/2006	10/9/2006	WV0001993
5400670	TRIPLE R MUTUAL WATER CO	2007	27	71850	01	59.0		1/1/2007	3/31/2007	1/3/2007	WV0002097
5400670	TRIPLE R MUTUAL WATER CO	2007	28	71850	01	50.0		1/1/2007	3/31/2007	1/3/2007	WV0002098
5400670	TRIPLE R MUTUAL WATER CO	2007	29	71850	01	57.2		4/1/2007	6/30/2007	4/19/2007	WV0002163
5400670	TRIPLE R MUTUAL WATER CO	2007	30	71850	03		Y	4/1/2007	6/30/2007	7/10/2007	WV0002164
5400670	TRIPLE R MUTUAL WATER CO	2007	31	71850	01	53		7/1/2007	9/30/2007	7/2/2007	WV0002226
5400670	TRIPLE R MUTUAL WATER CO	2007	32	71850	01	58		7/1/2007	9/30/2007	7/2/2007	WV0002227
5400670	TRIPLE R MUTUAL WATER CO	2008	33	71850	01	54		10/1/2007	12/31/2007	10/2/2007	WV0002294
5400670	TRIPLE R MUTUAL WATER CO	2008	34	71850	01	58		10/1/2007	12/31/2007	10/2/2007	WV0002295
5400670	TRIPLE R MUTUAL WATER CO	2009	35	71850	01	55		1/1/2008	12/31/2008	10/6/2008	WV0002639
5400670	TRIPLE R MUTUAL WATER CO	2009	36	71850	01	56		1/1/2008	12/31/2008	10/6/2008	WV0002640
5400670	TRIPLE R MUTUAL WATER CO	2010	39	71850	01	57		1/1/2009	12/31/2009	7/6/2009	WV0002892
5400670	TRIPLE R MUTUAL WATER CO	2010	40	71850	01	62		1/1/2009	12/31/2009	7/15/2009	WV0002893

PWS ID #	[redacted]E	FISCAL YR	VIOL #	STORET	[redacted]PE	RESULTS	MAJ VIOL	START	END	AWARE	[redacted]ATION ID
5403029	[redacted] MEADOW	2007	1	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002063
5403034	[redacted] KEY MEADOW	2007	1	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002064
5400783	[redacted] LOWER PEPPERMINT	2007	1	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002065
5403125	[redacted] IAN GARDENS	2008	1	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002422
5400507	VISALIA - FRESNO SOUTH KOA	1998	1	71850	01	54		1/1/1998	12/31/1998	5/15/1998	WV0000191
5400507	VISALIA - FRESNO SOUTH KOA	2002	2	71850	01	82		1/1/2001	12/31/2001	12/5/2001	WV0000283
5400507	VISALIA - FRESNO SOUTH KOA	2003	3	71850	03		Y	10/1/2002	12/31/2002	1/10/2003	WV0000612
5400507	VISALIA - FRESNO SOUTH KOA	2002	4	71850	01	73		1/1/2002	12/31/2002	9/10/2002	WV0000684
5400507	VISALIA - FRESNO SOUTH KOA	2004	5	71850	01	80		1/1/2003	12/31/2003	1/15/2003	WV0001024
5400507	VISALIA - FRESNO SOUTH KOA	2005	7	71850	01	88		1/1/2004	12/31/2004	5/13/2004	WV0001392
5400507	VISALIA - FRESNO SOUTH KOA	2005	8	71850	01	86		1/1/2005	12/31/2005	1/20/2005	WV0001697
5400507	VISALIA - FRESNO SOUTH KOA	2007	9	71850	03		Y	1/1/2006	12/31/2006	1/10/2007	WV0001977
5400507	VISALIA - FRESNO SOUTH KOA	2008	10	71850	01	81		1/1/2007	12/31/2007	1/24/2007	WV0002265
5400507	VISALIA - FRESNO SOUTH KOA	2009	11	71850	01	89		1/1/2008	12/31/2008	10/13/2008	WV0002641
5400507	VISALIA - FRESNO SOUTH KOA	2010	12	71850	01	99		1/1/2009	12/31/2009	10/5/2009	WV0002894
5400928	[redacted] ES YARD	2008	3	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002423
5400666	WATERTEK - GRANDVIEW	96	2	71850	01	51		1/1/1996	12/31/1996	1/29/1996	WV0000288
5400666	WATERTEK - GRANDVIEW	96	3	71850	01	70		1/1/1996	12/31/1996	1/29/1996	WV0000289
5400666	WATERTEK - GRANDVIEW	97	4	71850	01	62		1/1/1997	12/31/1997	2/26/1997	WV0000290
5400666	WATERTEK - GRANDVIEW	97	5	71850	01	110		1/1/1997	12/31/1997	2/26/1997	WV0000291
5400666	WATERTEK - GRANDVIEW	98	6	71850	01	71		1/1/1998	12/31/1998	1/20/1998	WV0000292
5400666	WATERTEK - GRANDVIEW	98	7	71850	01	60		1/1/1998	12/31/1998	5/19/1998	WV0000293
5400666	WATERTEK - GRANDVIEW	2005	15	71850	03		Y	4/1/2005	6/30/2005	7/10/2005	WV0001562
5400666	WATERTEK - GRANDVIEW	2005	16	71850	03		Y	7/1/2005	9/30/2005	10/10/2005	WV0001630
5400666	WATERTEK - GRANDVIEW	2007	20	71850	01	85		7/1/2007	9/30/2007	9/19/2007	WV0002228
5400795	WAUKENA ELEMENTARY	2002	1	71850	01	62.0		1/1/2002	12/31/2002	6/19/2002	WV0000624

PWS ID #	NAME	FISCAL YR	VIOL #	STORET	TYPE	RESULTS	MAJ VIOL	START	END	AWARE	VIOLATION ID
5400795	WAUKENA ELEMENTARY	2003	2	71850	03		Y	1/1/2003	3/31/2003	4/10/2003	WV0000765
5400795	WAUKENA ELEMENTARY	2003	3	71850	03		Y	4/1/2003	6/30/2003	7/10/2003	WV0000839
5400795	WAUKENA ELEMENTARY	2003	4	71850	01	65.0		7/1/2003	9/30/2003	7/22/2003	WV0000941
5400795	WAUKENA ELEMENTARY	2004	5	71850	03		Y	10/1/2003	12/31/2003	1/13/2004	WV0000989
5400795	WAUKENA ELEMENTARY	2004	6	71850	01	73		1/1/2004	3/31/2004	3/17/2004	WV0001095
5400795	WAUKENA ELEMENTARY	2004	7	71850	01	69		4/1/2004	6/30/2004	6/9/2004	WV0001223
5400795	WAUKENA ELEMENTARY	2004	8	71850	01	65		7/1/2004	9/30/2004	9/29/2004	WV0001310
5400795	WAUKENA ELEMENTARY	2005	9	71850	01	59		10/1/2004	12/31/2004	11/10/2004	WV0001376
5400795	WAUKENA ELEMENTARY	2005	10	71850	01	75		1/1/2005	3/31/2005	2/2/2005	WV0001473
5400795	WAUKENA ELEMENTARY	2005	11	71850	01	74		4/1/2005	6/30/2005	5/4/2005	WV0001570
5400795	WAUKENA ELEMENTARY	2005	12	71850	01	62.0		7/1/2005	9/30/2005	8/10/2005	WV0001625
5400795	WAUKENA ELEMENTARY	2006	13	71850	03		Y	10/1/2005	12/31/2005	1/10/2006	WV0001686
5400795	WAUKENA ELEMENTARY	2006	14	71850	01	71.0		1/1/2006	3/31/2006	3/1/2006	WV0001758
5400795	WAUKENA ELEMENTARY	2006	15	71850	01	71.0		4/1/2006	6/30/2006	6/7/2006	WV0001830
5400795	WAUKENA ELEMENTARY	2006	16	71850	01	64.0		7/1/2006	9/30/2006	9/14/2006	WV0001896
5400795	WAUKENA ELEMENTARY	2007	17	71850	01	58.0		10/1/2006	12/31/2006	12/6/2006	WV0001967
5400795	WAUKENA ELEMENTARY	2007	18	71850	01	70.0		1/1/2007	3/31/2007	3/8/2007	WV0002094
5400795	WAUKENA ELEMENTARY	2007	19	71850	01	68		4/1/2007	6/30/2007	6/7/2007	WV0002159
5400795	WAUKENA ELEMENTARY	2007	20	71850	01	68		7/1/2007	9/30/2007	9/5/2007	WV0002221
5400795	WAUKENA ELEMENTARY	2008	22	71850	01	73		10/1/2007	12/31/2007	12/5/2007	WV0002287
5400795	WAUKENA ELEMENTARY	2008	24	71850	01	72		1/1/2008	3/31/2008	3/5/2008	WV0002352
5400795	WAUKENA ELEMENTARY	2009	34	71850	01	72		1/1/2008	12/31/2008	11/24/2008	WV0002642
5400795	WAUKENA ELEMENTARY	2010	40	71850	01	70.6		1/1/2009	12/31/2009	10/6/2009	WV0002895
5402030	WAUKENA MARKET	2006	1	71850	01	57.7		1/1/2006	12/31/2006	6/26/2006	WV0001874
5402030	WAUKENA MARKET	2006	2	71850	03		Y	7/1/2006	9/30/2006	10/10/2006	WV0001890
5402030	WAUKENA MARKET	2007	3	71850	01	61.4		10/1/2006	12/31/2006	10/3/2006	WV0001961

PWS ID #	[redacted]E	FISCAL YR	VIOL #	STORET [redacted]	TYPE	RESULTS	MAJ VIOL	START	END	AWARE	VIOLATION ID
5402030	WAUKENA MARKET	2007	4	71850	01	64.8		1/1/2007	3/31/2007	1/9/2007	WV0002090
5402030	WAUKENA MARKET	2007	5	71850	01	63.2		4/1/2007	6/30/2007	4/30/2007	WV0002153
5402030	WAUKENA MARKET	2007	6	71850	01	60.8		7/1/2007	9/30/2007	8/1/2007	WV0002214
5402030	WAUKENA MARKET	2008	7	71850	03		Y	10/1/2007	12/31/2007	1/10/2008	WV0002280
5402030	WAUKENA MARKET	2008	8	71850	01	66.2		1/1/2008	3/31/2008	1/23/2008	WV0002335
5402030	WAUKENA MARKET	2008	9	71850	01	58.6		4/1/2008	6/30/2008	4/2/2008	WV0002478
5402030	WAUKENA MARKET	2008	10	71850	01	76		7/1/2008	9/30/2008	7/2/2008	WV0002549
5402030	WAUKENA MARKET	2009	12	71850	01	64.6		10/1/2008	12/31/2008	10/6/2008	WV0002601
5402030	WAUKENA MARKET	2009	13	71850	01	67.6		1/1/2009	3/31/2009	1/26/2009	WV0002696
5402030	WAUKENA MARKET	2009	14	71850	01	74.3		4/1/2009	6/30/2009	4/6/2009	WV0002748
5402030	WAUKENA MARKET	2010	15	71850	01	59.2		7/1/2009	9/30/2009	7/7/2009	WV0002820
5402030	WAUKENA MARKET	2010	16	71850	01	70.6		10/1/2009	12/31/2009	10/6/2009	WV0002857
5400864	WELLSPRING ACADEMY	2008	2	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002366
5400623	[redacted]	2007	2	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002006
5400623	[redacted]HOLIDAY LODGE	2007	3	71850	03		Y	1/1/2006	12/31/2006	2/20/2007	WV0002007
5400966	WESTLAKE VILLAGE M H P	2009	2	71850	01	45		1/1/2009	12/31/2009	8/11/2009	WV0002796
5400718	WILLIAMS MUTUAL WATER CO.	97	1	71850	01	54		1/1/1997	12/31/1997	10/6/1997	WV0000295
5400718	WILLIAMS MUTUAL WATER CO.	98	2	71850	01	56		1/1/1998	12/31/1998	8/24/1998	WV0000296
5400718	WILLIAMS MUTUAL WATER CO.	2007	14	71850	03		Y	1/1/2006	12/31/2006	2/10/2007	WV0002066
5400718	WILLIAMS MUTUAL WATER CO.	2008	16	71850	03		Y	1/1/2007	12/31/2007	2/10/2008	WV0002424
5400718	WILLIAMS MUTUAL WATER CO.	2009	19	71850	03		Y	1/1/2008	12/31/2008	1/10/2009	WV0002669
5400792	WOODVILLE FARM LABOR [redacted]	2003	2	71850	01	47		1/1/2003	12/31/2003	1/27/2003	WV0000743
5400792	WOODVILLE FARM LABOR [redacted]	2003	3	71850	01	47		1/1/2003	3/31/2003	1/27/2003	WV0000777
5400792	WOODVILLE FARM LABOR [redacted]	2004	4	71850	03		Y	4/1/2004	6/30/2004	7/10/2004	WV0001251
5403043	YETTEM WATER SYSTEM	2001	4	71850	01	46		1/1/2001	12/31/2001	9/20/2001	WV0000842
5403043	YETTEM WATER SYSTEM	2003	5	71850	01	46.0		7/1/2003	9/30/2003	8/21/2003	WV0000928

PWS ID #	NAME	FISCAL YR	VIOL #	STORET	TYPE	RESULTS	MAJ VIOL	START	END	AWARE	VIOLATION ID
5403043	YETTEM WATER SYSTEM	2004	6	71850	01	56		10/1/2003	12/31/2003	11/26/2003	WV0001026
5403043	YETTEM WATER SYSTEM	2004	8	71850	01	56		1/1/2004	3/31/2004	1/19/2004	WV0001096
5403043	YETTEM WATER SYSTEM	2004	9	71850	03		Y	7/1/2004	9/30/2004	10/10/2004	WV0001303
5403043	YETTEM WATER SYSTEM	2005	10	71850	01	60		10/1/2004	12/31/2004	12/14/2004	WV0001367
5403043	YETTEM WATER SYSTEM	2005	11	71850	01	69		1/1/2005	3/31/2005	1/17/2005	WV0001467

Created by Paul Charpentier 3/25/2010

VISALIA, CALIFORNIA (049367)

Period of Record Monthly Climate Summary

Period of Record : 2/ 1/1895 to 12/31/2009

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	55.9	62.7	68.1	74.8	82.7	91.2	97.7	96.3	90.1	80.2	67.3	56.8	77.0
Average Min. Temperature (F)	36.8	40.8	43.7	47.5	53.1	59.0	63.4	61.5	57.2	50.1	41.6	36.7	49.3
Average Total Precipitation (in.)	1.99	1.84	1.73	0.96	0.37	0.08	0.01	0.01	0.14	0.49	0.98	1.54	10.13
Average Total SnowFall (in.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record.
Max. Temp.: 97.4% Min. Temp.: 97.4% Precipitation: 99.3% Snowfall: 97% Snow Depth: 96.8%
Check Station Metadata or Metadata graphics for more detail about data completeness.

Western Regional Climate Center, wrcc@dri.edu

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Attachment 21

GIANT FOREST, CALIFORNIA (043397)

Period of Record Monthly Climate Summary

Period of Record : 6/ 6/1921 to 11/7/1968

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	41.2	43.9	47.6	52.5	59.2	67.8	77.3	76.8	72.4	62.0	50.9	43.4	57.9
Average Min. Temperature (F)	23.2	24.1	25.7	30.1	36.2	43.8	51.4	49.7	44.8	37.8	30.5	26.0	35.3
Average Total Precipitation (in.)	6.80	7.64	6.36	4.98	1.75	0.48	0.11	0.15	0.47	1.60	4.25	7.24	41.83
Average Total SnowFall (in.)	38.7	40.0	42.2	27.7	5.2	0.3	0.0	0.0	0.1	2.9	13.1	31.3	201.5
Average Snow Depth (in.)	25	39	40	26	5	0	0	0	0	0	3	11	12

Percent of possible observations for period of record.
Max. Temp.: 99.8% Min. Temp.: 99.8% Precipitation: 99.9% Snowfall: 99.9% Snow Depth: 99.6%
Check Station Metadata or Metadata graphics for more detail about data completeness.

Western Regional Climate Center, wrcc@dri.edu

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Attachment 21

LODGEPOLE, CALIFORNIA (045026)

Period of Record Monthly Climate Summary

Period of Record : 11/1/1968 to 12/31/2009

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	38.3	41.0	44.3	49.0	58.2	67.8	75.5	75.0	68.7	58.0	45.8	37.7	54.9
Average Min. Temperature (F)	15.9	17.1	21.0	24.9	32.2	38.8	44.5	43.3	38.1	30.0	22.8	16.3	28.7
Average Total Precipitation (in.)	9.59	8.71	7.02	3.22	1.33	0.57	0.53	0.29	1.22	2.04	4.29	6.83	45.65
Average Total SnowFall (in.)	49.4	54.5	48.0	21.4	5.5	0.5	0.0	0.0	0.2	3.1	39.4	38.1	260.2
Average Snow Depth (in.)	37	55	60	36	8	0	0	0	0	0	3	18	18

Percent of possible observations for period of record.
Max. Temp.: 98.8% Min. Temp.: 98.4% Precipitation: 99.3% Snowfall: 99.3% Snow Depth: 98.5%
Check Station Metadata or Metadata graphics for more detail about data completeness.

Western Regional Climate Center, wrcc@dri.edu

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Attachment 21

FLOOD POTENTIAL IN TULARE COUNTY

By: Carole Clum
45638 South Fork Drive
Three Rivers, CA

With Global Climate Change more intense precipitation events (with increased direct run off and snowmelt run off) are predicted for the future. Both Lake Success and Lake Kaweah have silted in since the construction of their dams. Potential increases in the frequency and intensity of wildland fires due to climate change will cause more soil erosion, increased sediment loads, and more flooding. Lake Success's dam heightening has been stalled for many years by an Army Corps of Engineers (Corps) seismic study. The fuse gates of Terminus Dam on Lake Kaweah have been raised 20 feet. Phil Deffenbaugh of the Corps at Terminus Dam estimates 8000 acre feet of water capacity at Lake Kaweah has been lost since its construction in 1959. This is only an estimate. The last depth study of capacity was done in 1980. The Corps has requested another depth survey in fiscal year 2010 but it is not certain it will be approved because a depth survey costs $150,000 -$200,000. Mr. Deffenbaugh thinks Lake Kaweah will hold 185,000 acre feet when full. Meanwhile, silt accumulates every day. There was major siltation during a storm in 1997. The more silt fills Lake Kaweah and Lake Success, the less capacity they have to hold flood waters, increasing flood potential in Tulare County's rivers and irrigation canals. Global Climate Change will likely cause more flooding in late winter and early spring because of more intense storms and early melting of snow.

The Department of Water Resources (DWR) states that as peak flows and precipitation change over time, historical models for flood risk will not be accurate. Planners will need to factor a new level of safety into the design, operation, and regulation of flood protection such as dams, floodways, bypasses, and levees, as well as the design of sewers and storm drains. Despite higher flood potential in the future, there are no Tulare County water retention basins for the unincorporated areas of the county. The county has not identified potential basins to receive floodwaters and recharge the aquifer. The basins must be close to stream beds or irrigation channels, be permeable, have adequate capacity, and not overlay contaminated groundwater. There is no land set aside for water retention basins, no ordinances preventing development in potential water retention basins, no funds to purchase land, no impact fees on development in order to build a fund, and no plan for flood control. Tulare County is totally unprepared for floods. The

Attachment 22

Flood Control Master Plan adopted by the Tulare County Board of Supervisors in 1972 was not included ion the General Plan Update 2030. It can be found on-line.

On the other hand, Tulare Irrigation District and the Kaweah Delta Water Conservation District have created recharge basins.

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, Frazier Creek, Yokohl Creek, Sand Creek, Strathmore Creek, Tule River.)

All levees in Tulare County are primitive. They do not meet FEMA or Corps standards. The county does no maintenance on levees.

New FEMA flood maps were published in 2008. In the City of Visalia, there were 15,000 changes in the Flood map. In Tulare County near North Visalia, there were 867 changes in the flood map. There were no changes in flood maps elsewhere in the county. The City of Visalia hired Northwest Hydraulic Engineering Company to determine which properties were in danger of flooding. They surveyed land and used GPS to determine elevation. The City of Visalia was shocked at preliminary results and tried to terminate the study. The Bureau of Reclamation insisted the study be completed. (The previous major FEMA study was done in 1986.)

The county sets aside approximately $350,000 in property taxes annually for the Tulare County Flood Control District. The majority of the money is put in a reserve fund and used to pay for feasibility studies on rivers and on actual construction by the Corps. These studies are very expensive. There is no money left over for maintenance. The costs for the three stages of bringing levees up to standard are:

1. Reconnaissance study	Conducted by COE County pays nothing	3-6 years
2. Feasibility study	25% paid by county 25% paid by state 50% paid by federal gov't	4 years

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3. Actual construction	17 ½% paid by county 17 ½% paid by Dept. of Water Resources 65% paid by COE	? (there are lulls in federal funding.)

Recent feasibility studies on White River and Deer Creek cost the county $500,000 apiece.

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 levees were not constructed of proper materials, not built high enough, and are not continuous. No maintenance is performed on channels.

In the General Plan Background Report under 100-Year Flood Hazard on page 8-14, the county states:

> "The Flood carrying capacity in rivers and streams has decreased as trees, vegetation, and structures (e.g. bridges, trestles, buildings) have increased along the Kaweah, Kings, and Tule Rivers . . .
>
> Updated channel analyses have not been performed to determine the amount of obstruction posed by vegetation and development in the Kaweah, Kings, or Tule River Channels. As such the FEMA maps depicting the 100-year floodplain for the rivers probably do not reflect the true extent and risk of flooding hazards in Tulare County . . ."

Groundwater overdrafting and consequent land subsidence will increase flood depths. Less water is conveyed from Northern California because of Delta smelt and Chinook salmon judicial decisions. Also a recent Biological Opinion decreased surface water conveyance. These water losses will cause farmers to pump even more groundwater. Tulare Lake Basin has been critically overdrafted for decades. Overdrafting of groundwater leads to land subsidence. The U.S. Geologic Service (USGS) studied land subsidence in Tulare County in 2009. Since the 1960's Visalia has subsided one foot (unevenly); the city of Tulare has subsided four feet. This sinking of the land will cause deeper flooding. On the west side of the Central Valley there will be much more overdrafting of groundwater. There is worry of massive subsidence and seismic instability, possible causing a rupture of the San Andreas fault.

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Since the 1986 FEMA flood study more homes have been built in the area of the St. John's levees. Over 1000 property owners adjoin the south levee of the St. John's River. Flood insurance is very expensive. A property owner can avoid flood insurance on a new home if it is built high enough off the ground and gets a conditional letter of FEMA map revision. Tax Levy Districts 1 and 2 on the St. John's River dissolved many years ago. Taxes had been collected for maintenance of the north and south levees. Now no money is collected from property owners adjoining the two levees.

The Corps takes a green approach now. They will build NO more dams, only water retention basins. Obviously it takes a very long time to reduce flood potential. COE is now underfunded and undermanned.

The valley portion of Tulare County is dominated by cropland, dairies, and orchards. The foothills are dominated by cattle ranches. Almost all the residences in unincorporated Tulare County (except downtown Springville) are on septic systems. Flooding would cause failure of the septic systems. As flood waters recede, they would carry with them fecal coliform bacteria from septic fields, dairies, and cattle ranches and fertilizers, pesticides, fungicides, and herbicides from agricultural land. The inundation of contaminated water would raise the risk of typhoid, bacterial infections, and cancer.

Because Tulare County cannot afford to bring our levees up to safe standards, maintain channels, or create water retention basins to capture floodwaters, Tulare County should ban development in flood prone areas. The appropriate place for this is the Land Use Policies of the General Plan Update, as recommended in the 2009 California Climate Adaption Strategy and the 2008 DWR's Managing An Uncertain Future: Climate Change Adaptation Strategies for California's Water.

The General Plan Update does not fully comply with AB 162 which requires a FEMA or DWR flood zone map for the whole county, a conservation element that covers flood control, and a safety element that provides protection against subsidence and dam failure.

Attachment 22

Three Rivers Town Hall Meeting

Carole Clum
45638 South Fork Drive
Three Rivers CA 93271

January 11, 2010 Three Rivers Town Hall Meeting

I am concerned about the steady deterioration of our county roads. Locally, South Fork Drive beyond mile marker 4.5 and Dinely Drive are in poor shape. The road to Badger (Dry Creek Road) is in poor condition. In fact, according to Tulare County Surveyor Craig Anderson, "90% of our foothill and mountain roads are substandard." The national, state, and county standards for county roads is two 12-foot-wide lanes with two 4-foot-wide shoulders. Roads should be properly graded with 9 inches of road base and 3 inches of asphalt at a minimum.

Johnny Wong, the engineer in charge of the road yards in Transportation Operations for Tulare County, told me on December 8, 2009, "There are 3000 miles of county roads in Tulare County. Even with Measure R money we won't be able to keep up with maintenance of the county roads. They will continue to go downhill."

Some small, disadvantaged communities (Seville, Sultana, East Orosi, Plainview, Tuleville, Tonyville) in Tulare County have only unpaved roads.

The roads that serve the dairies in our county are poorly maintained. The heavy milk trucks have ground those roads into dust. <u>Dust that we have to breathe.</u>

I have been walking four to six miles a day on South Fork Drive (Mountain Road 348) for 16 years. There has been a steady deterioration the entire time. If Matthew, the road maintenance man for Three Rivers, patched pot holes every work day of the year, he could not keep up with the deterioration of Three Rivers' roads.

What is wrong with South Fork Drive, for instance? It is too narrow; the paved area is only 11.5 feet to 16 feet wide in places beyond the Grouse Valley Road turn off. It has hundreds of pot holes. Road edges are broken off in big chunks. It is alligatored with cracks. There are parallel cracks along the downslope edge due to subgrade failure. Retaining walls are needed in many places. There are many blind turns. No speed limit is posted. Some people drive 50-55 miles per hour. Speed

Attachment 23

limit signs that reflect actual road conditions should be posted on Tulare County's mountain roads. The asphalt is less that one inch thick. There is no road base. There is no shoulder on the gutter side for most of the way. Every time it rains dirt and rocks erode from the bare, steep slopes above.

After the Grouse Valley Road turnoff (Mountain Road 319), the two lane road narrows considerably and the center line disappears. The farther you drive the worse the road becomes.

So, why are our roads in such bad shape? Tulare County is cash-strapped. And it still does not impose impact fees on new development. Every new house, business, industry, commercial park, and housing development should pay its own way for infrastructure. Then the impact fees would support police and fire protection, ambulances, roads, libraries, jails, and trash collection.

It's not good for our economy to have poor county roads. No one wants to buy land and build a house on a miserable road. No business wants to operate on a steadily deteriorating road. My message to our supervisors is, "You are spending our tax dollars. Fix our roads. Bring them up to safe standards **before** you approve any more roads you will have to maintain." Even if a developer builds roads to his remote development, the county will be responsible for maintaining those roads. And our existing county roads will deteriorate faster because more miles of county roads will have to be maintained with even less money. The property tax and sales tax revenues of Tulare County will be lower in 2010 and 2011, perhaps longer.

California Firefighters' Mission Is Far From Local

With Intensity of Blazes Picking Up, Crews From Across the State Come to the Rescue Under Mutual-Aid Agreements

By Sabrina Shankman

LOS ANGELES—David Gerboth is a captain in the San Diego Fire Department, but he spent most of last summer crisscrossing California putting out wildfires.

There were the 16 days battling a fire in Hayfork, 720 miles to the north. Then he spent 21 days fighting other blazes that burned 86,500 acres.

As California's wildfires consume more land each year, the state is increasingly relying on firefighters like Mr. Gerboth. Under state mutual-aid agreements, he and thousands of other local firefighters are organized into teams that can be quickly dispatched to fight a fire in a neighboring county—or one hundreds of miles away.

In years past California's wildfire season arrived like clockwork in the late summer and early fall. But recently, the spread of housing into fire-prone regions has turned the threat into a nearly year-round problem.

"They're all coming closer together," said Del Walters, chief of Cal Fire, the state's fire department.

In 2008, a record 1.6 million acres in California burned. Ten of the 20 biggest fires in California's recorded history have happened since 2000. The past two years were classified as "siege years," with abnormally high incidents of wildfires.

Though a mutual-aid system has existed in California since 1950, the intensity of the fires recently has forced the state to draw on cooperating fire departments like never before. Last year, lightning strikes in Northern California ignited blazes that grew to the size of Rhode Island, drawing as many as 4,000 firefighters.

When a local fire agency is overwhelmed, it calls for help from neighboring regions. For wildfires, teams of 22 firefighters from across the state are called. When more help is needed, federal teams are thrown into the mix.

Urban fire companies are being called so frequently that some have bought fire engines with four-wheel drive so they can get to more remote wildfire areas.

The state has also trained 4,000 prison inmates, who can be dispatched to fight fires at wages of $1 an hour.



European Pressphoto Agency

A firefighter north of Davenport, Calif., on Saturday works at the Lockheed fire in Santa Cruz County. Although 2009 began as a slow year for California fires, the number of blazes has picked up recently.

Last year, California needed help from firefighters in neighboring states, as well as Canada, Mexico, England, New Zealand, Australia and Greece.

"We moved close to 26,000 [firefighters]," says Kim Zagaris, the state Emergency Management Agency's fire and rescue chief.

Firefighting costs also weigh on the state's overstretched budget. Fifteen years ago, the state spent $247.1 million on fire suppression. In 2007, it spent $947.4 million. Last year's expenses are still being calculated.

Meanwhile, local fire departments have had to trim their own budgets in the recession. The Los Angeles Fire Department, for example, announced it was cutting 15 firetrucks and six ambulances.

Firefighters from local strike teams are paid overtime for working 24-hour days. Their checks come from local governments that are repaid by the state.

Mr. Walters, of Cal Fire, is concerned that some local fire departments might be squeezed too thin to spare resources for the mutual-aid network. "If they have to, for instance, lay off some firefighters, their number one responsibility is to take care of their own jurisdiction," Mr. Walters said.

So far, 2009 has been a slow year. At the end of July 10,384 acres had burned, compared with more than 338,000 at the same time last year.

But the pace has begun to pick up recently. In the first 10 days of August, lightning strikes sparked blazes that swallowed nearly 26,000 acres around Shasta County in Northern California, and ranch owners in Santa Barbara were warned they may have to evacuate as the La Brea fire ravaged 36,000 acres there. Another fire in Santa Cruz County forced the evacuation of about 2,000 people; it has burned more than 2,700 acres and was about 50% contained Sunday morning.

Mr. Gerboth, the 36-year-old San Diego fire captain, is waiting for the call. "I just throw my bags in the vehicle and start driving," he said.

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Builders criticized for raising fire risk

The Fresno Bee
July 30, 2009

Some lawmakers want to limit foothill homes.

By Brad Branan
The Fresno Bee

A battle is looming over homes built in areas at risk for wildfire.

Backed by environmentalists and a firefighters association, some members of the Legislature want to make it tougher for local governments to allow construction in fire zones.

But California Department of Forestry and Fire Protection opposes the effort, saying the rules would cost too much to enforce.

Gov. Arnold Schwarzenegger vetoed a similar measure last year but has not taken a position on this bill.

Construction in wildland areas is increasingly seen as a major factor in the state's growing wildfire problem.

Since 2006, Fresno County has allowed construction of about 300 homes in hilly areas identified as high-risk by Cal Fire. Most are in Shaver Lake, Squaw Valley and Auberry, a review of county records shows.

Assembly Member Dave Jones, D-Sacramento, wants to correct what he sees as a disconnection in policy. Counties and cities approve construction in wildland areas, while the state gets stuck with higher firefighting costs.

See **WILDFIRE,** Page A6

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Continued from A1

If his bill is approved, Jones said the cost to Cal Fire would only be around $30,000 to adopt rules. His bill would require counties and cities to certify that adequate fire protection exists before approving housing projects, and to pay for additional protection if needed.

"I have watched with dismay as more firefighters are placed in jeopardy and more homeowners have lost their homes as new subdivisions have been built in high-risk fire areas without adequate local fire protection," he said.

Fresno County Public Works and Planning director Alan Weaver said homeowners assume a higher risk for fires when they move into wildland areas, even though state and county officials enforce stronger building codes and vegetation-clearing rules.

Weaver said he's not aware of the county ever rejecting a request for a building permit because of wildfire risks.

Some wonder whether that should change.

"The risks are increasing because more people are living where they shouldn't be," said Pat Gallegos, project manager for the Highway 168 Fire Safe Council in Prather.

Protecting people

Human activity is by far the leading cause of wildland fires, accounting for at least 70% of the fires in Cal Fire jurisdiction from 2000-05, agency figures show. The activities include driving, equipment use, smoking, arson and playing with fire.

"As you bring more people into an area, you increase the risk for fire," said Sass Barton, a Cal Fire battalion chief in Fresno.

Development in wildland areas also increases firefighting costs, as crews are called upon more often to protect homes.

California has broken records the past two years for the number of wildfires and acres burned by wildfires, Cal Fire records show. The agency's fire suppression costs have quadrupled to more than $460 million in the past nine years.

This year's wildfire season already has featured a couple of close calls for homeowners in the eastern foothills. In the past few weeks, two small fires threatened about 15 homes, said Cal Fire Battalion Chief Mark Watkins, who notes that the agency expects above-average fire danger this season because of hot and dry conditions.

In recent years, thousands of acres have burned in the Fresno County areas deemed hazardous by Cal Fire. In August 2007, the Tar fire burned nearly 6,000 acres in the southwest corner of the county. The year before, the Three Rocks fire burned 6,500 acres north of Coalinga.

Cal Fire is forced to fight fires more aggressively when houses are nearby. The presence of homes also limits the agency from using controlled burns and aerial firefighting.

"Anytime we put more people in the wildland, it puts more risks on the firefighters," said Cal Fire deputy director Ken Pimlott. "Our first priority is to protect life and property."

Limits aren't welcomed

While there's agreement that development increases wildfire risks, not everyone agrees on the solutions.

Fresno County Supervisor Debbie Poochigian, who represents the eastern foothills, said she wouldn't support restrictions on housing construction in wildland areas.

"We've got to do everything we can to keep families safe without infringing on their personal property rights," she said.

Weaver, the county planning director, said he hasn't seen the Jones bill, but is concerned that it would force the county to pay additional money for fire service when it has been forced to cut other public safety services. The county also would potentially have to turn down housing permits, he said.

Cal Fire is opposed to the bill because it would lead to excessive costs and interference with existing local laws, Pimlott said.

Bill supporters include California Professional Firefighters, the Planning and Conservation League and Sierra Club California.

The bill "would make the already challenging and risky job of firefighting less difficult, while also enhancing the public's safety," said Amy Howard, legislative director for the firefighters association.

Environmentalists also tout reduced wildfire risks as a reason for their support. They also like adding restrictions to wildland development.

"We have a lot of unchecked sprawl, particularly if you look at the foothills of Fresno County," said Tina Andolina, legislative director for the Planning and Conservation League. "Local officials will have to think twice about approving development if they have to consider fire risk."

State and county officials said they're protecting wildland areas by requiring fire-resistant materials in new houses and property owners to clear vegetation within 100 feet of homes.

New building code provisions, which took effect in January 2008, require tempered glass, fire-resistant decking and other materials when building in high-risk areas, said Steve Quarles, who served as a project manager for the testing that preceded the code's adoption.

"Assuming people stay on top of maintenance, the home is a lot safer than it used to be," said Quarles, an adviser for the University of California Cooperative Extension.

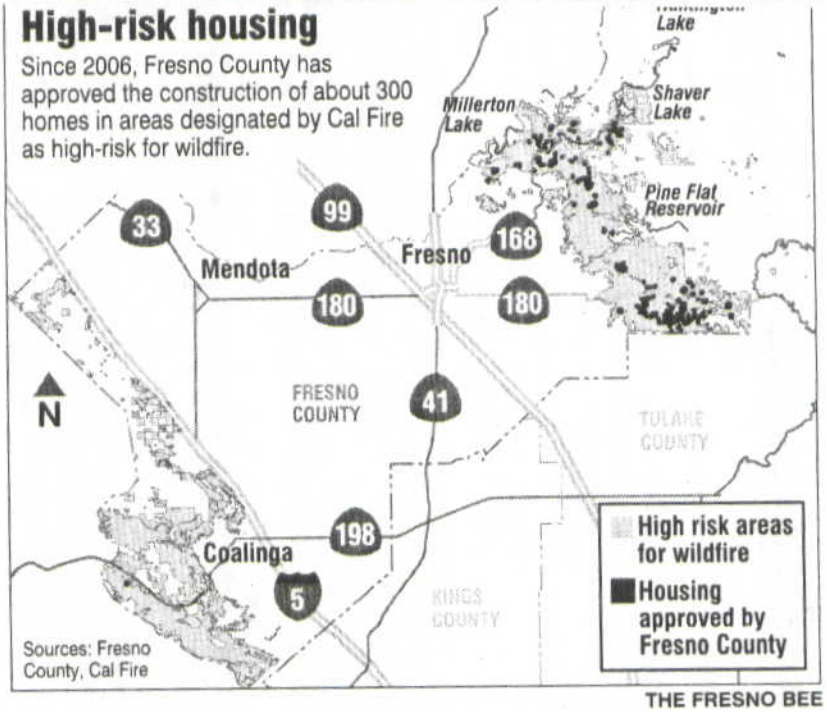
Gallegos of the Highway 168 Fire Safe Council said more homeowners are clearing brush, reducing ways for fire to travel to a home. But many people, particularly new residents, aren't aware of the regulations, she said.

"Unfortunately, the people who move up here aren't really aware of what it takes to live up here," she said.

► The reporter can be reached at bbranan@fresnobee.com or (559) 441-6679.

High-risk housing

Since 2006, Fresno County has approved the construction of about 300 homes in areas designated by Cal Fire as high-risk for wildfire.



THE FRESNO BEE

Attachment 25

NATION

ENVIRONMENT

Wildfires speeding up global warming pace

By David Perlman
CHRONICLE SCIENCE EDITOR

Wildfires that ravage California and other major forested areas around the world are speeding the pace of global warming as they pump more and more greenhouse gases into the atmosphere.

And the planet's rising temperatures that spur droughts and hotter summers, in turn, are sparking even more widespread fires.

Those warnings come from an international team of fire specialists from six nations, who declare that the global science agency that governs international actions aimed at reversing climate change must include the effects of forest fires in predicting how fast temperatures will rise in coming years..

The report on wildfires and climate is being published today in the journal Science.

One of fire's most significant contributors to global warming are the thousands of acres deliberately torched each year — particularly in the tropics — to clear forested land for farms, according to three leading authors of the study who spoke Thursday in a teleconference organized by the National Science Foundation.

That kind of deforestation accounts for about one-fifth of all the human-caused greenhouse gas emissions every year, the scientists agreed — and the proportion could become larger quickly as more and more land is cleared by burning, said Thomas Swetnam of the University of Arizona in Tucson.

"It's very clear that fire is a primary catalyst of global climate change," Swetnam said. "In the light of increased global warming, we'll be seeing more and longer droughts, and with more hot and dry years, we'll be seeing still more and larger fires."

"Fire affects the world in subtle and often misunderstood ways," said David Bowman of Australia's University of Tasmania. "It can change the climate quickly with large emissions of carbon dioxide and other pollutants."

One of those pollutants, the scientists agreed, is the black carbon soot that falls windblown over large areas of the Earth from major forest fires or deliberate "deforestation" blazes. That soot on the ground absorbs the sun's radiant energy — thus heating swaths of ground and adding to the burden of global warming, the scientists said.

Jennifer K. Balch of the National Center for Ecological Analysis and Synthesis at UC Santa Barbara noted that a consortium of scientists known as the IPCC — the Intergovernmental Panel on Climate Change — has in the past limited the role of wildfires in its assessments of climate change.

The panel's periodic reports form the basis of treaties and government actions to curb global warming, and Balch said the new report in Science should persuade the panel to include a greater role for the impact of wildfires in its next assessment of global warming due in three years.

"There are fires now where we don't normally see fires," she said, "and there are bigger and more frequent fires throughout the Western United States and the tropics."

In California alone, fires last year covered 380,310 acres in the state's wildlands protected by the California Department of Forestry, but the five-year average was far lower, totaling fewer than 260,800 acres, according to the department's figures.

Crawford Tuttle, chief deputy director of the department, told The Chronicle that climate change has directly affected the severity, the season, and the numbers of wildfires the state has encountered for at least the past 10 years — "and maybe even longer."

"We've encountered hotter and dryer conditions and higher levels of fire danger throughout the state year after year," Tuttle said, "and the large fires, in turn, have added large quantities of greenhouse gases into the atmosphere."

California is facing its third year of severe drought, he said, "and the hotter and dryer it gets earlier and earlier each year adds to the wildfire danger."

Nor do things look good for this season, Tuttle said. He noted there were two small fires on U.S. forest land in the Sierra north of Interstate 80 this week, and although they were quickly contained, they indicated that, once again, snow cover is melting early, increasing the danger of California wildfires and increases in greenhouse gas emissions.

E-mail David Perlman at dperlman@sfchronicle.com.



Logan Mock-Bunting / Getty Images

A man sprays water on a raging fire threatening homes in South Carolina as the governor declares a state of emergency. Thousands of acres and dozens of homes have been burned.

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Attachment 26

Farm water transfers

The State Department of Water Resources has approved 16 farm-to-city permanent water transfers since 1991. A bill proposed by Assembly Member Juan Arambula, I-Fresno, would bar such transfers.

Date	From	To	Amount acre-feet
Jan. 3, 1991	Devil's Den Water	Castaic Lake Water	12,700
Jan. 31,1997	Kern County Water	Mojave Water	25,000
Mar. 31, 1999	Kern County Water	Castaic Lake Water	41,000
Dec. 21, 1999	Kern County Water	Alameda County FC & WCD	7,000
Dec. 29,1999	Kern County Water	Palmdale Water	4,000
Dec. 29, 1999	Kern County Water	Alameda County FC & WCD	15,000
Dec. 8, 2000	Kern County Water	Alameda County FC & WCD	10,000
Dec. 8, 2000	Kern County Water	Solano County Water	5,756
Dec. 8, 2000	Kern County Water	Napa County [redacted]nd WCD	4,025
Dec. 31,2001	Tulare Lake Basin WSD	Antelope Valley-East Kern Water	3,000
June 2, 2003	Tulare Lake Basin WSD	Alameda County FC & WCD	400
Oct. 31, 2003	Kern County Water	Alameda County FC & WCD	2,219
Feb. 23, 2004	Tulare Lake Basin WSD	Coachella Valley WD	9,900
May 9, 2007	Tulare Lake Basin WSD	Coachella Valley WD	5,250
		Desert Valley WA	1,750
Sept. 26, 2007	Kern County Water	Coachella Valley WD	12,000
		Desert WA	4,000
Oct. 12, 2009	Dudley Ridge WD	Mojave Water	14,000

Source: State Department of Water Resources

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State Water Project

Valley Voice May 6, 2010

Last week's storm did not produce as much snow as pervious storms this month, but 10 inches did fall on Thursday at Farewell Gap.

Deffenbaugh is not too concerned the snow will melt too quickly, noting that warm weather, followed by cold weather, actually helps to create a block of ice on top of the mountains and ice melts slower than snow.

He said all three boat ramps are open, but in about two weeks they will lose one of the old ramps that is now below the new lake level. That closure could last well into June.

Deffenbaugh said boaters and swimmers need to be aware the water is extremely cold and will be so for several weeks. Also, he cautioned, the river is running very fast.

While most reservoirs are filling up fast, Lake Oroville, the principal reservoir for the State Water Project, remains only 59 percent of capacity, or 71 percent of normal for the date. DWR has said it will deliver just 30 percent of requested State Water Project water to cities and farms this year. The allocation may be adjusted slightly in the coming weeks, based on the snow survey data.

"This is good news after three years of drought, but we still face water shortages in many parts of the state," DWR Director Mark Cowin said in a statement. "State Water Project storage is well below average and Delta pumping restrictions to protect native fish species will continue to hamper our ability to deliver water to millions of California homes, businesses and farms. If we are to ensure an adequate water supply for the future, it is critical that we conserve water and develop smarter, more sustainable ways to manage our water resources."

The fed has also announced it will deliver only 30 percent of normal water, and while that is considerably better than last year when hundreds of thousands acres of farmland were left fallow, it is not even close to historic releases when the snowpack was above normal.

Attachment 28

Improving water quality in Matheny Tract comes with a high price

Visalia Times-Delta May 15-16, 2010

BY VALERIE GIBBONS
vgibbons@visalia.gannett.com

It's not hard to find evidence that the residents of the Matheny Tract know their water is contaminated with a high level of nitrates.

Just look for the bottled water.

Residents of the 45-acre community on the outskirts of Tulare have been buying bottled drinking water for more than three years, said Lew Nelson, the director of public works for the city of Tulare.

"It's really unfortunate that a disadvantaged community is forced to buy bottled water," he said. "That's really the most expensive alternative for them."

High costs

Nitrates are the county's largest water contamination problem, said Mark Bairstow, an environmental health specialist with Tulare County.

The problem comes down to money. Most of the water delivered to homes locally comes from groundwater. Only the most expensive systems in the county — like the ones that serve the cities of Visalia and Tulare — are large enough either to avoid contaminated sources or treat the water.

But anyone living outside of the city water systems may not know if they have high nitrate levels.

"If you have a private well, you are not required to test the water," Bairstow said.

A $150 surcharge on county well drilling permits pays for testing at a lab in Fresno. So far the county has tested 472 wells for contaminants over the last four years.

In Tulare, Nelson hopes that state and federal grants will eventually come though to help all 200 properties of the tract hook up to the city's water system. But that future has a steep price tag: more than $5.5 million. It will also cost another $3 million to hook up each of the homes to the city's sewer system and add other infrastructure.

Leaky septic systems are widely blamed for high-nitrate levels in water, as well as certain fertilizers and natural sources. And if a proposed annexation of the tract to the city of Tulare goes through, the area would be served by the city's water system, but it would also force residents to hook up to the city's sewer system, Nelson said.

The bill per household for just the sewer connection alone would run about $2,800.

"That's a whole lot of money for the people living out there," he said.

Annexation fight

Residents of the Matheny Tract and the city have been at odds over annexation for the last nine years. Now an effort by the California Rural Legal Assistance Foundation is trying to tie the annexation of the tract — and all of the infrastructure improvements that come with it — to the annexation of a 400-acre industrial park on the tract's edge.

Nelson said the annexation would put all of the grants in peril, since the city would be ineligible to apply. Even if the grants do go through, though, it could be years before the residents of the tract have clean water.

"We just sent our last grant application off on Thursday," he said.

Across the county, efforts to clean up contaminated wells are just beginning. High nitrate levels can be found in wells along the base of the foothills. But in the county's flat lands, nitrate hot spots like the Matheny Tract occur as well.

"It's just because of the nature of ground water here in Tulare County," Bairstow said.

This year the county is assisting seven small water systems connect to larger city services in Tulare, Porterville and Exeter. Most of those smaller systems serve low-income communities.

Bairstow said the only way the county can afford to connect the smaller communities is to look for state and federal grants.

"As long as we have had these funding sources, we have been able to move forward," he said.

There's little assistance, though, for individual homes. Testing for the well takes place after the well has been drilled, the equipment installed and the pumps are turned on. If the wells test positive for contaminants, the homeowner is sent a letter.

"We don't require the property owner to shut down the well," he said.

Help from ag industry

The county's agricultural industry has made some changes over the last decade, as well, said Tricia Stever, the executive director of the Tulare County Farm Bureau.

Dairy owners are capturing the run-off from their farms and reusing it up to five or six times and growers are taking part in county-wide commissions to help with water quality. Stever said companies that manufacture fertilizers, insecticides and other so-called "crop protection materials" are also changing their formulas.

"They're taking tremendous strides to make their products safer for drinking water," she said. "Growers are also going to tremendously expensive lengths like hiring hydrologists and going through groundwater testing — agriculture is carrying a tremendous part of that burden."

Attachment 29

County Faces $7 Million Budget Shortfall

By Miles Shuper

Tulare County is facing an estimated $7 million shortfall in the 2010-11 fiscal year, supervisors were told Tuesday.

County Administrative Officer Jean Rousseau presented his mid-year budget report saying the county must continue its current hiring freeze in addition to trimming expenses. That could include additional layoffs and worker furloughs.

Rousseau cited an anticipated 5 percent drop in assessed property values resulting in property tax revenue decreases, high retirement benefit costs and further slashing of state funds as the culprits, along with the continuing nationwide weak economy.

Although Tulare County's budget situation is not as bad as many other counties, it must continue to tighten its economic belt and make tough budget decisions.

Rousseau said all county departments, except for the Resource Management Agency (RMA), had met spending goals in the current 2010-11 budget. That department, he said, is in the process of being restructured and has been dealing with several major projects, including the long-overdue and controversial General Plan Update.

Rousseau said additional county-wide layoffs are likely but said that will depend to a large degree on just how deep state and federal funds are slashed. Since July 2007, the county has cut 605 positions resulting in a net job loss of more than 200.

Rousseau said retirement costs continue to increase because workers are staying longer on the job due to the county's recent efforts to retain employees by making salaries and benefits more comparable with other counties and private jobs.

A few years ago the county had an average of about 10 percent annual loss of workers. Now, that is in the neighborhood of 2 to 3 percent, Rousseau said, explaining that retirement costs go higher with workers staying longer.

Rousseau said the assessed land value in the county has dropped about $3.7 billion over three years. Property tax revenue is based on assessed value.

The proposed budget will include no Williamson Act subvention payments from the state. Last year, the county lost about $3.4 million in funds the state sends back to the county to offset property tax revenues lost due to lower property taxes for Williamson Act farm land. The loss this year will be less, but still will total $2 million to $3 million. That is general fund money.

Although Tulare and several other counties continue to push for that subvention to be reinstated, other methods of retrieving those monies are being studied.

Rousseau also pointed out that the current legislative budget plans include more deferrals of payments, including fuel taxes and social service funds. All mandated referrals from the state will continue to be suspended into the next fiscal year, Rousseau said.

In other action Tuesday, supervisors:

-Denied an appeal of the approval of a special use permit allowing the Living Word Fellowship to build a church facility on 18.39 acres on the east side of Road 68 west of Road 72 west of Dinuba. The vote was 4-1 with Supervisor Allen Ishida voting no because of concerns about allowing development around the edges of cities, a key issue in the General Plan Update.

Jose and Irma Faria, neighbors to the site, appealed a planning commission approval of the permit citing potential excessive noise, travel and potential water quality issues because of the septic system.

Supervisors followed the recommendation of the Resource Management Agency staff that mitigation requirements be included in the large church facility. The City of Dinuba did not oppose the project which is in the city's Urban Development Boundary but not in the sphere of influence.

-Received the bids for the History of Farm Labor Museum elevator project. Webb and Sons Corporation of Porterville, the company that built the museum, submitted the low bid of $89,980, about $5,000 less that the next closest and below the engineer's estimate of $105,000.

Attachment 30

Valley Voice 3/18/2010

Jobs continue to disappear. The number of people **employed** in Tulare County this January is 1,900 fewer than January of 2009, the state reported. In Kings County, the drop is just 600 jobs. Tulare County's jobless rate hit a high of 18.5 percent in January, while Kings County's rate was 15.6. In Visalia, the jobless rate has hit 11.6 percent, 15.8 in Tulare. The highest jobless rate in the county is in Earlimart where nearly one out of every two people is unemployed. In Kings County, the jobless rate in Hanford was 16 percent, the same in Lemoore. The state reported 171,400 people out of a labor force of 209,800 have jobs. In Kings County, it is 50,500 out of 61,700 who have jobs. The state's jobless rate rose to 12.5 percent in January.

Valley Voice Apr 1, 2010

Tulare County's **unemployment rate** is inching closer to what it hit after the big freeze of 1991. State officials said last week that the jobless rate in February hit 18.7%, up from 18.4% in January and higher than the 16.1% in February last year. After the freeze in 1991 that wiped out the county's citrus crops, the county jobless rate topped 20%. In Kings County, the jobless rate dropped just slightly, from 18.3% to 18.2%. The state reported the jobless rate in Visalia hit 11.9 percent. Over city rates: Tulare, 16.1; Porterville, 17.3; Dinuba, 26.9; Exeter, 12.5; Lindsay, 22.5; Hanford, 16.1; Lemoore 16.1 and Corcoran 18.9.

VALLEY VOICE 4/22/10

Two in 10 in Tulare County are **out of work**. The state reported that California's jobless rate swelled to 12.6 percent, but that pales in comparison to Tulare and Kings counties. Tulare County's rate hit 19.4 percent in March, while Kings County's rose to 18.6 percent. Those are figures not seen since the devastating freeze in the early 1990s. While better off than most, Visalia's jobless rate hit 12.3 percent and Tulare 16.7. Hanford's jobless rate was 16.4, the same for Lemoore. The highest jobless rate locally was in Richgrove - 53.2 percent.

Attachment 31

Wall Street Journal April 17, 2010

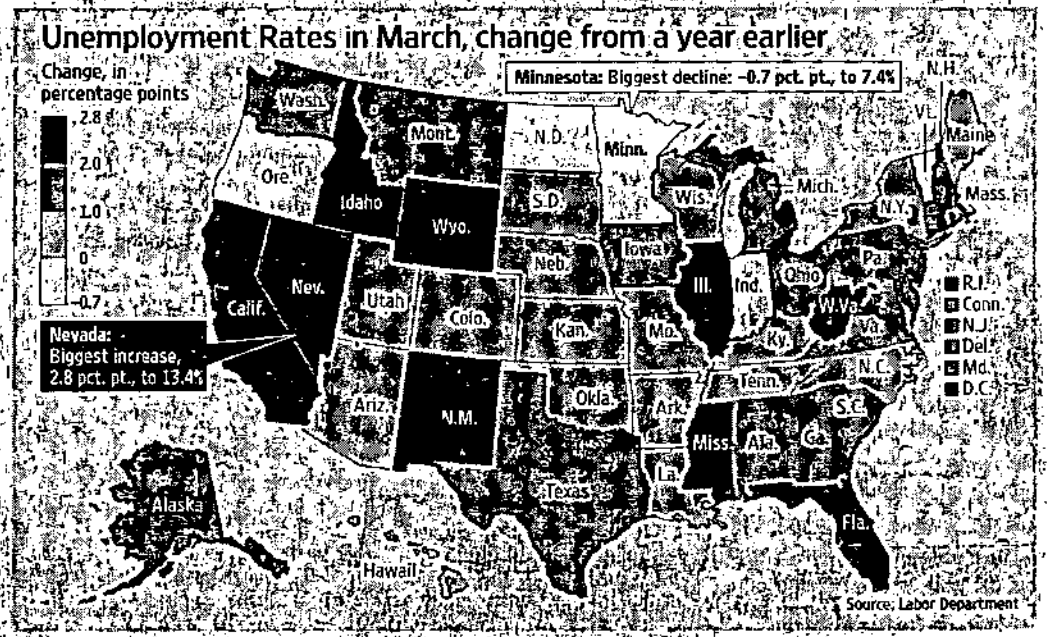
West Is Hit Hardest by Joblessness

By Conor Dougherty

The unemployment rate rose in just less than half of states in March and joblessness continues to be worst in Western states hit hard by the recession and housing bust, according to a Labor Department report released Friday.

Twenty-four states had higher jobless rates in March from a month earlier, with 17 states and the District of Columbia showing decreases. The rate was unchanged in nine states.

Unemployment is generally worse in Western states, which together posted an 11.0% unemployment rate in March. The best off were Eastern states, where the 9.1% unemployment rate was more than half a percentage point lower than the national rate of 9.7%.



Attachment 32

Wall Street Journal
Thursday, April 23, 2009 A3

Fewer in U.S. Move As Economy Falters

By Conor Dougherty

Americans changed residences less often last year than at any time since the Census Bureau began keeping track in 1948, the latest sign of how the recession and falling house prices are keeping more people in place.

"We are normally thought of as a country on the move, but now all levels of migration have almost come to stand still," said William Frey, a demographer at the Brookings Institution, a Washington think tank. "People are just staying put."

The national mover rate was 11.9% last year, meaning 11.9% of the people lived in a different dwelling than they did the year before. That was down from 13.2% in 2007. In total, about 35 million people moved last year, down from about 39 million in 2007.

With home values falling, many people have stayed in place, either because they can't sell their homes or aren't happy with prices offered.

The breadth of the recession has exacerbated the slowdown. Unemployment has risen in every state, and fewer jobs in almost every community mean fewer people are moving for work. Job losses have continued through this year, and many economists expect that the national unemployment rate, currently at 8.5%, to hit double digits by the end of the recession.

Mr. Frey said that further job losses made it likely that migration would further slow through 2009.

Generally, the majority of moves are within state, and renters are five times more likely to move than homeowners are.

Local moves have been slowing for some time, but fell sharply last year. The within-county migration rate was 7.8% last year, compared with 8.6% the previous two years. The state-to-state migration rate was 1.6% last year, compared with 1.7% a year earlier. Moves from abroad fell to 0.39% from 0.41% a year ago.

People in the South and West are most mobile. The migration rates there were roughly 13%. The migration rate in the Northeast was 8.2% last year. The largest year-over-year decline was in the Midwest, which has been hit harder economically than many other regions; the migration rate there fell to 11.1% from 13.2% in 2007.

Attachment 33

Economic Crisis Curbs Migration of Workers

By Patrick Barta And Paul Hannon

The global economic crisis is hitting immigrants around the world harder than native-born workers and putting the brakes on a decades-long increase in international migration, the Organization for Economic Cooperation and Development said.

Wealthy countries including the U.S. should avoid taking too many steps to discourage immigrants from coming, because many will need immigrant workers in the long run, the Paris-based group said in its annual migration report.

The OECD said unemployment rates for immigrants are rising faster than for native-born workers in many rich nations, in part because immigrants tend to gravitate to industries, such as construction, that are hard-hit by the downturn.

Immigrants also are more apt to fill temporary or part-time positions that are easy to cut when times are bad. In the U.S., the unemployment rate for immigrant w .rkers is about 10%, compared with 9.4% for the overall population, the OECD said, a reversal of earlier trends.

Before the economic crisis, unemployment levels for immigrant workers were lower than for the native-born population—a state of affairs economists say is common because immigrants tend to be willing to take any job available.

The data confirm what many economists say they have suspected for months—that the rich world is becoming less attractive for immigrants. Until 2008, global migration flows increased steadily as prosperous economies ran short of workers and the cost of international travel and communications fell.

In the U.K., the OECD said, more than 70% of jobs created since 1997 were filled by foreign-born workers, while immigrant labor accounted for at least 40% of total employment growth in Austria, Denmark, Italy and Spain.

The OECD said it is too early to know how much immigration is slowing, because it takes a long time for economic shocks to alter migration patterns.

Wall Street Journal 7/1/2009

Attachment 34

CENSUS

San Francisco Chronicle April 23, 2009

Ailing economy slows Americans' mobility

By Hope Yen
ASSOCIATED PRESS

WASHINGTON — The number of Americans who moved declined sharply last year, reaching the lowest percentage in 60 years as people grappled with fewer jobs and tighter credit.

Roughly 11.9 percent of the nation's population, or 35.2 million people, moved to a new home, down from 13.2 percent, or 38.7 million people, the previous year, according to census data released Wednesday. It was the sharpest percentage drop in U.S. mobility since the 2000 bursting of the tech bubble, which bankrupted many Internet startups and caused the dwindling of stock portfolios.

The levels of people moving have been declining for decades, more recently due to an aging Baby Boomer population that is less mobile, since hitting a peak of 21.2 percent in 1951. But the rate had generally leveled off at around 13 to 14 percent before last year's drop.

Longer-distance moves between states have dropped 36 percent since 2005 to about 4.7 million, reflecting the housing downturn.

William Frey, a demographer at the Brookings Institution, said declining U.S. migration to residential magnets in the suburbs and exurbs, and particularly in the Sunbelt, were driving the low moving rates overall.

In 2008, the Northeast continued to lose the most residents, but at a slower rate than previous years. The South registered a net gain of people moving in, while the West and Midwest had declines.

"It's a combination of the inability to buy or sell homes, locally, as well as a drying up of jobs particularly in hot housing markets," he said. "The lure of the suburbs for immigrants, in particular, has been curtailed as homeownership there has proved to be elusive."

The demographic numbers highlight the task ahead for the bureau, which is gearing up for next year's decennial head count that will be used to apportion House seats.

The unemployed, minorities and poor people were more likely to move, according to the data. Immigrants increasingly headed to dense urban areas rather than the wide-open suburbs compared to years past, underscoring government concerns that these groups will prove difficult to count. The bureau has said that tens of millions of residents are at risk of being missed in cities such as Los Angeles and New York, particularly non-English speaking people and displaced homeowners.

The census data was based on the Current Population Survey as of April 2008. The government first began tracking movers in 1948.



Attachment 35

File Copy

TYPED VERSION OF HANDWRITTEN 2008 COMMENTS

April 14, 2008

From: J. Peter Clum
45638 South Fork Drive
Three Rivers, CA 93271

To: David Bryant, Project Planner
Tulare County Resources Management Agency (RMA)
5961 South Mooney Boulevard
Visalia, CA 93277

Subject: Comments on the Tulare County General Plan 2030 Update Draft Environment Impact Report (DEIR)

Encl.
(1) My Written Comments on DEIR Submitted Feb 26, 2008 at the Joint Hearing of the Tulare County Board of Supervisors and the Tulare County Planning Commission
(2) My Additional Written Comments on DEIR Submitted Same Date and Hearing
(3) My ltr w/out Enclosures dtd Mar 13, 2008 to David Bryant, Project Planner Tulare County RMA
(4) Carole Clum's Fact Checking on Tables 4-4 and 4-5 of Draft EIR and Discussion Thereof dtd Feb 26, 2008
(5) Climate Change Impacts on the Central Valley
(6) Modeling Tools to Estimate Climate Change Emissions Impacts of Projects/Plans
(7) "Climate Change and the California Environmental Quality Act" by Dave Owen
(8) Additional Online Resources/Environmental Gateway Pages
(9) "Model Projections of an Imminent Transition to a More Arid Climate in Southwestern North America" by Richard Serger et al., pages 1181 to 1184, May 25, 2007 Science (Originally Published in Science Express)
(10) Executive Summary of Article Contained in Enclosure (9)
(11) "Drying of the West" by Robert Kunzig, pages 90-113, Feb 2008, National Geographic
(12) Board of Supervisors, County of Tulare ltr to Assemblyman Maze dtd Sep 25, 2007

Attachment 36

(13) Soures of Data on Groundwater Impacts That Have Been Attributed to Irrigated Agriculture
(14) Sources of Data on Surface Water Impacts That Have Been Attributed to Irrigated Agriculture
(15) Internal ltr dtd Jan 15, 2008, of California Regional Water Quality Control Board Central Valley Region
(16) "Temporal Trends in Concentrations of DBCP and Nitrate in Groundwater if the Eastern San Joaquin Valley, California, USA," Hydrogeology Journal
(17) "Assessing the Vulnerability of Public-Supply Wells to Contamination from Urban, Agricultural, and Natural Sources," USGS Fact Sheet 2005-3022, April 2005
(18) Summary of Constituents Above Drinking Water Standards, GAMA Domestic Well Assessment Project, Tulare County dtd Dec 12, 2006
(19) Tulare County Applications Pertaining to Groundwater Contamination Submitted to the California Department of Health
(20) Water Quality Comments on General Plan Submitted Feb 22, 2007, by Tulare County Environmental Health Depart, Health and Human Services Agency to Tulare County RMA, pages 246 to 250, Public Comment Matrix, Tulare County General Plan
(21) Agenda For Subcommittee on Nitrates Nitrate Investigation Workshop of Jan 17, 2008

These comments address air quality, water supply and water quality and are in addition to my comments earlier submitted, enclosures (1 and 2). Enclosure (1) highlighted specific deficiencies in the DEIR. Enclosure (2) requested a report prepared by Mr. Keller of Keller, Wegley and Associates. To date, this request has been responded to only in part. As a result, another request, enclosure (3), was hand-delivered to RMA on March 13, 2008.

An environmental impact report "must include detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully (emphasis added) the issues raised by the proposed project." *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 405. "Failure to comply with the information disclosure requirements constitutes a prejudicial abuse of discretion when the omission of relevant information has precluded informed decision making and informed public participation, regardless of whether a different outcome would have resulted if the public agency had

complied with the disclosure requirements." *Bakersfield Citizens for Local Control v. City of Bakersfield* (5th Dist. 2004) 124 Cal.App.4th 1184, 1198, Environmental impact reports serve an important public informational purpose. "An EIR is an educational tool not just for the decision maker, but for the public as well." *Association of Irritated Residents v. County of Madera* (5th Dist. 2003) 107 Cal.App.4th 1383, 1392.

The information presented in the DEIR pertaining to air quality, water supply and water quality is inadequate and fails to meet the above standards. As a result, meaningful assessment of the true scope of serious adverse environmental impacts is thwarted. *Bakersfield Citizens for Local Control v. City of Bakersfield* (5th Dist 2004) 124 Cal.App. 4th 1184, 1220.

Air Quality

The people of Tulare County encounter on a regular basis some of the worst air quality in the United States. At times we experience the worst air quality. The incidence of asthma is abysmal. Should not there be some discussion of this and analysis of air pollution data juxtaposed the trade offs on health effects and the cost of treating the same? The DEIR is lacking in this regard. It has no detailed discussion of our air quality's effects on health and the economy. Instead, we have some passing references, comments and one table (Goals and Policies Report: AQ-3 on page 9-6, AQ 4-5 on page 9-7; Background Report: page 5-55 last line, page 6-4 end of first paragraph, page 6-5 Table 6-1; DEIR page ES-42, page ES-48, page 4-49 upper half, pages 4-57 and 4-58, page 8-15). Page 9-7 of the Goals and Policies Report contains policy AQ-4.5 "Public Awareness, [t]he County shall promote public awareness of the seriousness and extent of the existing pollution problem." This policy seems like a prudent measure given our bad air. But, unfortunately, there is no implementation measure (see pages 9-8 and 9-9 Goals and Policies Report). Nor is there any refence to this policy in the DEIR executive summary. For whatever reason, policy AQ-45 Public Awareness does not appear on page ES-42 of the DEIR, which page corresponds to the pertinent goals and policies on pages 9-6 to 9-7 of the Goals and Policies Report. Table 6-1, page 6-5 of the Background Report, contains the most extensive reference to health effects appearing in the DEIR. However, the reference to Table 6-1 contained in the text on page 6-4 says nothing about health effects and states only "[a] summary of the state and federal ambient air quality standards is shown in Table 6-1." Page 4-49 of the DEIR, under the section captioned "Standards of Significance" starting on page 4-47 appears to

expressly delay health risk assessment until specific projects are considered under the General Plan Update.

CEQU Guidelines § 15126.2(a) requires an EIR to discuss "health and safety problems caused by the physical changes" that the General Plan Update will precipitate. The DEIR contains no meaningful discussion of the anticipated adverse impact on air quality and increases in specific respiratory conditions and illnesses. An EIR requires more than raw data and statement of facts. It requires meaningful analysis which serves to inform the public and government officials of the environmental consequences of decisions before they are made and which would provide decision makers with sufficient information to make intelligent decisions.

Water Supply

The DEIR fails to provide a proper baseline and, more importantly, contains inadequate information to inform the public and for intelligent decision making. The water resources section of the DEIR has many broad statements and generalities about existing conditions. Correct, quantitative information is missing as it pertains to existing baseline conditions. There is incomplete and inaccurate data in Table 4-5, page 4-107 of the DEIR, which purports to show the ability of 21 unincorporated communities to meet population growth demands of the General Plan Update buildout to 2030. See enclosure (4). The water resources section refers to data and tables from the California Water Plan Update 1998 (Department of Water Resources Bulletin 160-98). The California Water Plan Update 2005 (Department of Water Resources Bulletin 160-05) was released in December 2005. While the reports are formulated differently, the 2005 edition has significantly more discussion about global climate change and the consequences thereof for our water supply. Bulletin 160-05, pages 3.15 and 3.16, pages 4.32 to 4.36, Volume 1. The 1998 water plan contains only a brief mention thereof and the statement "if global warming occurs," page 3-11, volume 1, Bulletin 160-98. Since the release of Bulletin 160-05, the science has advanced. Yet, the Background Report and the DEIR water resources analysis ignore completely the anticipated consequences but yet to be determined full severity of global climate change. Table 10-1, "California Water Supplies with Existing Facilities and Programs Thousand Acre Feet" presented on page 10-6 of the Background Report is drawn from Bulletin 160-98 and of uncertain present reliability. Page 10-1 of the Background Report indicates "[t]he information contained in this section was

obtained from various sources, including the 2001 (emphasis added) Tulare County General Plan Background Report. Additional information is based on printed reports by the State Department of Water Resources, including the State Water Plan . . . ." 2001 is hardly current information. Review of chapter 10 of the Background Report makes clear the Water Plan relied on was the 1998 version, not 2005. Concern with the reliability of water supply increases with each year. The DEIR should have provided the most current information for the baseline as of April 2006 (Notice of Preparation issued April 25, 2006) and thorough discussion of anticipated changes throughout the buildout of the General Plan. It fails to do this. However, even given these inadequacies, the water resources section of the DEIR forecasts substantial uncertainty, at best, about the adequacy of surface water and groundwater to meet the projected growth. Pages 4-127 through 130, page 8-12 and page 8-20 DEIR. Page C-27, first version, issued January 25, 2008 "correctory information" and page C-27, second version, issued February 26, 2008 "correctory information #2." (Both C-27's are pages of Appendix C of the Background Report. The Background Report is Appendix B, separate volume, of the DEIR.

A more accurate presentation of existing conditions and information pertaining to presently occurring and forecasted to occur environmental changes of major impact on our water supply reliability throughout the General Plan buildout period should have and could have been included. The DEIR avoids addressing the magnitude of oncoming water supply problems and fully disclosing the uncertainty associated with water development and delivery. To fulfill its informational disclosure requirements, the DEIR should have included discussion of the following additional information:

(1) As recognized in the California Water Plan Update 2005, Bulletin 160-05, page 434, Volume 1 "[c]omputer modeling of global climate change scenarios predict significant future reductions in the Sierra snowpack. A reduced snowpack will reduce the total water storage for the state." Also noted on the same page and depicted in Figure 4-9 is that "[h]istorical records reveal long-term changes in the pattern of April-July runoff," i.e. linear regression.

(2) Since publication of Bulletin 160-05, more has become clear concerning the expected adverse effects of global climate change. The modeling is better and the science further advanced. See enclosures (5 through 11).

(3) Page 3.12, Volume 1, Bulletin 160-05 notes "[w]ater managers today use hydrologic records of the past century to estimate how climate conditions would affect water availability and water needs." Unfortunately, as we are slowly beginning to recognize, the last one hundred years in the Southwest were by far the wettest in the last millennium. We are returning to the normal, much drier conditions which may well last hundreds of years. This phenomenon is, at least in part, separate from that resulting from global climate change, which may add an extra dimension. See "Requiem for a River" by Tim Folger, pages 24-35, ONEARTH, Spring 2008, published quarterly by the Natural Resources Defense Council and "Drying of the West" contained in enclosure (11). The baseline California water managers have been using is dramatically skewed in the wrong direction toward more water rather than what is apparently is our normal condition of less water. If we do not make the appropriate adjustments, the "impending water crisis facing Tulare County and all of California" addressed by the Board of Supervisors, County of Tulare in enclosure (12) could prove catastrophic to our population, economy and environment. Using the current historical records to document single and multiple dry years water supply is no longer a reliable or prudent practice in water supply assessment.

(4) As noted by all five Tulare County Supervisors in a letter to Assemblyman Bill Maze [enclosure (12)], there is an impending water crisis facing Tulare County and all of California" . . . which 'will only worsen in the coming years." The letter states the San Joaquin River restoration "will force a reduction in water to Friant users at an average of 19% and a maximum of 23%." The letter further indicates the delta smelt decision will reduce "water supplies to Northern, Central, and Southern California . . . by 14-35%" The letter concludes "the current water situation in Tulare County is in dire need of assistance. . . . Our citizens will be left with a minimum supply of drinking water, and our farmers will not be able to irrigate their crops. Something must be done about this dangerous situation." If the situation was dangerous in 2007, what will it be in 2010, 2020, and 2030?

(5) There is no comprehensive information regarding the County's groundwater resources, pages 4-129 and 130, DEIR. The Kings, Kaweah,

Tule, and Tulare Lake Basin are all in critical overdraft. "A basin is subject to critical conditions of overdraft when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts." . . . "Overdraft is the condition of a groundwater basin in which the amount of water withdrawn by pumping over the long term exceeds the amount of water that recharges the basin. Overdraft is characterized by groundwater levels that decline over a period of years and never fully recover, even in wet years. Overdraft can lead the increased extraction costs, land subsidence, water quality degradation, and environmental impacts," pages 3.13 and 14, Volume 1, Bulletin 160-05. It has been estimated that the Tulare Lake Hydrologic Region accounts for 56% of the State's overdraft condition, California Water Plan Update 1998, Table 3-15, page 3-50, Volume 1, Bulletin 160-98, The Kings, Kaweah and Tule Basins account for about 70% of the Tulare Lake Hydrologic Region. overdraft, pages 8-45 and 46, Volume 2, Bulletin 160-98. Unless the lead agency knows approximately how much water exists in the affected basin, the agency cannot possibly know what level of additional withdrawals would involve significant impacts. "Groundwater pumping, a major source of supply in the Tulare Lake [hydrologic] region continues to increase in response to growing urban and agricultural demands. If groundwater extraction continues to be used to offset anticipated but unmet surface water imports, it will have negative consequences. One such effect of long-term groundwater overdraft is land subsidence, which also results in a reduction of aquifer storage space. This has already caused some damage to canals, utilities, pipelines, and roads in the region." Page 8.8, Volume 3, Bulletin 160-05. As noted earlier, the water resources section of the Background Report has been in preparation since at least as early as 2001. Page 10-1, Background Report. Impact WR-3, page ES-72 of the DEIR, states "[the] General Plan Update would have the potential, in the long-term, to deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table. This sterile, unmodified recititation of a checklist item from Appendix G, CEQA Guidelines understates the impact. We are already in a critical overdraft condition, in long-term regression of groundwater levels, and by most reasonable predictions entering a much drier era with declining surface water

deliveries. The environmental alarm bells have been ringing, loud and clear and few are listening. One of the policies listed on page ES-72 of the DEIR is WR-1.7 Collection of Additional Groundwater Information. See also pages 11-4, 6, 7, and 8, Goals and Policies Report; and pages 4-128 to 134, DEIR. Page 11-4, Goals and Policies Report states under policy WR-1.7, [t]he County shall support additional studies focused on furthering the understanding of individual groundwater source areas and basins. [New Policy]. Should not we have been doing this at full speed since 2001? "will conduct studies" is more appropriate language.

"The courts have done their part by suggesting, if not holding, that the proper forum for making tough decisions regarding water supply and land use planning is the General Plan EIR. The courts have also cautioned local agencies to fully disclose the uncertainty associated with water development and delivery in California, and to provide substantial evidence the actual water supplies will be available to serve new development. Finally, the courts have instructed that special care must be taken to learn everything reasonably possible about stressed groundwater resources before committing to a project that relies on such water." Page 786, Guide to CEQA by Michael H. Remy, Tina A. Thomas, James G. Moose and Whitman F. Manley (2006 11th edition Solano Press). The present DEIR falls far short of the informational obligation.

Water Quality

My comments about this issue supplement those noted in enclosure (1). Inexplicably, the DEIR's assessment of the impact of the General Plan Update buildout on water quality is that it will be less than significant with no mitigation required (Impact WR-4, pages ES-72 to 74 and 4-135, DEIR). Groundwater is the major source of drinking water in Tulare County. The two major threats to groundwater in California are overdraft and contamination. Although groundwater contamination is discussed in general, undetailed terms in the Background Report and DEIR (pages 7-15 to 7-36, 10-11 to 10-13, and Appendix C of the Background Report; pages 4-103 to 4-134 DEIR), there is no in-depth quantitative consideration of this known, serious problem or its correlation to health. In fact, the DEIR contains absolutely no information on or discussion of the health effects of groundwater contamination. The DEIR's assessment of less than significant impact on water quality with no mitigation required is made despite:

(1) the DEIR's general discussion of the inadequacy of groundwater to support growth and of groundwater contamination problems

(2) the conditions and hydrologic changes noted in my comments and enclosures in the preceding section on water supply

(3) the DEIR's assessment that groundwater depletion, substantial interference with groundwater recharge resulting in a net deficit in aquifer volume or of lowering of local groundwater table was a significant but unavoidable impact (Impact WR-3, pages ES-72 and 4-128 to 134, DEIR)

(4) the critical overdraft condition of the Kings, Kaweah and Tule Basins (page 4-129, DEIR; page 3.13, Volume 1, Bulletin 160-05; page 3-50, Volume 1, Bulletin 160-98; pages 8-45 to 46, Volume 2, Bulletin 160-98)

(5) that "[u]ncertainty and limitations of surface water deliveries from the Delta are exacerbating groundwater overdraft (in the Tulare Lake Hydrologic Region) because groundwater is used to replace much of the shortfall in surface water supplies." (page 3.23 Volume 1, Bulletin 160-05)

(6) that groundwater "[o]verdraft can lead to . . . water quality degradation . . ." (page 3.14, Volume 1, Bulletin 160-05)

(7) that "[a]gricultural runoff and drainage are also the main sources of nitrate, pesticide, and selenium that endanger groundwater and surface water beneficial uses. The basin (Tulare Lake Hydrological Region) also has a relatively large concentration of dairies that contribute microbes, salinity, and nutrients to both surface and groundwater. Nitrate has contaminated more than 400 square miles of groundwater in the Tulare Lake Basin. In addition, oil field waste has impacted water quality." (page 8.9, Volume 3, Bulletin 160-05)

(8) the lack of comprehensive information regarding the County's groundwater resources (pages 4-129 and 130, DEIR)

(9) the numerous articles and studies addressing groundwater contamination [enclosures (13 to 17)]

(10) the results of the State Water Resources Control Board's (SWRCB) Groundwater Ambient Monitoring and Assessment Program (GAMA) in Tulare County finding that 75 of the 181 private domestic wells tested in the County had nitrate levels over the maximum contaminant level (MCL) [enclosure (18) dated 12/12/06]

(11) the preapplications for funding, enclosure (19), prepared by RMA and Tulare County Environmental Health Department and processed via the Tulare County Water Commission and the Tulare County Board of Supervisors in July 2007 to address groundwater contamination from nitrates and other contaminants which note "Tulare County has many public water systems with unsafe drinking water"; "[with] decreasing surface water deliveries to the area groundwater water quality and quantity will continue to decline"; "Tulare County has many public water systems with nitrate levels over the Maximum Contaminant Level (MCL) of 45 ppm. Approximately 20% of Tulare County's small public drinking water systems are unable to meet the nitrate MCL on a regular basis, and another 20% are over half the nitrate MCL. The number of systems affected and the levels continue to increase;" "[the County has extensive groundwater quality issues primarily related to the contaminants nitrate, arsenic, DBCP and uranium. It is estimated that contamination issues will be exacerbated by land use practices and from overdraft, drought, and the loss of Friant-Kern water due to the San Joaquin River settlement."

(12) enclosures (20 and 21) also would indicate that RMA as lead agency was well aware of groundwater water quality problems

The DEIR's treatment of water quality has resulted in a faulty baseline and a failure to comply with the information disclosure requirement of CEQA by omitting

relevant information which precludes informed public participation and intelligent decision making. It almost seems as if there has been deliberate avoidance of groundwater water quality issues. There has been no compliance with CEQA Guidelines § 15126.2(a) which requires an EIR to discuss "health and safety problems caused by the physical changes" that the General Plan Update buildout would precipitate. There is not word one about the correlation of adverse groundwater quality impacts to resulting adverse health impacts. The DEIR's role "as an environmental 'alarm bell' whose purpose is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return," *County of Inyo v. Yorty* (1973) 32 Cal.App.3d 795, 810, has not been fulfilled.

_____

J. Peter Clum

February 26, 2008

Written Comments submitted by J. Peter Clum,
45638 South Fork Drive, Three Rivers, CA
on the Tulare County General Plan 2030 Update
Draft Environmental Impact Report (DEIR)

Most people would agree with the objectives of the General Plan Update. Perhaps they need to specifically address air and water quality, but generally there is a basis for consensus. That's the good news. The rest is largely bad news because more often than not the policies and implementation measures are general, vague, weak, unenforceable or non existent. We simply will not be able to obtain the Update's objectives with these policies and implementation measures.

Further, the baseline set of environmental conditions are incomplete and confusing. There appears almost to have been a conscious effort to avoid meaningful thresholds of significance, feasible mitigation measures, and a reasonable range of alternatives. Mitigation measures are frequently either absent, unenforceable, or deferred without performance standards or criteria to gauge their accomplishment or timeframe therefor. All to often, the determination of an impact is significant but unavoidable when in fact there are existing mitigation measures to lessen the significant impacts. For example, see the public comments contained in the Public Comment Matrix, Tulare County General Plan.

Compounding the problem is that the DEIR fails to provide

Enclosure (1)

a reasonable range of alternatives which offer substantial environmental advantages to the General Plan Update. The purpose of alternatives is to reduce or avoid significant environmental harm while achieving all or most of the objectives. Other than the no project alternative, the alternatives have been preordained to offer little essential or pratical difference.

Let me give you a few examples of what I am talking about:

(1) Page ES-43 to 44 of the DEIR sets forth new policy AQ-4.6, PM-10 and PM 2.5 Reduction Measures for Dairy and Feedlot Operations. The second to last paragraph provides manure water shall either be injected subsurface or placed on the surface in thin layers. The last time I heard, we had significant groundwater contamination issues. How will this new policy help water quality? What is the mitigation measure for this potentially significant impact on water quality? There is none and that's because the DEIR's assessment of the General Plan Update on water quality is less than significant. Pages ES-72 to 74, DEIR. Which is interesting in that the Yokohl Ranch NOP specifically identifies water quality as a potentially significant impact, pages 32 to 34. I note that page 8-5, DEIR, states "[a]s part of the analysis, the following General Plan Amendments (GPAs) and General Plan Initiatives (GPIs) are taken into consideration for the cumulative impacts discussion and analysis." Yokohl Ranch is a specified GPI.

(2) Urban and wildland fire hazards are judged to be less than significant, page ES-64, DEIR, despite the fact the General Plan Update would allow substantial development in the area of greatest concern - the urban wildland interface. Didn't we learn anything from the terrible 2007 California fires? In any case, the Yokohl Ranch NOP, page 1, recognizes this impact as potentially significant.

(3) The DEIR judges hydrology issues other than flooding due to increase in impervious surfaces as less than significant. For example, impact PES-4 and 5 on pages ES-80 to 82 are judged as less than significant. Quite the opposite conclusion is reached in the Yokohl Ranch NOP, pages 32 to 34.

February 26, 2008

Written Comments submitted by J. Peter Clum,
45638 South Fork Drive, Three Rivers, CA,
on the Tulare County General Plan 2030 Update
Draft Environmental Impact Report (DEIR)

On February 7, 2008, I hand delivered a written request for a report prepared by Mr. Keller of Keller, Wegley and Associates titled "Water Resources General Plan Update County of Tulare." Enclosure (1) sets forth the particulars as well as prior verbal requests for this report.

On page 4-105 of the DEIR, Mr. Keller's report is characterized as a major document which is included in the General Plan Update and which "provides an overview of the water resources in the County. The overview includes the status of each of the major sources of water and any anticipated change in status over the planning horizon covered by the updated General Plan. Issues addressed include groundwater quality, grvundwater overdraft and the reliability of identified surface water sources." The report was supposed to have been included with one of the separate volume appendices (Appendix B) to the DEIR formally released by the January 14, 2008, Notice of Availability. By "Correctory" dated January 25, 2008, the Resource Management Agency, Tulare County (RMA) stated the report had been "inadvertently omitted" and forwarded it as Appendix C of the Background Report. However,

I soon learned that items were missing from the report, specifically annotated community maps and eight figures. Further, I noticed that contrary to what normally would be expected of a formal report from an engineering firm, it did not appear under the firm's letterhead or bear a signature. Rather, it appears in the same typed format as the rest of the Background Report other than on the bottom left of each page it bears the notation "Revised July 2007" rather than "December 2007" and on the upper left it has the notation "Draft".

Page 4-105 of the DEIR states that in addition to Mr. Keller's report being included in the Background Report, it is incorporated by reference pursuant to section 15150 of the CEQA Guidelines. I note section 15150 provides that when a document is incorporated by reference it "shall be made available to the public for inspection at a public place or public building" and "[a]t a minimum, the incorporated documents shall be made available to the public in an office of the lead agency in the county where the project would be carried out or in one or more public buildings such as county offices or public libraries if the lead agency does not have an office in the county." That means Mr. Keller's report should have been available at RMA on Mooney Boulevard commencing January 14, 2008, the date of the Notice of Availability of the DEIR. It was not and has not been available for public inspection. When I hand delivered my written request to RMA on Feb. 7, RMA was unable to provide me with the annotated community maps, figures, or Mr. Keller's report.

Information disclosure is a fundamental concept of the CEQA process. Yet, what has been characterized as a major report pertaining to the Water Resources portion of the DEIR is not available. It should have been available on January 14 with the release of the Notice of Availability. The report's absence and RMA's inability to produce it in the considerable lapsed time since January 14 is a clear cut noncompliance with required CEQA procedure rendering the Notice of Availability defective and void ab initio. Case law supports the proposition that the comment period does not commence until all the documents are made available to the public. Common sense and basic fairness dictate the same result. How can one review and comment on what is required to have been provided when it has not been? Other pertinent code or guidelines sections are Public Resources Code 21005, 21061 and CEQA Guidelines 15147.

I note that County Counsel's reply (Enclosure (2)) dated February 19, 2008, to my written request for Mr. Keller's report indicates "the Agency's goal as to when the amended packet will be available is on or about February 26, 2008." That's 43 days after it was required to have been available on January 14. How can an agency issue a Notice of Availability of a DEIR when a major report thereof is not available? This unfortunate scenario raises other questions such as: where is the report; why cannot it be quickly reprinted; and what was actually relied on in preparing the Water Resources portion of the DEIR?

Finally, I note that while the initial absence of Mr. Keller's report was characterized as being "inadvertently omitted," conversations I had with RMA staff on February 4 and 7, 2008, indicate there had been discussions about the omitted materials and whether to include them in the January 25, 2008 "Correctory". Specifically, during my February 4 telephone conversation with Mr. Waters of RMA, in which I inquired about the missing materials, he told me he recalled some conversation between he thought Mr. Bryant and Mr. Finney about whether to include them. Further, during my meeting with Mr. Przybylski on February 7, when I delivered my written request, he spontaneously stated Mr. Finney did not make the decision to not include the documents.

J. Peter Clum

J. Peter Clum

Enclosures: (1) My ltr dtd Feb 7, 2008 to David Bryant, Tulare Cty, RMA

(2) County Counsel's ltr dtd Feb 19, 2008 to me

FEB 2008
RECEIVED
RESOURCE MANAGEMENT AGENCY

February 7, 2008

From: J. Peter Clum, 45638 South Fork Drive
Three Rivers, CA 93271 (559) 561-4661

To: David Bryant, Project Planner, Tulare County Resource Management Agency, Government Plaza, 5961 South Mooney Boulevard Visalia, CA 93272

Subj: Request for Documents Missing from the Draft Environmental Impact Report General Plan 2030 Update and for Restarting the Commencement Date of the 60 Day Public Review Period

Ref: (a) Your ltr. of Jan 25, 2008, County of Tulare General Plan 2030 Update Goals and Policy Report and Background Report Correctory Information
(b) Phoncon Peter Clum and Jason Waters, Tulare County RMA of Feb 4, 2008
(c) Phonmsg Peter Clum to Jason Waters, Tulare County RMA of Feb 5, 2008
(d) Phoncon Carole Clum and Dennis Keller of Feb 4, 2008

1. While reviewing reference (a), which provided a number of pages inadvertently omitted from the General Plan 2030 Update Goals and Policy Report and Background Report, I discovered pages were still missing from the report (Appendix C of the "Correctory") which was supposed to have been included in the Background Report (Appendix B of the DEIR). Specifically, Appendix C of the Background Report is a report prepared by Mr. Keller of Keller, Wegley and Associates;

titled "Water Resources General Plan Update County of Tulare" and is still missing: (1) figures 4-1 through 4-8 referred to in the report, and (2) the individual community maps referred to in the last paragraph on page 27 (page C-27) with "the box being checked" or not. While a number of community maps were provided with the "Correctory," the maps were misarranged in the "Correctory"; so it is not exactly clear whether they are the ones referred to in Mr. Keller's report. In any case, the maps contain no box with or without a check mark.

2. By references (b) and (c), I requested copies of these missing pages. They are not on the County's website or in the hard copy report. I have received no response to my request. The public is entitled to these documents. On page 4-105 DEIR, the second paragraph under "Domestic Water Service Overview" specifically states Mr. Keller's report "Water Resources General Plan Update County of Tulare" is included in the Background Report. The next paragraph refers to Mr. Keller's report as "a matter of public record or is generally available to the public ....." This is not a correct statement. By reference (d), my wife Carole Clum requested a full copy of the report. Mr. Keller declined to do so, stating he was under contract to the County. As noted, the report is missing from the Background Report.

3. Accordingly, I request an unedited and complete copy of Mr. Keller's report. Additionally, I request that the 60 day public review period be restarted on the date you make this document available to the public. Case law supports the proposition that the

comment period does not begin to run until the lead agency provides the public with complete copies of the documents. Ultramar, Inc. v. South Coast Air Quality Management Dist. (2d Dist. 1993) 17 Cal. App. 4th 689, 700 (21 Cal. Rptr. 2d 608). See page 348, and note 53 on page 992 Guide to the California Environmental Quality Act by Michael H. Remy, Tina A. Thomas, James G. Moose and Whitman F. Manley (2006 11th edition Solano Press).

J. Peter Clum

Copy to: (1) Supervisor Allen Ishida, District 1, Tulare County
(2) County Counsel, Tulare County

Rec'd 20 Feb '08

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February 19, 2008

J. Peter Clum
45638 South Fork Drive
Three Rivers, CA 93271

Re: RMA No. 08-026 - Public Records Act Request from J. Peter Clum

Dear Mr. Clum:

Our office represents the Tulare County Resource Agency (Agency) in this matter. We are treating your request for records as a Public Records Act Request pursuant to California Government Code § 6250 et seq. Please be advised that nothing in this response should be considered as a waiver of the right of the Department to assert any and all claims of exemptions or privileges to the inspection of the whole or any part of the record. This letter is in response to your letter dated February 7, 2008.

The Agency is going to issue an amended correctory packet. It is anticipated that the packet will contain the documents you have requested or corrected documents. At this time the Agency's goal as to when the amended packet will be available is on or about February 26, 2008. Please contact David Bryant (559) 733-6291 in order to pay the copying fee and arrange to receive a copy of the packet.

If you have any questions, please telephone me at (559) 733-6263.

Very truly yours,
KATHLEEN BALES-LANGE
County Counsel

By Linda Weirick
Linda Weirick
Paralegal

Enclosure(s)

March 13, 2008

From: J. Peter Clum, 45638 South Fork Drive
Three Rivers, CA 93271 (559) 561-4661

To: David Bryant, Project Planner, Tulare County Resource Management Agency, Government Plaza, 5961 South Mooney Boulevard, Visalia, CA 93272

Subj: Request Pursuant to §15150(b) CEQA Guidelines to Inspect the Original of the Report Titled Water Resources General Plan Update County of Tulare Prepared by Keller, Wegley and Associates

Encl: (1) My ltr of Feb 7, 2008 to David Bryant, Tulare Cty RMA
(2) Cty Counsel's ltr of Feb 19, 2008 to me
(3) Cty of Tulare General Plan 2030 Update Background Report Correctory Information #2 of Feb 26, 2008
(4) My Written Comments Submitted Feb 26, 2008 to the Joint Public Hearing of the Tulare Cty Board of Supervisors and the Planning Commission
(5) Cty of Tulare General Plan 2030 Update Goals and Policy Report and Background Report Correctory Information of Jan 25, 2008

By enclosure (1), I requested: (1) certain missing documents, (2) an unedited and complete copy of a report prepared by Keller, Wegley and Associates titled "Water Resources General Plan Update County of Tulare, and (3) restarting the public review period for the Draft Environmental Impact Report

enclosure (3)

General Plan 2030 Update (DEIR). Enclosure (2) advised that an amended correctory packet was expected to be available on or about February 26, 2008 and that it would contain the documents I had requested or corrected documents.

On February 26, 2008, I was handed enclosure (3) prior to the commencement of the combined public hearing of the Tulare County Board of Supervisors and the Planning Commission. During the hearing, I submitted enclosure (4).

Enclosure (3) extended the public review period for the DEIR and provided the missing figures 4-1 through 4-8 and retyped pages C-25 through C-27, which eliminated without explanation, any reference to the individual community maps with or without a box checked. Such reference was contained in the original page C-27 contained in enclosure (5).

I consider enclosure (3) to be an incomplete response to my request of February 7. While it did provide the missing figures, it did not respond to my request for the individual community maps with or without a checked box and for an unedited and complete copy of the report prepared by Keller, Wegley and Associates. I question the timing of the change to page C-27 eliminating reference to the individual community maps with or without a checked box. This change was made only after my request for the individual community maps. These maps are available. I was shown them by MR. PRZYBLSKI during my meeting with him

on February 7 at RMA. Only, they did not have on them the boxes with or without checkmarks referred to by Mr. Keller in the original page C-27 contained in enclosure (5). Why was the change made? No explanation or analysis is provided. If Mr. Keller had earlier forgotten to make the notations on the individual community maps which he referred to in the original page C-27, why not go ahead and make them as opposed to eliminating reference to the community maps? The public is left to speculate as to the reason and/or motivation. This somewhat less than transparent course of events hardly meets the information disclosure envisioned by the California Environmental Quality Act.

Further, I find it hard to believe there is no stand alone report prepared by Keller, Wegley and Associates but rather only the typed version appearing in the general plan format as Appendix C of the Background Report. [See third paragraph of enclosure (4).] Nowhere on Appendix C is it indicated to be a report prepared by Keller, Wegley and Associates. Page 4-105 of the DEIR specifically states this report is incorporated by reference and cites § 15150 CEQA Guidelines. Paragraph (b) requires, at a minimum, that a document incorporated by reference be available at RMA for inspection. I want to inspect the original report and compare it with the formatted draft appearing as Appendix C of the Background Report. If there is no original report, I want to know how Appendix C was prepared and who assembled it. In closing, I note my belief that the public comment period does not commence until the lead agency provides

the public with complete copies of DEIR documents.

J Peter Clum

Copy to: (1) Supervisor Allen Ishida, District 1, Tulare County
(2) County Counsel, Tulare County

Carole Clum's Factchecking on
Tables 4-4 and 4-5 in Draft EIR

Table 4-4 General Plan Population Estimates by Unincorporated Communities

Table 4-5 Summary of Domestic Water Supply Conditions for Unincorporated Communities in Tulare County

Compiled on February 26, 2008

Including Comments on Ability of Each Community to Serve Projected Growth of Updated General Plan For 2030 Buildout

Carole Clum
45638 S. Fork Drive
Three Rivers, CA 93271-9610

Carole G. Clum
February 26, 2008

Enclosure (4)

Alpaugh JPA 949-8199

person interviewed: Martha Howard

date: Feb 22, 2008

total population: 1000

how many water connections: 325

can you hook up any more homes: can serve 20 more

wells: 2, both have arsenic contamination

infrastructure pipes new

water tanks new

meters: yes Read but not charging yet by volume flat rate

peak usage: at maximum capacity

water quality high in arsenic, no nitrates

grants: at top of the list for grant to treat arsenic
will use absorbtion method
Boyle Engineering

Sewers: septic only

problems: Alpaugh's water system is 70 years old

Comments. This is an impoverished community with arsenic in water supply, old water system at maximum capacity during peak demand
SIGNIFICANT CONCERNS

Cutler PUD 528-3859

person interviewed: Superintendent Junior

date: Jan 31, 2008

total population: 6300 in 2000 census

of PUD water connections: 1200

can you serve any more homes: very few undeveloped lots
will annex more land

wells: 2 wells
lost 2 wells due to nitrate contamination

infrastructure pipes
water tank

meters: only on a few commercial accounts
will slowly install meters on domestic accounts in future

peak usage: at maximum capacity
rationing landscape watering all year, odd and even day

water quality: nitrates

grants: engineers will apply for any grant they qualify for
want to drill another well. Will be blending water
well will cost $500,000

Sewers: at capacity now
moratorium on sewers since 2006

Comments: This is a POOR community with nitrate contamination, almost no capacity to serve more connections, at maximum capacity during peak demand, at capacity for wastewater treatment
SIGNIFICANT CONCERNS

Ducor CSD 559 361-0450

person interviewed: Melanie, bookkeeper, and Pete Garza, manager 333-[redacted]45

date: Feb. 22, 2008

total population: 300

CSD water connections: 146

Can you serve any more homes: not many $2500 to hook up

wells: 2 wells. (1 well doesn't produce many gallons)
sometimes sulfur smell, sometimes bacteria

infrastructure: pipes - need new pipes
well - need new well

meters: yes. Not read. flat rate charged

peak usage: pumps run longer, costs run higher
in dry years wells pump less water

water quality: okay (except for occasional sulfur smell and bacteria)

grants: applying for grants for well, piping, meters, tank

Sewers: no sewage treatment plant. All on septic systems

problems: infrastructure

Comments: This community has only 2 wells (1 doesn't produce much water), little capacity to serve more with water, no sewage treatment plant, needs new well and new pipes. sometimes bacteria in wat.

SIGNIFICANT CONCERNS

Earlimart PUD 661 849 2663

person interviewed: Rachel Garcia

date: Jan. 31, 2008

total population: 8000

of PUD water connections: 1600

Can you serve any more? at capacity now
annexing 2 parcels 300 houses
each lot will pay $8600 to hook up t
water and sewer. (This will pay for infrastru

wells: 3 wells, Well # 4 has chlioform bacteria,
not using this well. Will drill 5th well

infrastructure: pipes
tank only have pressure tank, no storage tank

meters: just started using meters

peak usage: low water pressure on west side in summer

grants: none

Sewers: at 100% capacity for sewage
485 sewer connections

comments: Impoverished farm town can not serve more water connections., at 100% sewage treatment, one well out of 4 has coliform bacteria, low water pressure on west side of town during peak demand.

SIGNIFICANT CONCERNS

GOSHEN CSD sewers only 651-0323

water comes from CALWATER 624-16 in Visalia

person interviewed: Maria Garcia

date: Jan 31, 2008

total population: 2394 as of 2002

wastewater treatment: not a lot of capacity

planning to expand — new development of 300 homes will treat its own wastewater

sewer connections: 947 commercial and industrial

760 residential

grants: applying for grant money from state for wastewater treatment enlargement

peak usage: odd and even days for watering landscaping all year

CALWATER supplies Goshen with water, cross connected to entire city of Visalia. As long as Visalia has water, Goshen has water.

person interviewed: Jerry Neal 624-1650 operations center

date Jan. 31, 2008

water connections in Goshen entire city from Rd 64 east to Church Street

peak usage no problem. We have over 80 wells. Drill 2 new wells a year, each costing $1 million

potential growth no problem

water quality nitrates We filter it out from well in Patterson tract. MCL - keep lowering levels of contaminants allowable

DBCP 3 or 4 wells have contamination. We drill wells 320-350' deep, seal upper and middle levels to avoid contamination

meters: charge 50¢ per 100 cubic feet

Comments: Goshen has adequate water but almost at capacity for wastewater treatment. ADEQUATE WITH CONCERNS

Ivanhoe PUD 798-0512

person interviewed: Carol Fina

date: Jan. 31, 2008

total population 5000-6000 people within PUD

of water connections to PUD 1112

can you serve any more homes: only 15 undeveloped lots, will not expand PUD

wells: 7 wells, 1 contaminated with nitrates

infrastructure: pipes 50 years old, breaking

meters: since 1989 charge 22¢ a cubic foot

peak usage: when PSI falls below 35, switch on backup well

water quality: good

grants: applying for grant for new well from State Reserve Fu.

Sewers: when it rains a lot, ponds start to fill up. To keep them from running over, we switch on the clarjester which digests sludge and makes it dry. Irrigate with remaining water and spread it on pasture.

Comments: Can serve projected growth if grant is received to drill new well and sewage ponds are expanded or clarjester is run more often. Also pipes are old and breaking Money will need to be found to repair water pipes

ADEQUATE WITH CONCERNS

Lemon Cove PUD 597-2504

person interviewed: Bill Pensar, board member

date: January 21, 2008

total population: less than 200

of connections 41

can you serve more? 40

wells: 1 well searching for clean groundwater

3 wells with too much nitrate contamination, deemed or abandoned

infrastructure: new since 1992

meters: yes. read quarterly. Charge by cubic foot. Standby charge

peak usage: lots of water

water quality: nitrates above drinking water standards

grants: apply for many grants

sewers: at 3/4 capacity, 60 connections

comments: Almost all the land surrounding this small town is in the Williamson Act and can't easily be developed. Population has fallen since 2000 census. Nitrates above drinking water standards. Wastewater treatment at 3/4 capacity. This is a modest town.

SIGNIFICANT CONCERNS

London CSD 591-5142 Mon-Fri 10-4

person interviewed: Carolyn Thomas

date: Jan 31, 2008

total population: 2100

of water connections 448

wells 3, good

infrastructure: pipes need to be replaced
need new well

meters:

peak usage: water pressure goes down. We encourage people not to waste water.

water quality: good

grants: applying for grant to drill well

Comments: This small modest town has infrastructure problems including pipes that need to be replaced, a new well to be drilled and low water pressure at peak demand.

SIGNIFICANT CONCERNS

Orosi PUD 528-4262 M-F 8-12

person interviewed: Elaine Vidana, office manager

date: Jan. 31, 2008

total population: 7318 in 2000 census

how many water connections: 1700

can you serve any more homes:

wells: 4 active, drilling 5th well
abandoned wells on north side of town due to nitrate contamination

infrastructure pipes - replacing water mains, have the money
water tank - need another 750,000 gallon tank, have mon

meters: had them 4-5 years, pay 76¢ per thousand gallon

peak usage: water pressure low

sewers: replacing sewer lines, 40 years old, seeping water, have the money
moratorium on sewer connections

grants: applying for grant now via Dennis Keller

Comments: This town has a moratorium on sewer connections. This town has raised money to replace pipes, water tank and sewer lines which were leaking, applying for grant for new wastewater treatment plant.
ADEQUATE WITH CONCERNS

Pixley PUD 757-3878

person interviewed: Randy Masters, manager 799-3196

Jan. 31, 2008

total population: 2584

of water connections: 800

Can you serve any more homes:

wells: 1 good well

3 wells, out of compliance with ARSENIC standard

infrastructure: pipes — distribution system old, small lines need to be upgraded

tank - elevated tank

meters: half of homes are metered flat rate $20, charged so much per gallon over 30,000 gallons a month

peak usage: haven't gotten to capacity

water quality arsenic problems

grants: applying for grants from USDA, state, and federal engineer is Michael Taylor, Prevost and Richard

Sewers: at capacity

got some grant money for bigger wastewater treatment plant, borrowed rest of money from USDA

Comments: This town has SERIOUS arsenic contamination problems and at capacity for wastewater treatment

SIGNIFICANT CONCERNS

Plainview MWC special district a group of individuals

person interviewed: Lindsay utilities district which sends out wat
bills 562-5982

date: Feb. 25, 2008

total population:

total water hook ups: 168

can you serve any more homes:

wells:

infrastructure: new pipes

meters: yes

peak usage

water quality: their domestic wells had nitrates
Now they get water from Lindsay

Sewers: septic only

Comments: This is a very small community with Nitrate contamination problems.

SIGNIFICANT CONCERNS

Poplar CSD 784-7009

person interviewed: Mike Clark, bond president, cell 559-359-99.
date: Jan 31, 2008 and Feb 22, 2008
total population: 2500 in 2001
water connections: 596
wells: 3 wells, (2 good, 1 has nitrates)
at 80' deep there is standing water
real good water supply
infrastructure: pipes - 1972
tank - 1972
pump - new
meters: yes. Don't read them. Flat rate
peak usage: unlimited water
water quality: good
grants: none
Sewers: 1994
640 hook ups
71% of capacity
major expansion planned
2000 homes to be built
They will pay to be connected to water and sewage and they will pay for expansion of wastewater treatment plant

Comments: This small town has some nitrate contamination problems raring to build. No growth for 37 years. All land around community is zoned AE20. Can't wait to develop

ADEQUATE

Richgrove CSD 1-661-725-5632
Mon, Wed, Fri 8-12
Friday only 1-5

person interviewed: Maria Pimentel

date: Feb. 22, 2008

total population: 2723

of water connections: 532

can you serve more: NO

wells: 2

infrastructure:

meters: working on getting meters

peak usage: at capacity

water quality:

grants: applying for grant from state for new well

sewers: at capacity

Comments: This town cannot serve any more water connections. During peak demand they reach capacity. Waste water treatment plant is at capacity. Applying for grant to drill new well.

SIGNIFICANT CONCERNS

person interviewed: Nancy Bruce, board member, 539-3351
date: Jan. 22, 2008 and March 23, 2008
total population: 1500
of water connections: 389
can you serve more: Don't know
wells: None. SPUD uses Tule River water.
infrastructure: Some very old water pipes laid in 1920's. Don't know where the pipes are. Mapping them now. Can't afford to replace them.
meters: Yes.
peak usage: During peak demand, SPUD reaches the limits of its water rights to the Tule River.
water quality: good
grants: Applying for grants to replace old water pipes and improve wastewater treatment.
sewers: Sewer moratorium for last 28 years. No place to grow wastewater treatment plant. Want to buy $500,000 ultra-violet light to zap all organisms in wastewater except cryptosporidium. SPUD's permit allows them to treat 100,000 gallons of effluent a day.
(375 sewer connections)
Comments: 50% of all private wells in Springville are contaminated with radon or nitrates. This community has severe constraints on growth.
SIGNIFICANT CONCERNS

Strathmore PUD 559 568 1613

person interviewed: Adele Sanchez

date: Feb 6, 2008

total population:

of water connections: 487 to 700 dwellings (some share)

can you hook up more homes: yes. Just approved 41 homes + new school

wells: 5 wells, all high in nitrates
blending water with Friant-Kern canal water. Using only one well.
If water from canal is lost, they will install nitration filtration system

infrastructure: recently replaced 2/3 of water lines

meters: yes. 46¢ per 1000 gallons

peak usage: at capacity. Have to shut down. Ask customers to conserve.

water quality - nitrates above standards until blending

grants: applied for several grants for nitrate filtration system
problem with disposing of heavily salt laden water

Sewers: old treatment facility
sewer lines need to be replaced
copper in wastewater - hazardous waste
clients pay progressive fee

Comments: All five wells contaminated with nitrates
Blending well water with FRIANT-KERN canal water.
During peak demand at capacity, wastewater treatment plant old.
Sewer lines need to be replaced. SIGNIFICANT CONCERNS

LSID Lindsay Strathmore Irrigation District supplies water to part of Strathmore PUD.

person interviewed: Karen Kerwood

date: Jan. 31, 2008

total population: 3200

water connections: domestic treated in town 714
surface water untreated 500

wells: no using water from Friant-Kern canal

infrastructure: established 1915, aging facilities constantly updated

meters: 900 irrigation meters for lawns and agricultural

peak usage: when near capacity, stop taking water orders from farmers

water quality: not an issue for irrigation

grants: applying for state grant for expansion of treated water

sewers: Terra Bella sewer maintenance district is maintained by Tulare County

Comments: Groundwater around Terra Bella is contaminated with Nitrates. This small irrigation district does NOT receive its water supply from groundwater but from Friant-Kern canal. It is vulnerable to 30% loss of water due to restoration of San Joaquin River. During peak demand it reaches capacity.

SIGNIFICANT CONCERNS

Three Rivers CSD

person interviewed: Randy Peres

date: Jan 21, 2008

total population: 2700

of CSD water connections: 75 in Alta Acres subdivision

can you serve more homes: only 5 undeveloped lots

wells: 1 well

1 river well recently rebuilt for use during peak demand

infrastructure: all pipes need to be replaced. All homes assessed.

meters: yes. read bimonthly. Standard rate. For every gallon over they pay tiered rates

peak usage: exceeded maximum capacity until River well rebuilt in 2007

water quality: good

grants: got a loan for $2 million for rehabilitation of water pipes. grant for $.5 million

sewers: septic only

comments: There are 35 small private, volunteer run water systems in Three Rivers. Most serve a very small number of homeowners, one motel, one school, one RV park. The great majority of private wells serve one home. These homes are on 1-5 acres or more. There is no capacity for the growth projected by the General Plan Update. Some wells are contaminated with radon, nitrates, fecal coliform, OR arsenic. There is not reliable groundwater. SIGNIFICANT CONCERNS.

Tipton CSD 752-4182
Mon - Thurs 8-3

person interviewed: Johnny Price, maintenance man, cell- 280-4217
date: Feb. 25, 2008
total population: 1792 in year 2000
of water connections: 594 commercial and residential
wells: 2 wells, third well shut down due to contamination by oil and nitrates

water quality good
Can you serve more? approximately 20-40 more connections

grants: no
meters: don't read meters, flat rate
peak usage: okay, as long as both wells are working

sewers: not maxed out yet, 3/4 capacity

infrastructure: need to drill another well

Comments: This small town could grow as long as both wells work or don't become contaminated. Sewer capacity is at 3/4 capacity. They need to drill another well.

ADEQUATE WITH CONCERNS

TRAVER - Tito Balling 559-935-2300

person interviewed: employee of Tito Balling

date: Feb 8, 2008

total population:

water connections: 180

can you serve more: yes

wells: 3, all good. Third well was needed for water pressure peeblems at school

infrastructure: pipes old, need to be replaced

meters: not metered

peak usage:

grants: applying for grant for meters

sewer: operated by Tulare County "can't serve" order

comments: many people have their own wells.
impoverished community
The old water pipes need to be replaced.
The water system is under "can't serve" order

SIGNIFICANT CONCERNS

Woodville PUD 686-9649

person interviewed: Ralph Gutierrez 901-6097 manager

date: Jan 31, 2008, Feb 22, 2008

total population: 1678 according to 2000 census

water connections: 400

can you serve more: 5-10 houses

wells: 2 good wells, 1 well not used because of sand
Sometimes only draw 5 gallons a minute
~~Sometimes water is salty~~

infrastructure: would need another well if there were a new subdivision

meters: yes read once a month. Minimum monthly charge plus 50¢ per 100 cubic feet
average water + sewer fee is $50 a month

peak usage: no problem

water quality: good

grants: applying for state money for new sludge beds

Sewers: connection fee $400 for water & sewer

Comments: This small town would need another good well if it were to expand water connections. PUD is applying for state grant money for new sludge beds. Old wells sometimes suck air, draw only 5 gallons a minute or draw up salty water. Only capacity for 5-10 more water connections

SIGNIFICANT CONCERNS

Water Resources Element

There is no factual basis for the County's capacity to accommodate the General Plan Update's population growth projections.

In the Water Resources element of the DEIR on page 4-106, Table 4-4 General Plan Population Estimates by Unincorporated Community there are 21 communities listed with their domestic water service provider, existing population, and projected range of General Plan Population Estimates. Take Three Rivers, for example, the existing population estimate of 2300 people is from 2003 which is five years out of date. The projected population increase for 2030 is from 920 to 1397 people. The domestic water service provider is listed as CSD and mutual water companies. According to Randy Pares, general manager of CSD on January 21, 2008, CSD controls 75 water connections in Alta Acres where there are only 5 unbuilt lots. The South Kaweah Mutual Water Company, according to Lew Nelson, manager, on January 25, 2008, services 220 water connections in Cherokee Oaks subdivision. There are only 20 unbuilt lots. There are no plans to extend the system. Deer Meadows Mutual Water Company in Cherokee Oaks subdivision, according to Ken Elias, board member on January 23, 2008, has 41 connections and arsenic in its water. There are a total of 35 small, privately owned, volunteer run water systems/companies in Three Rivers. Except for the three largest water companies, there are no water meters. The large majority charge flat rates. Many water companies serve one hotel, or one RV park, or the elementary school, or four or five homes. Most of the approximately

1900 water wells in Three Rivers are private wells serving one household. The water companies have various problems; old water pipes, only one well, arsenic above Federal drinking water standards, reach capacity at times of peak water use, have insufficient water pressure for fire flow, have a moratorium on developing new lots, need an expensive new water storage tank ($35,000), and have applied for grants and loans.

According to Tom Marshall, a 15 year member of the Sequoia Foothills Chamber of Commerce, on January 23, 2008, there are 321 motel rooms, bed and breakfast rooms, and RV spaces. During the summer and especially during the holiday weekends of Memorial Day, 4th of July, and Labor Day, they are fully occupied, reaching peak water use. The consultant who gathered data on these service providers did not ask about peak demand on water and how close that came to capacity or the cost of expenditures to drill another well or upgrade infrastructure. Most of the people who live in Three Rivers are outside CSD and all the other mutual water companies. None of the private wells have been evaluated. There has been no study of water quality or quantity in Three Rivers. Drilling a well here is like playing roulette. Some don't produce enough water. Others have unacceptable levels of radon or arsenic. Wells are being drilled deeper of necessity. The only way 900-1400 more people could be accommodated in Three Rivers by 2030 is by a new large development, not on 5 acre ranchettes.

Again, according to Ken Elias, board member of Deer Meadow Estates Water Company in Cherokee Oaks, on January 21, 2008, there is one well that produces 60 gallons a minute and a second inactive well that produces only 3-4 gallons a minute. The water company is considering reactivating this well. There are 27 connections to this water system. The water table for well #1 dropped 30 feet during an earthquake in the 1990's. There is enough water during peak demand. There are expensive repairs upcoming, a sediment ram.

According to Ray Murray, manager of the Sierra King Water Company in Three Rivers on Mineral King Road on January 22, 2008, the water company is a homeowner's association which just deals with water supply. There are 41 connections. Recently they drilled a well which had an unacceptable level of Radon. They drilled a third well which has good water but is not on line yet. There is a moratorium on building on the remaining 41 lots. They are not 100% metered. Funding is a real problem. The water system has problems with pressure, not enough for fire fighting flow. Because of a pinhole in the storage tank, they need to buy a new one. It will cost $35,000.

And yet, in Table 4-5, Summary of Domestic Water Supply, Conditions for Unincorporated Communities in Tulare County, Three Rivers is listed as having adequate facilities to serve projected General Plan Population Growth with Concerns, meaning Three Rivers either has the capacity to serve projected growth or is likely to solve capacity issues within the time horizon of the General Plan Update. How was this conclusion reached?

The people of Three Rivers believe their road to economic prosperity is attracting more tourism. Businesses in Three Rivers fail at an alarming rate because outsiders visit almost entirely between Memorial Day weekend and Labor Day weekend.

Springville is a more egregious example of "blue sky" analysis. Springville (SPUD) is listed as the domestic service provider in Table 4-4. It gets its water supply from Tule River water rights, not groundwater. According to Nancy Bruce, board member of SPUD on January 22, 2008 during peak demand (four consecutive days of 107° F or above.), SPUD reaches its capacity of water rights. There has been a moratorium on sewer connections in SPUD for 28 years. SPUD is in non compliance for effluent treatment. SPUD is unable to expand its wastewater treatment facility due to a lack of available land. And yet, Table 4-5 lists Springville as "More than Adequate", meaning "facility appears capable of serving growth beyond buildout of the General Plan." That's unwarranted optimism and a prediction not based on fact.

Lemon Cove, a community of allegedly 251 people in 2003, has shrunk to less than 200 people on January 21, 2008. The County

projects Lemon Cove to grow to 377 to 433 people despite the the fact that Lemon Cove is landlocked by citrus groves in the Williamson Act; its wastewater treatment plant is at 3/4 capacity; it is bisected by Highway 198; and it is assaulted by the noise, dust, vibration, and fumes of heavy diesel trucks hauling crushed granite from the Lemon Cove Granite Pit through town. It is not your ideal town. The Lemon Cove SD has 41 water connections and 60 sewer connections, according to Bill Pensar, board member of Lemon Cove SD, on January 23, 2008. The County does say Lemon Cove has "Significant Concerns", meaning "the provider lacks capacity to serve projected growth and is likely to experience significant difficulties in expanding the system to meet projected demand." They got that right.

I quote from the DEIR, page 4-129

11

Impact Analysis

Implementation of the General Plan Update would result in an increased demand on groundwater supplies for urban and rural uses within the unincorporated areas of the County. Due to the lack of comprehensive information regarding the County's groundwater resources, it is uncertain if groundwater supplies would be sufficient to meet the future demand of rural private domestic, small municipal and agricultural wells. This uncertainty combined with the current regulatory approach could result in insufficient groundwater supplies in unincorporated areas of the County. Growth associated with the General Plan Update would require additional groundwater pumping for designated urban development areas of the County where surface water is not available.

In some of the unincorporated urban development areas, there are concerns that adequate water supplies cannot be achieved through sustainable groundwater management, that is, without creating declining groundwater levels, and adversely affecting existing wells. Such concerns are heightened by the fact that most of these areas are presently dependent upon groundwater supplies."

The above impact analysis was based on inadequate, inaccurate data. So, the true impact is most likely worse, creating greater impact on groundwater and existing wells.

Only one small CSD, PUD, ID or JPA in each community was consulted in 2003 in order to analyze each community's ability to meet projected growth. In the case of Three Rivers, the Three Rivers CSD serves 75 water connections. There are approximately 1900 wells in Three Rivers, predominantly one well serving one household. This inadequate analysis was based on less than 5% of the people served by wells in Three Rivers. For a more accurate analysis see Enclosure 10.

In the Background Report under Public Services and Utilities on page 7-35 under "Can't Serve" Special Districts, there are 15 communities listed as under temporary cease and desist orders for water or sewer hook ups as of April 7, 2007

According to the Background Report, pages 7-41 through 7-43, some of the unincorporated urban areas within Tulare County lack sanitary sewer infrastructure and are served by individual or

community septic systems. These are Allensworth, Alpaugh, Alpine Village - Sequoia Crest, Ducor, East Tulare Villa, Lindcove, Monson, Plainview, Ponderosa, Three Rivers, Waukena, West Goshen and others. Other unincorporated communities within Tulare County have sanitary infrastructure in place, however, in many cases the facilities are several years old and are in need of rehabilitation and/or reconstruction to meet current standards. According to Table 7-2, Summary of Sanitary Service Providers on page 7-43, eleven communities have primary or advanced primary treatment level. The other 15 have secondary treatment level of wastewater. None treat wastewater to tertiary level.

This DEIR did not disclose the extent of groundwater contamination in Tulare County. This draft EIR ignores the extent of water problems in unincorporated communities and assumes a solution to the problem of water supply will be reached in order to fulfill growth projections within the time horizon of the General Plan. Decision makers must, under the law, be presented with sufficient facts to evaluate the pros and cons of supplying the amount of water that the projected growth will need.

The DEIR does not disclose the cost of remediation or identify any source of funding for remediation measures for many of the water companies needing new wells, pipes, storage tanks or water treatment facilities to eliminate contamination by nitrates, arsenic, oil, DBCP, perchlorate, radon. Almost all the water companies are applying for grants and/or loans. There is not enough state or federal money to meet all the needs. It is extremely expensive to remove some

CLIMATE CHANGE IMPACTS ON THE CENTRAL VALLEY

These facts were taken from **Our Changing Climate: Assessing the Risks to California**
California General Commission. 2006 Biennial Report. California Climate Change Center

We recommend that you download your own copy of this excellent publication at:
www.climatechange.ca.gov/biennial_reports/2006report/index.html

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How much warming California will experience depends on economic and human population growth, how fast humans shift away from fossil fuel-intensive industries and towards clean and resource-efficient technologies, and which climate model is used to project changes.

The *Our Changing Climate* publication defines 3 possible warming scenarios for California:

- **Lower warming range:** projected temperature rises between 3 and 5.5°F.
- **Medium warming range:** projected temperature rises between 5.5 and 8°F.
- **Higher warming range:** projected temperature rises between 8 and 10.5°F

Public Health

- **Poor air quality made worse:** If temperatures rise to the medium warming range, there will be 75 to 85% more days with weather conducive to ozone formation in the San Joaquin Valley, relative to today's conditions. This is more than twice the increase expected if temperature rises are kept in the lower warming range.

- **More severe heat:** By 2100, if temperatures rise to the higher warming range, there could be up to 100 more days per year with temperatures above 95°F in Sacramento, compared to a current average of 18 such days. This is almost twice the increase projected if temperatures remain within or below the lower warming range. By mid century, extreme heat events in Sacramento could cause two to three times more heat-related deaths than occur today.

Water Resources

- **Decreasing Sierra Nevada snow pack:** If heat-trapping emissions continue unabated, Sierra Nevada spring snowpack will be reduced by as much as 70 to 90%. Decreasing snowmelt and spring stream flows coupled with increasing demand for water could lead to increasing water shortages. By the end of the century, if temperatures rise to the medium warming range and precipitation decreases, late spring stream flow could decline by up to 30%. Agricultural areas could be hard hit, with California farmers losing as much as 25% of their water supply.

- **Saltwater influx:** An influx of saltwater would degrade California's estuaries, wetlands, and groundwater aquifers. Saltwater intrusion would threaten the quality and reliability of the major state fresh water supply, which is pumped from the southern edge of the Sacramento/San Joaquin River Delta.

- **Reduction in hydropower:** Toward the end of the century annual electricity demand could increase by as much as 20% if temperatures rise into the higher warming range. At the same time, diminished snowmelt flowing through dams will decrease the potential for hydropower production. If temperatures rise to the medium warming range and precipitation decreases by 10 to 20%, hydropower production may be reduced by up to 30%.

- **Floods:** Continued sea level rise will further increase the vulnerability of levees, which protect freshwater supplies and islands in the San Francisco Bay Delta as well as fragile marine estuaries and wetlands. In the Central Valley, where urbanization and limited river channel capacity already exacerbate rising flood risks, flood damage and flood control costs could amount to several billion dollars.

Changing Landscapes

- **Increasing wildfire.** If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55%, almost twice the increase expected if temperatures stay in the lower warming range. In contrast, a hotter, drier climate could promote up to 90% more northern California fires by the end of the century by drying out and increasing the flammability of forest vegetation.

- **Shifting vegetation.** Continued global warming will intensify pressures on the state's natural ecosystems and biological diversity. For example, in northern California, warmer temperatures are expected to shift dominant forest species from Douglas and White Fir to madrone and oaks. In inland regions, increases in fire frequency are expected to promote expansion of grasslands into current shrub and woodland areas.

Agriculture: - just the medium temp → will reduce water available to farmers by 25% as a result of evaporation

Agriculture remains the economic base of the Central Valley, the most productive agricultural region in the country and a critical part of the state's economy and the nation's food supply. Agriculture provides 20% of the jobs in the Central Valley. The unique combination of climate, soils, and water in the Central Valley is a major factor in its agricultural productivity.[1]

- **Decreased fruit and nut production:** Rising temperatures could increase fruit development rates and decrease fruit size. A minimum number of chill hours (hours with temperatures below 45°F) are required for proper bud setting. Chill hours are already diminishing in many areas of the state, and if temperatures rise to the medium warming range, the number of chill hours in the entire Central Valley is expected to approach a critical threshold for some fruit trees including almonds, apples and walnuts.

- **Decreased milk production:** California's $3 billion dairy industry supplies nearly one-fifth of the nation's milk products. High temperatures can stress dairy cows, reducing milk production at temperatures as low as 77°F, and substantially dropping production at temperatures above 90°F. Toward the end of the century, if temperatures rise to the higher warming range, milk production is expected to decrease by up to 20%. This is more than twice the reduction expected if temperatures stay within or below the lower warming range.

- **Expanding ranges of agricultural weeds:** Noxious and invasive weeds currently infest more than 20 million acres of California farmland, costing hundreds of millions of dollars annually in control measures and lost productivity. Continued climate change is expected to cause range expansion in many species while range contractions are less likely in rapidly evolving, established populations. Should range contractions occur, it is likely that new or different weed species will fill the emerging gaps.

- **Increasing threats from pests and pathogens:** Continued climate change is likely to alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates. For example, the pink bollworm, a common pest of cotton crops, and the glassy-winged sharpshooter, which transmits Pierce's disease, are currently problems only in southern parts of the state. If temperatures rise, the range of both would likely expand northward into the Central Valley, which could lead to substantial economic and ecological consequences for the state.

[1] Great Valley Center. *The State of the Great Central Valley of California: Assessing the Region Via Indicators - The Economy*. 2005.

Modeling Tools to Estimate Climate Change Emissions Impacts of Projects/Plans

Tool	Availability	Scope Local/Regional	Scope Transp/Buildings	Data Input Requirements	Data Output
URBEMIS	• Download • Public domain (free)	• Local project level	• Transportation • Some building (area source) outputs • Construction	• Land use information • Construction, area source, and transportation assumption	• VMT per day (Convert to CO2 and methane) • Mitigation impacts
Clean Air and Climate Protection (CACP) Software	• Download • Available to public agencies (free)	• Local project level	• Buildings • Communities • Governments	• Energy usage • Waste generation and disposal • Transportation usage	• eCO2 (tons per year)
Sustainable Communities Model	• Custom model	• Regional scalable	• Transportation • Master planned communities	• Location and site specific information • Transportation assumptions • On-site energy usage	• eCO2 (tons per year)
I-PLACE'S	• Web based • Small access fee • Full model now available in eight CA counties	• Regional scalable to site level	• Transportation • Buildings • Infrastructure (wastewater, street lights, etc.)	• Parcel level land use data (can work with less data) • Project-level data for alternative comparisons.	• CO2 (any quantity over any time) • Provides for immediate comparison of alternatives
EMFAC	• Download • Public domain (free)	• Statewide • Regional (air basin level)	• Transportation emission factors	• Used with travel demand and other models to calculate CO2 impacts of projects	• CO2 and methane (grams per mile) emission factors
Climate Action Registry reporting On-line Tool (CARROT)	• Web-based • Available to Registry members	• Regional, scalable to entity and facility level	• General • Specific protocol for some sectors	• Uses input such as fuel and electricity use, VMT to estimate emissions of each GHG	• Each GHG and eCO2 (tons per year)

VMT = Vehicle miles traveled.
Criteria pollutants = Nitrogen oxides (NOx), reactive organic gases (ROG), Carbon dioxide (CO) sulfur dioxide (SO2), particulate matter (PM)
eCO2= Carbon dioxide equivalent emissions

This is not meant to be a definitive list of modeling tools to estimate climate change emissions. Other tools may be available.

www.CA - i/g.org/climate.cega

Description of Modeling Tools

URBEMIS. The Urban Emissions Model (URBEMIS) is currently being used extensively during the CEQA process by local air districts and consultants to determine criteria pollutant impacts of local projects. URBEMIS uses ITE Trip Generation Rate Manual and the Air Resources Board's (ARB) motor vehicle model (EMFAC) for transportation calculations. Area source outputs include natural gas use, landscaping equipment, and fireplaces. It also estimates construction impacts and impacts of mitigation options. An updated version with CO2 outputs may be available soon. In the interim, CO2 factors (pounds per mile) provided by ARB could be used to convert VMT per day into CO2 per day. Web site: http://www.urbemis.com

Clear Air and Climate Protection (CACP) Software. This tool is available to state and local governments and members of ICLEI, NACAA, NASEO and NARUC to determine greenhouse gas and criteria pollutant emissions from government operation and communities as a whole. The user must input aggregate information about energy (usage), waste (quantity and type generated, disposal method, and methane recovery rate) and transportation (VMT) for community analyses. More detailed, site-specific information is necessary to calculate emissions from governmental operations. CACP uses emission factors from EPA, DOE, and DOT to translate the energy, waste and transportation inputs into greenhouse gas (in carbon dioxide equivalents) and criteria air pollutant emissions. If associated energy, waste and transportation reduction are provided, the model can also calculate emission reductions and money saved from policy alternatives. Web site: http://cacpsoftware.org

Sustainable Communities Model (SCM). This model quantifies total eCO2 emissions allowing communities the ability to optimize planning decisions that result in the greatest environmental benefit for the least cost. SCM has been used by a number of master planned communities, but it could also be used for neighborhoods and smaller developments. Total eCO2 emissions are based on emissions from energy usage, water consumption and transportation. SCM uses published data sets for data input such as ARB's EMFAC for transportation calculation. The model provides a comparison of various scenarios to provide environmental performance, economic performance, and cost benefit analysis.
Web site: http://www.ctg-net.com/energetics/News/News_SCM.html

I-PLACE'S is an internet-accessed land use and transportation model designed specifically for regional and local governments to help understand how their growth and development decisions can contribute to improved sustainability. It estimates CO2, criteria pollutant and energy impacts on a neighborhood or regional level for existing, long-term baseline and alternative land use plans. I-PLACE'S is currently being used in San Diego, San Luis Obispo, and other six-county Sacramento region to assist both the public participation process and technical analyses efforts for regional planning. The data input requirements are extensive and require a fiscal commitment from local government. The benefits include a tool that can provide immediate outputs to compare various alternatives during public meetings, as well as provide access for local development project CEQA analyses. Possible future modifications could include a stand-alone tool that would allow project-level analyses of land uses (buildings) without extensive regional data input requirements. Web site: http://www.energy.ca.gov/places/ ; http://places.energy.ca.gov/places

EMFAC. The Air Resources Board's Emissions Factors (EMFAC) model is used to calculate emission rates from all motor vehicles (passenger cars to heavy-duty trucks) in California. The model includes emission factors for CO2, methane, and criteria pollutants. The emission factors are combined with data on vehicle activity (miles traveled and average speeds) to assess emission impacts. California local governments use EMFAC in concert with their travel demand models to assess impacts of transportation plans. The URBEMIS model described above uses EMFAC to calculate the transportation emission impacts of local projects. Web site: http://www.arb.ca.gov./msei/onroad/onroad.htm

Climate Action Registry Report On-Line Tool (CARROT). The California Climate Action Registry uses the Climate Action Registry On-Line Tool (CARROT) for registry members to report greenhouse gas emissions. It calculates GHG emissions from energy, fuel use, and travel estimates made by the user. While use of the tool is only available to members, the Registry makes its protocols available to the public. The general reporting protocol is available at http://www.claimateregistry.org.docs/PROTOCOLS/GRP%2OV2.1.pdf. Specific reporting protocols are also available for reporting by cement, forestry, and power/utility sectors and are being developed for additional sectors. Website: http://www.cliamteregistry.org/CARROT/.

Appendix A

CLIMATE CHANGE AND THE CALIFORNIA ENVIRONMENTAL QUALITY ACT

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INTRODUCTION

Anthropogenically-induced climate change[1] is probably the largest environmental threat facing California. Already it is impacting the state's environment, and scientists predict that if unchecked, it will cut water supplies, intensify heat waves, accelerate coastal erosion, degrade air quality, increase wildfires, and reduce wildlife habitat-among other impacts.[2] Similarly major environmental effects will occur worldwide.[3] Those impacts threaten major ecological and economic costs,[4] and while climate change will affect almost all people, the burdens for low-income or otherwise vulnerable communities will be particularly heavy.[5] For all of these reasons, climate change is a problem California must address.

This paper describes one legal method for assessing and limiting California's contributions to climate change. The California Environmental Quality Act (CEQA)[6] requires government agencies to identify and, if feasible, mitigate or avoid the significant adverse environmental impacts of projects they propose or approve.[7] As discussed below in more detail, many government-sponsored or government-approved projects add to the greenhouse gas (GHG) emissions that cause climate

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1 This memorandum refers to anthropogenic climate change, which encompasses both warming temperatures and changed storm and precipitation patterns, rather than using the narrower term "global warming." In most popular discussions, however, the terms are used interchangeably and refer to the same phenomenon.

2 CALIFORNIA CLIMATE CHANGE CENTER, OUR CHANGING CLIMATE: ASSESSING THE RISKS TO CALIFORNIA 2 (2006) (hereinafter "OUR CHANGING CLIMATE"); CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY, CLIMATE ACTION TEAM REPORT TO GOVERNOR SCHWARZENEGGER AND THE LEGISLATURE (2006).

3 INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: THE PHYSICAL SCIENCE BASIS SUMMARY FOR POLICYMAKERS 12 (2007) (hereinafter IPCC, THE PHYSICAL SCIENCE BASIS) (describing some of the expected changes); INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: CLIMATE CHANGE IMPACTS, ADAPTATION AND VULNERABILITY (2007) (hereinafter IPCC, IMPACTS, ADAPTATION, AND VULNERABILITY); *Mass. v. EPA*, 127 S. Ct. 1438, 1455 (2007) ("The harms associated with climate change are serious and well recognized.").

4 IMPACTS, ADAPTATION, AND VULNERABILITY, *supra* note 2; *see* Cal. Health and Safety Code § 38501(a), (b); Anthony C. Fisher et al., *The Most Expensive Thing We Can Do Is Nothing: An Open Letter From California Economists*, August, 2006 ("California's economy is vulnerable to climate change impacts, including changes in water availability, agricultural productivity, electricity demand, health stresses, environmental hazards, and sea level.").

5 REDEFINING PROGRESS, CLIMATE CHANGE IN CALIFORNIA: HEALTH, ECONOMIC AND EQUITY IMPACTS (2006); IMPACTS, ADAPTATION, AND VULNERABILITY, *supra* note 2, at 19 (observing that factors like poverty can limit adaptive capacity).

6 Cal. Public Resources Code §§ 21000-21177.

7 *See* Cal. Public Resources Code § 21002. CEQA applies not only to government-sponsored projects, but also to private projects that require discretionary approvals from government agencies. *Friends of Mammoth v. Board of Supervisors*, 8 Cal.3d 247 (1972).

enclosure (7)

change, and climate change already is causing significant adverse environmental impacts, and will continue to do so. Feasible methods exist, however, for fully mitigating or avoiding those agencies' contributions to climate change. CEQA therefore requires state or local agencies to identify their projects' potential contributions to climate change, and to adopt feasible measures to mitigate or avoid such contributions.

BACKGROUND

I. Climate Change Overview

Carbon dioxide (CO_2) creates what scientists call a "greenhouse effect."[8] While it lets light energy into the earth's atmosphere, it reduces the amount of reflected heat released.[9] Other gases create similar effects, and some, like methane, have greenhouse properties substantially more intense than carbon dioxide.[10] Consequently, scientists long ago predicted that if atmospheric levels of carbon dioxide and other greenhouse gases (GHGs) rose above natural background levels, the earth's climate would become unnaturally warm.

Those predictions have proven accurate. Primarily because of fossil fuel combustion, atmospheric carbon dioxide levels have risen dramatically in recent decades, and are continuing to rise.[11] Global average temperatures also have been increasing for several decades, and while warming earlier in the twentieth century was probably due to non-anthropogenic forcing, human activity all but certainly caused the more recent rise.[12] There is no real scientific doubt that anthropogenic emissions will warm our climate even more if they continue unabated into the future.[13] The projected changes are substantial, with the Intergovernmental Panel on Climate Change predicting worldwide average temperature increases ranging from 1.1 to 6.4 degrees Fahrenheit - with the lower figure assuming efforts to minimize GHG emissions-by the end of the 21st century.[14]

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8 *See* James E. Hansen, et al., *Climate Impact of Increasing Atmospheric Carbon Dioxide*, 213 SCIENCE 957-66 (1981).

9 *See* PEW CENTER FOR GLOBAL CLIMATE CHANGE, THE CAUSES OF GLOBAL CLIMATE CHANGE (2006).

10 *See* THE CALIFORNIA CLIMATE CHANGE CENTER AT UC BERKELEY, MANAGING GREENHOUSE GAS EMISSIONS IN CALIFORNIA 1-7 (2006) (hereinafter "MANAGING GREENHOUSE GAS EMISSIONS") (describing the impacts of other GHGs).

11 *See* IPCC, THE PHYSICAL SCIENCE BASIS, *supra* note 3, at 2 ("Global atmospheric concentrations of carbon dioxide, methane and nitrous oxide have increased markedly as a result of human activities since 1750 and now far exceed preindustrial values...").

12 *See* IPCC, THE PHYSICAL SCIENCE BASIS, *supra* note 3 (explaining the causes of climate change); PEW CENTER FOR GLOBAL CLIMATE CHANGE, *supra* note 9, at 1, 2-5 ("During the twentieth century, the earth's surface warmed by about 1.4°F.... Recent decades have seen record-high average global surface temperatures."); *Mass. v. EPA*, 127 S. Ct. 1438, 1446 (2007) ("Respected scientists believe the two trends are related.").

13 *See* IPCC, THE PHYSICAL SCIENCE BASIS, *supra* note 3; Naomi Oreskes, *Beyond the Ivory Tower: The Scientific Consensus on Climate Change*, 306 SCIENCE 1686 (2004) ("Politicians, economists, journalists, and others may have the impression of confusion, disagreement, or discord among climate scientists, but that impression is incorrect."); DAN CAYAN ET AL. (CALIFORNIA CLIMATE CHANGE CENTER), CLIMATE SCENARIOS FOR CALIFORNIA 3 (2006) ("the winter and spring warming that has occurred in the California region over the last few decades is very unlikely to have been caused only be natural climate variations").

14 IPCC, THE PHYSICAL SCIENCE BASIS, *supra* note 3, at 11.

Temperature increases of that magnitude will cause many major environmental changes, most of them undesirable.[15] Sea levels will continue to rise, permanently flooding low-lying coastal areas and drastically increasing coastal regions' vulnerability to Hurricane Katrina-like storms.[16] Extreme weather events, including droughts and floods, will almost certainly occur more frequently.[17] In combination with the loss of glaciers and summer snowpacks in mountain regions, those droughts will increase water shortages, disrupting both natural systems and human economies.[18] Rising temperatures will shift climate zones to higher latitudes or farther uphill, extinguishing species that are unable to migrate, while facilitating the movement of others-crop pests and disease vectors, for example-that most people would prefer not to face.[19] Rising temperatures also will "very likely"[20] increase the frequency of extreme heat events.[21] Not all of the changes will be negative, but in general, a combination of changing environmental norms and increased variability will have substantial adverse impacts.[22]

Because changes already are occurring, total prevention of anthropogenic climate change no longer is possible.[23] Climate change and the resulting negative impacts are not all-or-nothing phenomena, however; they can occur to greater or lesser degrees, and the damage therefore still may be limited.[24] Taking steps to limit GHG emissions, thus minimizing climate change and its secondary effects, therefore is extremely important, and incremental solutions that slow or reduce climate change offer far greater environmental benefits than no solutions at all.[25]

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15 *See* IPCC, IMPACTS, ADAPTATION, AND VULNERABILITY, *supra* note 2.

16 *See* IPCC, THE PHYSICAL SCIENCE BASIS, *supra* note 3, at 11 (projecting sea level rises. The IPCC's projections do not include the potential effects of changing ice flow in Greenland or Antarctica); IPCC, IMPACTS, ADAPTATION, AND VULNERABILITY, *supra* note 2, at 9.

17 *See* IPCC, THE PHYSICAL SCIENCE BASIS, *supra* note 3, at 12 ("It is very likely that hot extremes, heat waves, and heavy precipitation events will continue to become more frequent.... It is likely that future tropical cyclones (typhoons and hurricanes) will become more intense.... There is less confidence in projections of a global decrease in numbers of tropical cyclones.") (emphasis in original).

18 IPCC, IMPACTS, ADAPTATION, AND VULNERABILITY, *supra* note 2, at 7-8.

19 IPCC, IMPACTS, ADAPTATION, AND VULNERABILITY, *supra* note 2, at 8 ("Approximately 20-30% of animal and plant species assessed so far are likely to be at increased risk of extinction if increases in global temperatures exceed 1.5 to 2.5°C."), 9.

20 The IPCC assigns precise numeric values to terms like "very likely;" a "very likely" event is an event that in the judgment of the IPCC authors has at least a 90% probability of occurrence. IPCC, THE PHYSICAL SCIENCE BASIS, *supra* note 3, at 4 n.6.

21 *See id.* at 12.

22 *See* IPCC, IMPACTS, ADAPTATION, AND VULNERABILITY, *supra* note 2 (describing both positive and negative impacts; the set of negative impacts is much larger).

23 *See* IPCC, THE PHYSICAL SCIENCE BASIS, *supra* note 3, at 4-9; AMY LYND LUERS AND SUSANNE C. MOSER, PREPARING FOR THE IMPACTS OF CLIMATE CHANGE IN CALIFORNIA: OPPORTUNITIES AND CONSTRAINTS FOR ADAPTATION 3 (2006) ("climate change is demonstrably underway"); *id.* at 5 (table summarizing observed trends), 6; CLIMATE SCENARIOS FOR CALIFORNIA, *supra* note 13, at 1-2 (describing observed trends).

24 *See* CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY, *supra* note 2, at 38 (table showing degrees of impact).

25 *See generally Mass. v. EPA*, 127 S. Ct. 1438, 1457 (2007) (explaining the significance of incremental steps: "Agencies [] do not generally resolve massive problems in one fell regulatory swoop. They instead whittle away at them over time") (internal citation omitted).

II. Climate Change and California

While it derives from the aggregate effects of many local sources, climate change is a global problem. Unlike many localized pollution problems, the location of greenhouse gas emissions matters little. A ton of CO_2 emitted in California is no more or less harmful to California than a ton of CO_2 emitted in Shanghai.[26] The secondary environmental effects are similarly global; while some locations will feel climate change's impacts more than others, few areas are likely to be unaffected.[27] Because the sources of climate change are dispersed throughout the world - no one country contributes a majority share of global GHG emissions - comprehensive solutions will likely require international cooperation.[28] Nevertheless, some areas in particular will contribute substantially to climate change, in some areas the effects will be especially pronounced, and some areas can achieve multiple benefits from climate change prevention. California fits within each of those categories. It bears a large share of responsibility for the significant environmental impacts of climate change, but it is capable of taking substantial steps to help resolve the problem, and will benefit in multiple ways from doing so.

A. California's Contributions to Climate Change

California is a major contributor to global climate change. If it were an independent nation, California would rank (depending upon the metric used) as the tenth- to sixteenth-highest GHG-emitting nation in the world.[29] Indonesia, with a population of nearly 250 million people (California has under 40,000,000),[30] emits similar GHG amounts, and California's emissions are on a par with those of France.[31] California's emissions exceed-by a wide margin-those of any other state except Texas.[32] And California's emissions have been growing. "From 1990 to 2004," according to the California Energy Commission, "total gross GHG emissions rose 14.3%."[33]

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26 *See* CALIFORNIA ENERGY COMMISSION, INVENTORY OF CALIFORNIA GREENHOUSE GAS EMISSIONS AND SINKS iii (2006) (hereinafter "INVENTORY") ("GHGs affect the entire planet, not just the location where they are emitted") (this report is labeled "draft staff report," but it represents the most current inventory, and this paper therefore relies upon it); IPCC, CLIMATE CHANGE 2001: THE PHYSICAL SCIENCE BASIS § 6.1.2, available at *http://www.grida.no/climate/ipcc_tar/wg1/215.htm* (explaining several of the primary GHGs, including carbon dioxide and methane, are "well-mixed gases," meaning that their long lifespan ensures homogenous mixing throughout the atmosphere).

27 *See* IPCC, THE PHYSICAL SCIENCE BASIS, *supra* note 3, at 12; IPCC, IMPACTS, ADAPTATION, AND VULNERABILITY, *supra* note 2 (describing worldwide and regional impacts).

28 *See* INVENTORY, *supra* note 26, at 20 (2006) (showing worldwide emissions).

29 The differences in emissions among the 10th through 19th-ranked nations are slight, and different reports rank California differently. Compare *id.* at i, 20 (ranking California sixteenth; this report, while publicly available, is labeled a "draft staff report") with MANAGING GREENHOUSE GAS EMISSIONS, *supra* note 10, at 1-6 ("Only nine nations have greater total emissions than the state."). The CEC's report's ranking of California's is also affected by its treatment of Texas, which emits more GHGs than California, as a nation. *See* INVENTORY, *supra* note 26, at 20.

30 *See quickfacts.census.gov/qfd/states/06000.html.*

31 INVENTORY, *supra* note 26, at 20.

32 *Id.* at i, 14.

33 *Id.* at 8 ("California's GHG emissions are large and growing... they are expected to continue to increase in the future under 'business-as-usual' unless California implements programs to reduce emissions").

Those emissions derive from a variety of sources. Transportation produces approximately 41% of California's total GHG emissions, with gasoline engines contributing the lion's share.[34] Electricity generation also contributes heavily, and out-of-state power, which more commonly derives from coal, disproportionately produces carbon dioxide emissions.[35] Industrial operations also contribute a large share, as do agriculture and forestry practices.[36] Fossil fuel combustion creates most of California's GHG emissions, but agricultural and landfill methane emissions and industrial releases of nitrous oxide and "high global warming potential" gases also add to the total output.[37] Some agricultural activities and natural processes partly compensate for those emissions by removing GHGs from the atmosphere, but in the aggregate California's contributions far outweigh its sinks.[38]

B. Climate Change's Effects Upon California

As a large and growing number of state-sponsored studies have concluded, California also will be harmed substantially by climate change. Those harms are not unique; other areas will face similar threats, and in some places-particularly low-lying nations, regions already more vulnerable to drought or flooding, or poorer and less stable countries where adaptation will likely prove more difficult - the consequences will be even more severe.[39] The difficulties facing California thus exemplify the worldwide threats posed by climate change, and are by no means outlying worst-case scenarios. But even if California alone were threatened, the likely adverse impacts still would be significant, and California's self-interest alone ought to prompt a vigorous response.

Temperatures already are rising, and the state is likely to experience a significant additional rise in average temperatures, particularly in its inland areas.[40] Those increases threaten a long list of adverse consequences.[41] Air quality, which already is poor in much of California, will get worse.[42] Some precipitation that now falls as snow will in the future be rain, increasing winter flooding and reducing snowpacks and water supplies in summer, when California needs water

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34 *Id.* at ii, 9-10; see MANAGING GREENHOUSE GAS EMISSIONS, *supra* note 10, at I-7, I-10.

35 INVENTORY, *supra* note 26 at ii-iii, 10, 11-12. INVENTORY, *supra* note 26 at ii-iii, 10, 11-12.

36 *Id.* at ii, 10-11; *see* MANAGING GREENHOUSE GAS EMISSIONS, *supra* note 10, at I-7.

37 INVENTORY, *supra* note 26, at 6. The emitted amounts of these other GHGs are much smaller than the amount of CO_2 emitted, but these gases have far more powerful heat-trapping effects. *See* MANAGING GREENHOUSE GAS EMISSIONS, *supra* note 10, at I-7 (describing the greenhouse potential of sulfur hexafluoride).

38 *See* MANAGING GREENHOUSE GAS EMISSIONS, *supra* note 10, at I-10. A "sink" is a process, like forest growth, that removes carbon dioxide from the atmosphere.

39 *See* IPCC, IMPACTS, ADAPTATION, AND VULNERABILITY, *supra* note 2.

40 OUR CHANGING CLIMATE, *supra* note 2, at 2 ("The latest projections, based on state-of-the-art climate models, indicate that if global heat-trapping emissions proceed at a medium to high rate, temperatures in California are expected to rise 4.7 to 10.5 degrees Fahrenheit by the end of the century.").

41 *Id.* ("These temperature increases would have widespread consequences including substantial loss of snowpack, increased risk of large wildfires, and reductions in the quality and quantity of certain agricultural products."); *see* Katherine Hayhoe et al., *Emissions Pathways, Climate Change, and Impacts on California*, 101 PNAS 12422, 12425-26 (2004); Cal. Health & Safety Code § 38501(a).

42 OUR CHANGING CLIMATE, *supra* note 2, at 5. The report states:

> High temperatures are expected to increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, if temperatures rise to the medium warming range, there will be a 75 to 85 percent more days with weather conducive to ozone formation in Los Angeles and the San Joaquin Valley, relative to today's conditions.

most badly.[43] Pests and pathogens will migrate to new regions, damaging the state's agricultural economy and threatening human health.[44] Forest fires will occur more frequently.[45] Rising temperatures will degrade many terrestrial and aquatic ecosystems. Heat waves will become more frequent, and extreme temperatures will be higher.[46] Rising sea levels also will affect California, increasing flooding on the coast and in the Sacramento-San Joaquin Delta, accelerating erosion, and leaving coastal construction increasingly vulnerable to storm damage.[47] Those changes in turn will create major consequences not only for the state's environmental quality, but also for its economy; many of the state's most important industries are likely to be harmed.[48]

Those environmental problems would strike a state already struggling to cope with existing conditions. According to the California Climate Change Center,[49] "[t]he state's vital resources and natural landscapes are already under stress due to California's rapidly growing population, which is expected to grow from 35 million today to 55 million by 2050."[50] Californians currently experience the nation's worst air quality, with much of the state's population living in areas that violate federal and state air quality standards.[51] Water allocation is chronically contentious. The state's forests face elevated fire risk. Other natural ecosystems are similarly strained, with dozens of plant and animal species threatened or endangered even under existing conditions. Even without rising sea levels, key areas of coastal California and the Sacramento-San Joaquin Bay-Delta already are vulnerable to flooding. All of those environmental problems create institutional, economic, and political strains in addition to environmental and health costs; in California, litigious natural resource battles already are ubiquitous.

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43 *Id.* at 6-7; Hayhoe et al., *supra* note 41, at 12425-26; DEPT. OF WATER RESOURCES, *supra* note 11, at 2-6, 2-22 to 2-31, 4-1 ("Planning and design of the Central Valley Project [] and State Water Project has, for the most part, assumed an unchanging climate... and a changing climate may threaten to destabilize the infrastructure and operations dependent on that assumption."); CALIFORNIA DEPARTMENT OF WATER RESOURCES, CALIFORNIA WATER PLAN UPDATE 2005 4-32 to 4-36 (2006) ("Predictions include increased temperature, reductions to Sierra snowpack, earlier snowmelt, and a rise in sea level, although the extent and timing of the changes remain uncertain. The changes could have major implications for water supply, flood management, and ecosystem health.").

44 OUR CHANGING CLIMATE, *supra* note 2, at 9.

45 *Id.* at 10-11.

46 OUR CHANGING CLIMATE, *supra* note 2, at 5; *see* REDEFINING PROGRESS, *supra* note 5, at 19-26; Hayhoe et al., *supra* note 41, at 12424-45.

47 DEPT. OF WATER RESOURCES, *supra* note 11, at 2-31 to 2-52.

48 *See* Cal. Health & Safety Code § 38501(b) ("Global warming will have detrimental effects on some of California's largest industries, including agriculture, wine, tourism, skiing, recreational and commercial fishing, and forestry.")

49 The California Climate Change Center is an academic research unit based primarily at the University of California's Berkeley and San Diego campuses. Several of its reports have been sponsored by California state agencies. *See* OUR CHANGING CLIMATE, *supra* note 2, at 2.

50 OUR CHANGING CLIMATE, *supra* note 2, at 2; see AMY LYND LUERS AND SUS[illegible]NE C. MOSER, PREPARING FOR THE IMPACTS OF CLIMATE CHANGE IN CALIFORNIA: OPPORTUNITIES AND CONSTRAINTS FOR ADAPTATION v (2006).

51 OUR CHANGING CLIMATE, *supra* note 2, at 5.

While most Californians will be affected, the impacts of climate change are likely to be particularly harsh for the state's poorest and most vulnerable people, many of whom are people of color.[52] In part, those disproportionate impacts will arise because adjusting to environmental change generally requires money and insurance, and poorer people lack the former and are less likely to own the latter.[53] Geography will also exacerbate distributional disparities. Some of the earliest and largest temperature changes are expected in California's Central Valley,[54] which contains some of California's poorest areas, and poverty could increase as climate change disrupts the region's agricultural economy.[55] The Central Valley is already one of California's hottest regions, and that heat contributes to some of the nation's worst air quality problems.[56] Consequently, some of the harshest impacts will fall upon California's most vulnerable people.

Climate change and its secondary environmental impacts thus pose significant threats to California. With consequences likely to strike across much of California's landscape and throughout many sectors of California's economy, and with harsh potential impacts upon those Californians already vulnerable to economic and environmental risk, climate change presents a large and urgent threat.

C. California's Role in Climate Change Solutions

While California presently is a major contributor to climate change, it also can be a major contributor to, and beneficiary of, climate change solutions.

California has a longstanding tradition of pushing the frontiers of environmental protection. California's pioneering regulation of automobile emissions led to national adoption of more protective standards, and California's innovations in energy efficiency have created improvements well beyond the state's borders. California now can play that role again. No other state has been as proactive in responding to climate change,[57] and California's innovative measures will likely provide examples and lessons for regulatory approaches worldwide. California has begun to embrace that leadership role; the state legislature recently passed the Global Warming Solutions Act of 2006 (more commonly known, and referred to herein, as AB 32), which declares:

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52 *See* REDEFINING PROGRESS, *supra* note 5.

53 *See id.* at 16-19, 36-37, 57-58, 63-64.

54 *Id.* at 9-10; *see* Hayhoe et al., *supra* note 41, at 12424 (showing maps of projected temperature increases).

55 *See* REDEFINING PROGRESS, *supra* note 5, at 3-4, 41-50 ("agriculture... is a significant source of employment for low-income groups and people of color. Shocks experienced by the industry could disproportionately affect these communities."); OUR CHANGING CLIMATE, *supra* note 2, at 8-9 (describing impacts to agriculture); Hayhoe et al., *supra* note 41, at 12426-27 (describing impacts to dairy and wine grape production).

56 *See* REDEFINING PROGRESS, *supra* note 5, at 19-26 (describing disparities in vulnerability to heat waves), 26-35 (describing threats posed by increasing ozone (smog) pollution); Hayhoe et al., *supra* note 41 at 12425 ("Individuals most likely to be affected (by increases in extreme heat) include elderly, children, the economically disadvantaged, and those who are already ill.").

57 *See infra* Part III.

> [t]he program established by this division will continue this tradition of environmental leadership by placing California at the forefront of national and international efforts to reduce emissions of greenhouse gases... action taken by California to reduce emissions of greenhouse gases will have far-reaching effects by encouraging other states, the federal government, and other countries to act.[58]

Notwithstanding common arguments that responding to climate change will require society-wide economic sacrifices, California's responses actually could boost the state economy. According to the California Legislature, "[b]y exercising its global leadership role, California will also position its economy, technology centers, financial institutions, and businesses to benefit from national and international efforts to reduce emissions of greenhouse gases."[59] Governor Schwarzenegger has acknowledged those potential benefits, asserting that "technologies that reduce greenhouse gas emissions are increasingly in demand in the worldwide marketplace, and California companies investing in these technologies are well-positioned to profit from this demand, thereby boosting California's economy, creating more jobs and providing increased tax revenue."[60] California's Environmental Protection Agency similarly has concluded that implementing climate change prevention strategies could "increase jobs and income by an additional 83,000 and $4 billion, respectively."[61] Independent studies back those predictions; according to a recent California Climate Change Center report:

> [g]lobally, increasing GHG emissions are assumed to be essential to a growing economy. This is not true in California. The state can take an historic step by demonstrating that reducing emissions of GHG can accelerate economic growth and bring new jobs.... California can gain a competitive advantage by acting early in the new technologies and industries that will come into existence worldwide around the common goal of reducing GHG emissions.[62]

III. Existing Regulatory Responses to Climate Change

Despite the threats posed by climate change, and despite the potential benefits of preventive regulation, the state and federal governments have taken only preliminary steps to limit the greenhouse gas emissions that drive global warming.

Federal action has been almost totally absent. The United States has neither ratified the Kyoto Protocol nor proposed any substitute international regulatory structure. Congress has not

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58 Cal. Health and Safety Code § 38501(d); *see* Executive Dept., State of California, Executive Order S-3-05 (June 1, 2005) (touting California's "leadership role in reducing greenhouse gas emissions").

59 Cal. Health & Safety Code § 38501(e).

60 Executive Order S-3-05, *supra* note 58.

61 CAL. ENVTL. PROT. AGENCY, *supra* note 2, at 65.

62 MANAGING GREENHOUSE GAS EMISSIONS, *supra* note 10, at E-6.

passed any legislation addressing climate change. EPA long declined to address carbon dioxide emissions, insisting, until corrected by the United States Supreme Court, that it had neither the obligation nor even the power to do so.[63] Although the Bush Administration now acknowledges the reality of anthropogenically-caused climate change, it has placed its faith almost entirely in voluntary responses.[64]

Unlike the federal government, California's leaders have recognized climate change as a problem requiring a vigorous response, but the state's response still is in its nascent stages. The Governor and the California Legislature have taken several major steps, including the passage of legislation setting automotive emissions standards for greenhouse gases.[65] In 2005, Governor Schwarzenegger pointedly declared the debate over climate change to be "over," and issued an executive order targeting ambitious reductions in the state's carbon emissions.[66] In accordance with Schwarzenegger Administration policy, many of California's administrative agencies are studying ways in which those agencies may respond to climate change.[67] The state attorney general's office has repeatedly attempted to compel responses to climate change, most notably by joining lawsuits seeking to impose nuisance liability on the electric power and automotive industries, to compel EPA to regulate automotive GHG emissions, and to force consideration of higher federal fuel economy standards.[68] Those efforts build upon earlier achievements. Because of past energy shortages and stringent air quality protections, California has implemented many measures designed to improve energy efficiency. Partly because of those measures, Californians' per capita GHG emissions now are lower than those of most Americans, even though their aggregate emissions are high and growing.[69]

Adding significantly to those achievements, in 2006 the California Legislature passed and Governor Schwarzenegger signed into law AB 32, also known as the California Global Warming

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63 *See Mass. v. EPA*, 127 S. Ct. 1438 (2007).

64 *See* MANAGING GREENHOUSE GAS EMISSIONS, *supra* note 10, at ES-4 ("While helpful, there is no evidence that voluntary measures provide sufficient incentives to attain the Governor's targets.").

65 *See* Cal Health & Safety Code § 43018.5. The automotive industry almost immediately challenged that legislation. *See Cent. Valley Chrysler-Jeep Inc. v. Witherspoon*, 2005 U.S. Dist. LEXIS 26536 (E.D. Cal. 2005) (allowing environmental groups to intervene in the automakers' lawsuit).

66 *See* Bill Blakemore, *Schwarzenator v. Bush: Global Warming Debate Heats Up*, ABC NEWS, August 30, 2006, at *http://abcnews.go.com/US/GlobalWarming/story?id=2374968&page=1*; Executive Order S-3-05, *supra* note 58. The order states, in part: "the following greenhouse gas emission reduction targets are hereby established for California: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; by 2050, reduce GHG emissions to 80% below 1990 levels...."

67 *E.g.*, DEPT. OF WATER RESOURCES, *supra* note 11.

68 *Conn. v. Am. Elec. Power Co.*, 406 F. Supp. 2d 265 (S.D.N.Y. 2005) (dismissing the nuisance case); *Mass. v. EPA*, 127 S. Ct. 1438 (2007); Nick Bunkley, *California Sues 6 Automakers Over Global Warming*, NEW YORK TIMES, September 21, 2006.

69 *See* INVENTORY, *supra* note 26 at i, 12 ("California's ability to slow the rate of growth of GHG emissions is largely due to the success of its energy efficiency and renewable energy programs and a commitment to clean air and clean energy.... Although California's total GHG emissions are larger than every state but Texas, California has relatively low carbon emission intensity. In 2001, California ranked fourth lowest of the 50 states in carbon dioxide emissions per capita from fossil fuel consumption and fifth lowest of the 50 states in carbon dioxide emissions per unit of gross state product.").

Solutions Act of 2006, a landmark statute designed to cap California's greenhouse gas emissions.[70] AB 32 requires the California Air Resources Board (CARB) to cap statewide emissions at 1990 levels.[71] It empowers CARB to use a variety of regulatory mechanisms to achieve compliance with that cap by 2020, if not sooner.[72] AB 32 also requires establishment of a monitoring and enforcement system for tracking and regulating GHG emissions, and empowers CARB to take immediate steps to limit high-emitting sources.[73] The Legislature left most other details to the agency's discretion; while CARB must avoid environmental injustice in implementing its measures, its program will take shape primarily through rulemaking processes.[74]

Passing AB 32 was a major step. No other state has a law like it, and the federal government has until recently shown no inclination toward passing anything nearly so ambitious. Nevertheless, its passage is only a start. Even if fully achieved, AB 32's emission reductions, while important, won't eliminate California's contribution to the overall problem. Full implementation of the statute would reduce emissions only by approximately 25%, but many experts estimate that an 80 to 90% reduction ultimately will be necessary to fully eliminate anthropogenic climate change.[75] Nor should full implementation automatically be assumed. The regulatory program developed by CARB also may have gaps, which other laws and regulatory approaches can help fill.[76] And AB 32 places heavy responsibility upon CARB. If CARB is unable to meet its responsibilities, other statutory mechanisms may be necessary to spur change. AB 32 does not purport to occupy the regulatory field,[77] and both the need and the opportunity for other regulatory approaches therefore remain.

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70 California Climate Change Solutions Act of 2006, A.B. 32, 2005-06 Sess., codified at Cal. Health & Safety Code §§ 38500-99.

71 *Id.* §§ 38550-38551.

72 *Id.* §§ 38560-38565.

73 *Id.* § 38530.

74 *See id.* §§ 38560-38574

75 *See* MANAGING GREENHOUSE GAS EMISSIONS, supra note 10, at I-4; Executive Order S-3-05, supra note 58; Thomas Wigley, The Kyoto Protocol: CO_2, CH_4, and Climate Implications, 25 GEOPHYSICAL RESEARCH LETTERS 2285 (1998) (concluding that compliance with the Kyoto Protocol's modest targets would fall well short of removing the human footprint from the global climate).

76 For example, AB 32 implies that CARB should focus primarily on a subset of sources, see Cal. Health & Safety Code §§ 38530(b)(1), and for reasons of practicality and administrative efficiency the agency is likely to follow that directive. That means, however, that many smaller or more diffuse sources may escape regulation under AB 32, at least immediately and perhaps indefinitely, even though the aggregate effect of those smaller sources could be quite large.

77 Cal. Health and Safety Code §§ 38592(a) ("All state agencies shall consider and implement strategies to reduce their greenhouse gas emissions."), 38592(b) ("Nothing in this division shall relieve any person, entity, or public agency of compliance with other applicable federal, state, or local laws or regulations, including state air and water quality requirements, and other requirements for protecting public health or the environment."), 38598 ("Nothing in this division shall limit the existing authority of a state entity to adopt and implement greenhouse gas emissions reduction measures. ☐ Nothing in this division shall relieve any state entity of its legal obligations to comply with existing law or regulation.").

CEQA provides such a complementary approach. Though CEQA's substantive and procedural requirements have yet to be fully applied to projects contributing to climate change, the Act's core provisions require state and local public agencies to avoid or mitigate the significant adverse climate change impacts of any project they sponsor or approve. Multiple methods-many affordable, and some capable of creating significant collateral benefits-of avoiding or mitigating GHG emissions already are available.[78] And those mandates are readily enforceable; both government agencies and community groups have long-established traditions of using CEQA to create effective environmental change.[79]

I. The Requirements of CEQA

CEQA mandates that state and local agencies "[d]evelop and maintain a high quality environment now and in the future, and take all action necessary to protect, rehabilitate, and enhance the environmental quality of the state;" "take all coordinated actions necessary to prevent [critical environmental] thresholds being reached;" and "[e]nsure that the long-term protection of the environment, consistent with the provision of a decent home and suitable living environment for every Californian, shall be the guiding criterion in public decisions."[80]

Those broad purposes have informed legal principles. "In enacting CEQA," the California Supreme Court has written, "the Legislature declared its intention that all public agencies responsible for regulating activities affecting the environment give prime consideration to preventing environmental damage when carrying out their duties."[81] The state's high court has repeatedly directed that "CEQA is to be interpreted 'to afford the fullest possible protection to the environment within the reasonable scope of the statutory language.'"[82]

CEQA fulfills those protective purposes primarily through a few basic requirements. Any time a state or local public agency makes a discretionary decision[83] to approve or carry out a project with potentially significant environmental impacts-even if the project will be implemented by private parties[84]-the agency must consider and disclose the potential environmental consequences of

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78 *See supra Part I.C.*

79 *See PLANNING AND CONSERVATION LEAGUE, EVERYDAY HEROES PROTECT THE AIR WE BREATHE, THE WATER WE DRINK, AND THE NATURAL AREAS WE PRIZE: THIRTY-FIVE YEARS OF THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (2005) at http://www.pcl.org/pcl_files/full_report.pdf.*

80 Cal. Pub. Res. Code §§ 21000(d), 21001(a), (d).

81 Mountain Lion Foundation v. Fish and Game Commission, 16 Cal.4th 105, 112 (1997); see City of Marina v. Board of Trustees of the California State University, 39 Cal.4th 341, 348 (2006).

82 Mountain Lion Foundation, 16 Cal.4th at 112 (quoting Friends of Mammoth v. Board of Supervisors, 8 Cal. 3d 247, 259 (1972)); Laurel Heights Improvement Ass'n v. Regents of the Univ. of Cal., 47 Cal.3d 376, 390 (1988).

83 See Cal. Pub. Res. Code § 21080(a); Friends of Westwood v. City of Los Angeles, 191 Cal. App. 3d 259, 267 (1987) (holding that the existence of any discretion in an approval process triggers CEQA's applicability).

84 See Friends of Mammoth, 8 Cal.3d 247 (holding that CEQA applies to private projects receiving governmental approvals).

its decision.[85] It also must identify, discuss, and, if feasible, adopt measures capable of avoiding or reducing a proposed project's significant adverse environmental impacts.[86] The discussion below explains these requirements in more detail.

A. Disclosure of Significant Adverse Environmental Impacts

If a proposed project[87] may cause significant adverse impacts upon the environment, CEQA requires the lead agency[88] either to: (a) adopt or require project changes that will avoid or fully mitigate potentially significant impacts; or (b) prepare an "environmental impact report" (EIR) before approving or carrying out the project.[89] The EIR, if prepared, must identify and discuss the project's potentially significant adverse environmental impacts. That discussion should inform both decision-makers and the public of the environmental consequences of the agency's proposed action, allowing assessment of whether the project really is worth its potential environmental cost.[90]

CEQA defines "significant impacts" broadly and inclusively. Its definition includes-and agencies therefore must discuss-not only the direct environmental consequences of implementing the project, but also indirect effects that may follow from the project's direct physical consequences.[91] That discussion need not address speculative effects,[92] but where an indirect consequence is foreseeable, the existence of a causal chain between project and impact-even an attenuated one-does not excuse the agency from discussing that impact in an EIR.[93]

A lead agency also must address significant "cumulative" environmental impacts-that is, contributions, even if small, to larger environmental problems. CEQA defines a "significant effect on the environment" as including

> possible effects of a project (that) are individually limited but cumulatively considerable. As used in this paragraph, 'cumulatively considerable' means that the incremental effects

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85 CEQA does set forth certain classes of projects that are categorically exempt from statutory requirements. *E.g.*, Cal. Pub. Res. Code §§ 21080(b), 21080.14 (creating an exemption for "affordable housing projects in urbanized areas").

86 *Sierra Club v. State Bd. of Forestry*, 7 Cal.4th 1215, 1233 (1994).

87 *See* 14 Cal. Code Regs. § 15002(b) (explaining the types of actions to which CEQA applies).

88 CEQA defines a "lead agency" as "the public agency which has the principal responsibility for carrying out or approving a project which may have a significant effect upon the environment." Cal. Pub. Resources Code § 21067.

89 *See Friends of Davis v. City of Davis*, 83 Cal. App. 4th 1004, 1016-67 (2000) ("An EIR is required whenever it can be 'fairly argued on the basis of substantial evidence that the project may have significant environmental impact.'") (citations omitted); 14 Cal. Code Regs. §§ 15064, 15065(b)(1).

90 *See Sierra Club*, 7 Cal. 4th at 1229 (describing an EIR as "an environmental alarm bell" and a "document of accountability").

91 *See* 14 Cal. Code Regs. § 15064(d)(2); *see also* 14 Cal. Code Regs. § 15358.

92 *See Planning & Conservation League v. Department of Water Resources*, 83 Cal. App. 4th 892, 919 (2000) ("We need not venture into speculation. But CEQA does compel reasonable forecasting.").

93 *See* 14 Cal. Code Regs. § 15064(d)(2).

of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.[94]

The presence of such cumulatively significant effects can trigger the obligation to prepare an EIR, for an agency must prepare an EIR if its "project has possible environmental effects that are individually limited but cumulatively considerable."[95] The EIR then must disclose those cumulative impacts; agencies are obligated to "discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable."[96]

Judicial decisions have carefully enforced those requirements. California's courts have emphasized the importance of cumulative impacts analyses, cautioning that "[o]ne of the most important environmental lessons is that environmental damage often occurs incrementally from a variety of small sources. These sources appear insignificant when considered individually, but assume threatening dimensions when considered collectively with other sources with which they interact."[97] The courts therefore have required agencies to treat as significant projects' contributions to larger environmental problems, even where the individual project contribution would seem small in isolation.[98] They also have rejected a *de minimis* exemption from that general rule, reasoning that such an exemption would contravene the core purposes of a cumulative impacts analysis.[99] Some debate remains about where exactly the lower bound of a cumulatively significant contribution lies; though the rejection of a *de minimis* exception indicates that even tiny contributions

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94 Public Resources Code § 21083(b)(2). The CEQA Guidelines similarly state that "'[c]umulative impacts' refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." 14 Cal. Code Regs. § 15355. "While Section 21083 governs the situations in which an agency must prepare an EIR, its provisions have also been applied to the contents of an EIR once it is determined an EIR must be prepared." *Los Angeles Unified School Dist.*, 58 Cal. App. 4th at 1024 n.6 (citing *Laurel Heights Improvement Ass'n*, 47 Cal.3d at 394).

95 14 Cal. Code Regs. § 15065 (a)(3).

96 *Id.* § 15130(a); *see Los Angeles Unified School Dist.*, 58 Cal. App. 4th at 1024-26 (1997); *San Franciscans for Reasonable Growth v. City & County of San Francisco*, 151 Cal. App. 3d 61, 73 (1984) ("Part of [CEQA's] vital informational function is performed by a cumulative impact analysis.").

97 *Communities for a Better Environment v. California Resources Agency*, 103 Cal. App. 4th 98, 114 (2002); *see Bakersfield Citizens for Local Control v. City of Bakersfield*, 124 Cal. App. 4th 1184, 1214 (2005) (quoting *Communities for a Better Environment*); Los Angeles Unified School Dist, 58 Cal. App. 4th at 1025; *San Joaquin Raptor/Wildlife Rescue Ctr. v. County of Stanislaus*, 27 Cal. App. 4th 713, 739 (1996); *Las Virgenes Homeowners Federation, Inc. v. County of Los Angeles*, 177 Cal. App. 3d 300, 306 (1986); *Whitman v. Board of Supervisors*, 88 Cal. App. 3d 397, 408 (1979).

98 *E.g., Kings County Farm Bureau v. City of Hanford*, 221 Cal. App. 3d 692, 718-24 (1990) (rejecting an EIR that failed to consider whether project emissions, in combination with emissions from other sources throughout the San Joaquin Valley, would create a significant impact); *Los Angeles Unified School Dist.*, 58 Cal.App.4th at 1025 ("the relevant issue to be addressed in the EIR on the plan is not the relative amount of traffic noise resulting from the project when compared to existing traffic noise, but whether any additional amount of traffic noise should be considered significant in light of the serious nature of the traffic noise problem already existing around the schools").

99 *Communities for a Better Environment*, 103 Cal. App. 4th at 116-21 (following *Kings County*, which it described as "[t]he seminal decision," and *Los Angeles Unified School District*).

often matter, commentators have argued against a "one-molecule" standard for air pollution.[100] But past decisions leave little doubt that CEQA's full suite of obligations can be triggered even by a seemingly small contribution to a larger problem.

CEQA's definition of significant impacts also extends to impacts occurring outside California. While CEQA governs only decisions made and conduct occurring within California, nothing in its definition of significant impact excludes impacts outside state lines. Instead, "CEQA requires a public agency to mitigate or avoid its projects' significant effects not just on the agency's own property but 'on the environment,' with 'environment' defined for these purposes as 'the physical conditions which exist within the area which will be affected by a proposed project.'"[101] That functional definition invokes no political boundaries; if an area is affected, it is part of the relevant physical environment, regardless of the governmental authority exercising local jurisdiction.

CEQA, its implementing regulations, and judicial decisions thus compel agencies to disclose, in an EIR, their projects' contributions to any significant environmental problem, even if those contributions are indirect, even if project-specific contributions, if viewed in isolation, would seem small, and even if those impacts will occur partly outside California.

B. Identification of Alternatives and Mitigation Measures

In addition to requiring identification of significant environmental impacts, CEQA also requires agencies to discuss ways in which those impacts can be avoided or reduced. Agencies must "systematically identif[y]... feasible alternatives or feasible mitigation measures which will avoid or substantially lessen [a project's] significant effects."[102] That discussion of alternatives and mitigation measures forms the "core" of an EIR.[103]

CEQA's alternatives requirement compels agencies to consider whether different versions of the project, or even different projects, could accomplish most project purposes while reducing environmental costs.[104] Courts have repeatedly stated that agencies "must describe all reasonable alternatives to the project including those capable of reducing or eliminating environmental effects."[105] No universally-applicable list sets forth the alternatives agencies must consider-the scope of the analysis instead is governed by project-specific circumstances, the standards set forth in the statute and the CEQA Guidelines, and a "rule of reason"[106]-but agencies often

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[100] *See, e.g.*, MICHAEL H. REMY ET AL., GUIDE TO THE CALIFORNIA ENVIRONMENTAL QUALITY

[101] *American Canyon Community United for Responsible Growth v. City of American Canyon*, 145 Cal. App. 4th 1062, 1082 (2006) (italics removed; *quoting* Cal. Pub. Res. Code § 21002.1(b) and *City of Marina v. Board of Trustees of California State University*, 39 Cal. 4th 341, 359-60 (2006)); 14 Cal. Code Regs. § 15360.

[102] Cal. Pub. Res. Code § 21002; *see* Cal. Pub. Resources Code § 21061 (stating that an EIR must "list ways in which the significant effects of such a project might be minimized" and "indicate alternatives to such a project.").

[103] *Citizens of Goleta Valley v. Board of Supervisors*, 52 Cal.3d 553, 564 (1990).

[104] *See* 14 Cal. Code Regs. § 15126.6.

[105] *County of Inyo v. City of Los Angeles*, 71 Cal. App. 3d 185, 203 (1977); *see Wildlife Alive v. Chickering*, 18 Cal.3d 190, 197 (1976); *Laurel Heights Improvement Assoc. v. Regents of Univ. of Calif.*, 47 Cal. 3d 376, 400 (1988); 14 Cal. Code Regs. § 15126.6.

[106] *See* 14 Cal. Code Regs. § 15126.6; *Citizens of Goleta Valley*, 52 Cal.3d at 565.

consider building in alternative locations,[107] using different infrastructure to accomplish project purposes,[108] or scaling back a project's scope.[109]

CEQA also "requires that an EIR indicate the ways in which a project's significant effects can be mitigated, by setting forth 'mitigation measures proposed to minimize significant effects on the environment.'"[110] The CEQA Guidelines describe several categories of mitigation measures, including "avoiding the impact altogether by not taking a certain action or parts of an action;" restoring the environment impacted by the action; altering project operations to minimize the impact; or "[c]ompensating for the impact by replacing or providing substitute resources or environments."[111] They also specify that "where relevant," EIRs must describe measures capable of reducing "inefficient and unnecessary consumption of energy."[112]

C. Adoption, if Feasible, of Alternatives or Mitigation Measures Capable of Avoiding Significant Environmental Impacts

While discussion of impacts and alternatives is central to CEQA compliance, the statute requires more than just disclosure. CEQA also includes a "substantive mandate that public agencies refrain from approving projects for which there are feasible alternatives or mitigation measures."[113] "[N]o public agency shall approve or carry out a project" if "one or more significant effects on the environment [] would occur if the project is approved or carried out," unless the public agency determines either: (a) that the impacts will be mitigated to a less-than-significant level; or (b) that full mitigation is infeasible, but project benefits still justify proceeding.[114] The CEQA Guidelines repeat that mandate, stating that the "basic purposes of CEQA" include

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[107] *E.g., Citizens of Goleta Valley*, 52 Cal.3d at 570-75 (concluding that evaluation of a single off-site alternative was adequate); *San Bernardino Valley Audubon Society, Inc. v. County of San Bernardino*, 155 Cal.App.3d 738, 751 (1984) (rejecting an EIR that considered too narrow a range of site alternatives).

[108] *E.g., County of Inyo*, 71 Cal. App. 3d 185, 203 (1977) (rejecting an EIR for a water-delivery project that failed to consider conservation as an alternative to increased pumping); *Kings County Farm Bureau v. City of Hanford*, 221 Cal. App. 3d 692, 730-37 (1990) (rejecting an EIR that considered a natural gas-burning alternative to a coal-fired power plant, but did not provide enough quantitative data to facilitate an effective comparative analysis).

[109] *E.g., Village of Laguna Beach v. Board of Supervisors*, 134 Cal. App. 3d 1022, 1028-32 (1982) (upholding an EIR that considered a range of sizes for a proposed residential development).

[110] *Save Our Peninsula Committee v. Monterey County Bd. of Supervisors*, 87 Cal. App. 4th 99, 139 (2001) (citing Cal. Public Resources Code §§ 21100, 21002.1, and 21061); see 14 Cal. Code Regs. § 15002(a)(2) (stating that one of CEQA's "basic purposes" is to "[i]dentify ways that environmental damage can be avoided or significantly reduced").

[111] 14 Cal. Code Regs. § 15370. At the margins, the difference between an alternative and a mitigation measure may be fuzzy, but generally speaking, mitigation measures involve revisions within the same project, while alternatives involve fundamentally different versions of the project. *See Laurel Heights*, 47 Cal.3d at 403 ("alternatives are a type of mitigation").

[112] 14 Cal. Code Regs. § 15126.4.

[113] *Mountain Lion Foundation v. Fish and Game Commission*, 16 Cal.4th 105, 134 (1997); see *Sierra Club v. State Bd. of Forestry*, 7 Cal.4th 1215, 1233 (1994) ("CEQA compels government first to identify the [significant] environmental effects of projects, and then to mitigate those adverse effects through the imposition of feasible mitigation measures or through the selection of feasible alternatives."); *Sierra Club v. Gilroy City Council*, 222 Cal.App.3d 30, 41 (1990) (CEQA "requires public agencies to deny approval of a project with significant adverse effects when feasible alternatives or feasible mitigation measures can substantially lessen such effects.")

[114] Cal. Pub. Res. Code § 21081.

"[p]revent[ing] significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible."[115] Thus, if mitigation or avoidance of a project's significant adverse impacts is feasible, an agency cannot approve the project without adoption of those mitigation or avoidance measures.

Those provisions require mitigation of cumulatively significant impacts. A cumulatively significant impact is, by definition, a significant project impact,[116] and CEQA requires mitigation, if feasible, of all significant impacts.[117] That does not mean agencies must fully resolve environmental problems that their projects only partially cause; instead, an agency may satisfy its CEQA obligations by mitigating its proportional contribution.[118] The agency also may accomplish its share of mitigation in a variety of ways, including participation in regional mitigation programs.[119] But an agency cannot simply ignore its project's share of a larger impact. If a project's contribution is incrementally important yet can be avoided or mitigated, the project cannot proceed without such mitigation.

CEQA thus creates both powerful incentives and clear mandates for agencies to refrain from contributing to larger environmental problems. Such contributions can trigger the obligation to prepare an EIR, and agencies wishing to avoid that obligation must fully mitigate their projects' potential contributions. If the agency does not adopt such mitigation measures at the outset, its EIR must disclose potential contributions to that larger problem, and those disclosures may raise questions about the wisdom of proceeding with the project. Finally, if a project's contributions to a significant impact can feasibly be avoided or mitigated, the agency cannot proceed without such avoidance or mitigation measures in place.

II. Applying CEQA's Requirements to Climate Change

The core CEQA provisions described above constrain state or local public agencies' contributions to climate change. Many public projects directly or indirectly cause GHG emissions,[120] and all of those projects collectively add major contributions to significant environmental impacts.[121] But multiple methods exist for feasibly mitigating or avoiding those projects' contributions to climate change.[122] Consequently, and as explained in more detail below, CEQA requires that

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115 14 Cal. Code Regs. §§ 15002(a)(3), (h), 15021..

116 *See* 14 Cal. Code Regs. § 15065(a)(3) (stating that "a lead agency shall find that a project may have a significant impact on the environment" if the project "has possible environmental effects that are individually limited but cumulatively considerable.").

117 Cal. Pub. Res. Code 21081.

118 14 Cal. Code Regs. § 15130(a)(3) ("An EIR may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable and thus is not significant. A project's contribution is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact."); 14 Cal. Code Regs. § 15064(h)(2) (same).

119 *Save Our Peninsula Committee*, 7 Cal. App. 4th at 139–40. The *Save Our Peninsula* court also warned, however, that "a commitment to pay fees without any evidence that mitigation will actually occur is inadequate." *Id.* at 140; *City of Marina*, 39 Cal.4th at 365.

120 *See infra* Part II.A.

121 *See infra* Part II.B.

California state and local agencies refrain from approving projects that contribute to climate change or implement full mitigation.

A. Climate Change Contributions and State and Local Government Projects

The threshold trigger for CEQA is a discretionary state or local government action with potential environmental consequences, and government-implemented or approved projects that lead, directly or indirectly, to GHG emissions clearly cross that threshold.[123] In fact, much of California's GHG emissions derive at least partly from discretionary government decisions.

A listing of all public agency projects contributing to climate change would fill a book, but a partial sampling illustrates the extent to which GHG emissions intertwine with discretionary government action. Public agencies build transportation systems,[124] control land use planning and consequent automobile use, and regulate the location of new residential, commercial, industrial, agricultural, and power-generating facilities.[125] Timber harvests, which release some of the carbon previously stored in forests and reduce their sequestration potential, are regulated by California's Board of Forestry.[126] Methane-generating agricultural or industrial practices, like construction of major dairies, typically are subject to local land use authority, and require authorization from local governments. Government decisions also affect power demand; every subdivision, industrial project, or water project[127] that public agencies approve necessitates electricity. Public agencies also are major power consumers. The single largest power user in the state is California's State Water Project, which utilizes an extraordinary amount of energy every year delivering water to users in southern California.[128] Perhaps the most telling statistics are the numbers of project decisions issued by California agencies. In an average year, those agencies file thousands of documents notifying the public that a CEQA process has been completed, and many, if not most, of those projects may in some way affect GHG emissions.[129]

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[122] *See infra* Parts II.C, II.D.

[123] *See Friends of Mammoth v. Board of Supervisors*, 8 Cal. 3d 247 (1972)

[124] *See, e.g.*, California Department of Transportation, About Caltrans, at *http://www.dot.ca.gov/aboutcaltrans.htm* (last checked September 15, 2007) (describing Caltrans' role in building state transportation infrastructure).

[125] *See, e.g., Kings County Farm Bureau v. City of Hanford*, 221 Cal. App. 3d 692 (1990) (considering the environmental consequences of constructing a new power plant); California Energy Commission, *Welcome to the California Energy Commission*, at *http://www.energy.ca.gov/commission/index.html* (explaining the CEC's role, which includes "[l]icensing thermal power plants 50 megawatts or larger").

[126] *See Big Creek Lumber Co. v. County of Santa Cruz*, 38 Cal. 4th 1139, 1146-47 (2006). That state regulatory power does not extend to the national forest system's extensive holdings within California.

[127] *See* NATURAL RESOURCES DEFENSE COUNCIL AND PACIFIC INSTITUTE, ENERGY DOWN THE DRAIN: THE HIDDEN COSTS OF CALIFORNIA'S WATER SUPPLY (2004) ("According to the Association of California Water Agencies, water agencies account for 7 percent of California's energy consumption and 5 percent of summer peak demand.").

[128] *See* ENERGY DOWN THE DRAIN, *supra* note 127, at 2 ("The California Energy Commission reports that SWP energy use accounts for 2 to 3 percent of all electricity consumed in California.").

[129] *See* Office of Planning and Research, *Environmental Document Filings with the State Clearinghouse, 1999 through 2005, at http://www.opr.ca.gov/clearinghouse/PDFs/1999-2005_All_Document_Filings.pdf.*

B. GHG-Emitting Projects and Significant Environmental Impacts

Not all discretionary public agency decisions trigger CEQA's requirements; instead, the second major trigger for CEQA's information-disclosure and mitigation obligations is a potentially significant environmental impact.[130] Projects causing increased GHG emissions create that potential. Each project's individual contribution exacerbates climate change and leaves California further from achieving the state's declared emissions-reduction goals, and the collective result of those contributions, in combination with other emissions worldwide, is a classic example-perhaps the quintessential example-of the oft-repeated CEQA maxim "that environmental damage often occurs incrementally from a variety of small sources."[131]

Individual GHG-emitting projects clearly contribute to climate change. While no individual project can claim more than a relatively small share of responsibility for the overall consequences, every GHG-emitting project does increase the problem; there is no inconsequential time or location for GHG emissions to occur.[132] Although those individual contributions might seem inconsequential if isolated and unique, CEQA precludes agencies from dismissing them as *de minimis*. The California courts have specifically rejected a *de minimis* exemption to CEQA's cumulative impact requirements, instead cautioning that "the greater the existing environmental problems are, the lower the threshold should be for treating a project's contribution to cumulative impacts as significant."[133] While emissions of conventional air pollutants may be treated as insignificant where those emissions comply with applicable plans for attaining regional air quality goals,[134] no such plans presently exist for greenhouse gases, and California has established no safe threshold for greenhouse gas emissions.[135] Instead, California's

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[130] 14 Cal. Code Regs. § 15130(b)(5). Subsection 15130(e), however, states that for certain types of projects, an EIR need not address impacts previously addressed in a prior EIR.

[131] *Communities for a Better Environment v. California Resources Agency*, 103 Cal. App. 4th 98, 114 (2002); *see id.* at 120 (observing that to exempt small contributions to big problems "contravenes the very concept of cumulative impacts").

[132] *See supra* note 26; *see also Mass. v. EPA*, 127 S. Ct. 1438, 1457-58 (2007) (rejecting EPA's argument that its contributions to climate change are insufficient to confer standing).

[133] *See Communities for a Better Environment*, 103 Cal. App 4th at 116-21.

[134] *See* 14 Cal. Code Regs. § 15064(h)(3).

[135] In a recent white paper discussing methods for addressing climate change in CEQA review, the Association of Environmental Planners suggests that "[i]t can easily be argued that proposed projects that implement all appropriate actions listed in the emissions reductions strategies relevant to the proposed project would have a less than significant impact to global climate change;" the planners argue against a no-net-emissions increase approach. MICHAEL HENDRIX ET AL., RECOMMENDATIONS BY THE ASSOCIATION OF ENVIRONMENTAL PLANNERS (AEP) ON HOW TO ANALYZE GREENHOUSE GAS EMISSIONS AND GLOBAL CLIMATE CHANGE IN CEQA DOCUMENTS 9-10 (2007) (referring to recommended actions in CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY, *supra* note 2). The California EPA report does contain many useful ideas for reducing projects' GHG emissions, and is a useful resource for agencies or activists seeking ways to reduce carbon footprints. But the planners' proposed approach cannot pass legal muster, for the California EPA report provides a set of possible, and often partially-formed or vaguely described, approaches to emissions reductions, not specific design or performance standards against which performance might feasibly be measured. In addition, the report does not assert, and could not assert, that implementing all of its proposed measures will reduce California's levels to insignificant levels; instead, it projects that those emissions could be reduced to levels consistent with the Governor's 2020 targets, yet experts project that far greater reductions are necessary. *See supra* note 78 and accompanying text.

acknowledged and urgent need for drastic reductions in GHG emissions vitiates any argument that an incremental increase, unless tiny enough to be essentially immeasurable,[136] is insignificant. Even seemingly small increases are fundamentally inconsistent with the need, repeatedly acknowledged by both the Legislature and the Governor, to cut emissions; and by pushing California further from its stated goals, every increase necessitates increased cuts in other GHG-emitting activities.[137]

The aggregate environmental effects of greenhouse gas emissions clearly are significant. Greenhouse gases pose an extraordinary environmental threat, with the potential to harm multiple ecosystems, badly damage resource-dependant economies, and diminish the health and safety of millions of people in California and elsewhere.[138] The California Legislature and Governor have repeatedly acknowledged the severity of the danger, describing climate change as "a serious threat to the economic well-being, public health, natural resources, and the environment of California."[139] And while California may face particularly acute threats, its likely burdens are by no means unique.[140] Both within and outside California's borders, climate change will create highly significant environmental impacts.[141]

CEQA decisions addressing analogous environmental threats support treating contributions to GHG emissions as significant impacts. In *Kings County Farm Bureau v. City of Hanford*, a seminal cumulative impacts case, the respondent city had approved a power plant project that would emit ozone precursors.[142] That plant's contributions would have had little effect in isolation, and represented only a small percentage of regional emissions, and the project proponent argued that those emissions therefore could not be significant.[143] The court disagreed. Noting that the small contribution would affect an area already suffering from excess air pollution, the court required the city to assess whether, given that regional context, the project's increased emissions would contribute to a significant environmental impact.[144] "The relevant question to

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[136] *Communities for a Better Environment*, 103 Cal. App 4th at 120 ("the 'one-[additional]-molecule' rule is not the law") (brackets in original; quoting REMY ET AL., *supra* note 100, at 476-78). Neither *Kings County Farm Bureau* nor *Communities for a Better Environment* explains how exactly an agency should draw the line between a project contributing one molecule to a larger problem - which contribution presumably would not constitute a significant impact - and a project contributing a cumulatively considerable amount. However, *Communities for a Better Environment's* rejection of a *de minimis* exception, along with the basic CEQA principle that the act should be interpreted to maximize environmental protection, suggests that the threshold is extremely low, particularly where the emission exacerbates non-compliance with emissions-reduction goals and the ultimate problem is vast.

[137] Executive Order S-3-05, *supra* note 58; Cal. Health and Safety Code §§ 38592(a)

[138] *See* OUR CHANGING CLIMATE, *supra* note 2.

[139] Cal. Health and Safety Code § 38501.

[140] *See* IPCC, THE PHYSICAL SCIENCE BASIS, *supra* note 3, at 12-13.

[141] *Id.*

[142] *Kings County Farm Bureau v. Hanford*, 221 Cal. App. 3d 692, 718-24 (1990).

[143] *Id.* at 718 ("The DEIR concludes the project's contributions to ozone levels in the area would be immeasurable and, therefore, insignificant because the plant would emit relatively minor amounts of precursors compared to the total volume of precursors emitted in Kings County."); *id.* at 719.

[144] *Id.* at 722 ("We find the analysis used in the EIR and urged by GWF avoids analyzing the severity of the problem and allows the approval of projects which, when taken in isolation, appear insignificant, but when viewed together, appear startling.... the standard for a cumulative impacts analysis is defined by the use of the term 'collectively significant'")

be addressed in the EIR," it held, "is not the relative amount of precursors emitted by the project when compared with preexisting emissions, but whether any additional amount of precursor emissions should be considered significant in light of the serious nature of the ozone problems in this air basin."[145] That reasoning is similarly applicable to climate change. Much as regional air quality problems derive from the small contributions of a large number of sources-none of which in isolation would seem important, and most of which would seem small in comparison to the overall scope of the problem-climate change derives from the individually minor contributions of thousands of projects and actions worldwide, all of which collectively create major consequences.

In addition to being legally mandated, discussing contributions to climate change should prove manageable. Attributing ultimate environmental outcomes solely to a specific project's emissions generally will be impossible, but the basic premise of a cumulative impacts analysis is that collective, not individual, effects matter,[146] and describing individual emissions and collective effects is a straightforward task. Ample guidance already exists for projecting an individual project's GHG emissions.[147] Likewise, ample and reliable documentation of collective effects already exists.[148] Numerous studies, both from California state agencies and from international scientific bodies, describe the anticipated consequences of global GHG emissions, and those studies can easily be quoted or summarized in CEQA-required reports.[149]

C. GHG Emissions and Avoidance or Mitigation

Because government projects and decisions measurably contribute to the GHG emissions that drive climate change, and because those emissions' cumulative environmental impacts are significant, any CEQA study must also discuss ways to avoid or mitigate the project's contributions to those impacts. Unless those measures are infeasible, no CEQA-regulated project may be

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145 *Id.* at 718.

146 *See id.* at 722; see also *National Steel Corp. v. Gorsuch*, 700 F.2d 314, 323-24 (6th Cir. 1983) (observing, in a case addressing conventional air pollutants' contributions to non-attainment of air quality standards, that "[t]he fact that there is insufficient technical knowledge to determine the precise degree to which each source contributes to nonattainment does not require that the EPA be prohibited from acting with regard to all sources.") In accordance with those principles, a legally adequate discussion of a project's potential climate change contributions could simply discuss (1) the project's projected GHG emissions; (2) the predicted environmental consequences of those emissions in combination with other similar emission worldwide (a discussion that could be largely adopted from reports issued by the IPCC, the California Climate Change Center, and others); and (3) ways of avoiding or mitigating those project-specific emissions. Describing exactly how much sea level rise or how many storms would be attributable to the specific project would be neither feasible nor useful, and CEQA does not require such discussion.

147 *See* U.S. Envtl. Prot. Agency, State Inventory Guidance, at *http://www.epa.gov/climatechange/emissions/state_guidance.html* (describing various resources for estimating GHG emissions) (last checked February 20, 2007); U.S. Envtl. Prot. Agency, Personal Emissions Calculator, at *http://www.epa.gov/climatechange/emissions/ind_calculator.html* (providing on-line calculator for individual impacts) (last checked September 15, 2007); *see also Planning and Conservation League v. Dept. of Water Resources*, 83 Cal. App. 4th 892, 919 (2000) ("CEQA does compel reasonable forecasting"). Compliance demonstrations for the Clean Air Act are based largely on emissions budgets that state and local agencies develop by predicting the likely emissions from individual projects. *See* 42 U.S.C. § 7502(c)(4).

148 Compare 14 Cal. Code Regs. §§ 15144–45 (stating that agencies need not "foresee[] the unforeseeable or address matters "too speculative for evaluation"). As described in detail in the numerous reports cited herein, the connections between GHG emissions and climate change are no longer unforeseeable or speculative.

149 *See, e.g.*, OUR CHANGING CLIMATE, *supra* note 2; IPCC, THE PHYSICAL SCIENCE BASIS, *supra* note 3; CAL. ENVTL. PROT. AGENCY, *supra* note 2.

approved without such avoidance or mitigation measures.[150] For many CEQA-regulated projects, measures feasibly capable of reducing or eliminating GHG emissions likely exist, and those measures may be both affordable and capable of generating collateral environmental and economic benefits.

1. Project Alternatives

For many proposed projects, functionally similar alternatives can vastly reduce GHG emissions. Renewable power sources, for example, provide alternatives to constructing fossil fuel power plants. Constructing transit systems often provides a lower-emissions alternative to constructing new roads. Rather than building new water delivery projects, which tend to consume huge amounts of energy, project proponents could implement water use efficiency programs, either within their own supply areas or in areas sharing common water sources.[151] Instead of breaking new ground and building new housing in undeveloped areas, local governments could limit their land use approvals to infill development projects, which tend to require substantially less energy-intensive infrastructure and result in fewer indirect GHG emissions.[152] Such alternatives won't always be feasible-some projects may unavoidably need to be located in a particular place-and often environmentally-beneficial alternatives will still create some GHG emissions, but alternatives capable of substantially reducing GHG emissions will fairly often be available.

2. On-Site Mitigation

Even if no alternative is capable of avoiding a project's emissions, on-site measures often are capable of substantially mitigating greenhouse gas emissions. For example, developers can use green-building technology and renewable power systems, and build housing with ready transit access and internal or nearby options for grocery shopping and recreation, reducing their projects' energy footprint.[153] A variety of measures, ranging from reliance on recycled water for outdoor irrigation to utilization of water-conserving technologies and tiered pricing, can significantly reduce the amount of energy required to transport, distribute, heat, and dispose of water.[154] Highways, if necessary, can include HOV lanes. Dairy farms and landfills can be

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[150] If mitigation is not available, and significant impacts remain, the lead agency must provide a statement explaining why "overriding... benefits" justify proceeding with the project. *See* Cal. Pub. Res. Code § 21081(b).

[151] *See, e.g.*, ENERGY DOWN THE DRAIN, *supra* note 127, at 34 (describing the costs and benefits of alternative methods of boosting San Diego's water supplies).

[152] Many air pollution control districts already publish guidelines for development patterns that minimize emissions of other pollutants, and the same principles can help minimize GHG emissions. *See, e.g.*, San Luis Obispo County Air Pollution Control District, Residential Design Considerations, available at *http://www.slocleanair.org/business/pdf/residential%20flyer.pdf* (last checked September 15, 2007); SOLANO TRANSPORTATION AUTH. ET AL., TRANSPORTATION AND LAND USE TOOLKIT (2003), available at *http://www.ysaqmd.org/planning-info.php*.

[153] *See* San Luis Obispo County Air Pollution Control District, *supra* note 152; SOLANO TRANSPORTATION AUTH. ET AL., *supra* note 152.

[154] *See* ENERGY DOWN THE DRAIN, *supra* note 127 (describing measures capable of reducing water use, and explaining their benefits).

constructed with methane-recovery technologies.[155] These examples provide only a partial sampling, and as efforts toward GHG management intensify, an increasing variety of mitigation measures will likely become available.

3. Off-Site Mitigation

Sometimes neither project alternatives nor on-site mitigation measures will be capable of fully avoiding GHG emissions.[156] But even for those projects, off-site mitigation should allow projects to avoid contributing to GHG emissions. The primary available method is generally known as emissions trading.

The concept behind emissions trading is fairly straightforward. To compensate for increased emissions resulting from its project, a project proponent can either reduce its own emissions elsewhere; pay some other entity to commensurately reduce emissions; or undertake or fund actions that will permanently sequester an equivalent amount of carbon.[157] For example, a municipality approving a housing development that unavoidably will contribute tons of carbon each year might implement a city-wide energy efficiency program creating equivalent reductions in carbon emissions. The compensation need not be exactly in kind; for example, the emissions deriving from a new transportation project might be offset by funding the conversion of abandoned agricultural land to a permanent forest.[158]

If well-designed and transparent, emissions trades can fulfill CEQA's mitigation requirements. Using offsets-purchasing conservation easements as partial mitigation for conversion of farmlands or habitat, for example, or constructing new wetlands to compensate for wetlands destroyed-already is a common mitigation practice, and agencies often mitigate project impacts by contributing fees to regional mitigation programs.[159] Likewise, in some areas with deficient air quality new projects must offset emissions by purchasing reduction credits from existing sources.[160] Such approaches have legal limitations; a "commitment to pay fees without any evidence that mitigation will actually occur is inadequate" under CEQA, and fictitious or non-verifiable offsets therefore cannot constitute

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[155] *See* United States Environmental Protection Agency, Methane, at *http://www.epa.gov/methane/projections.html* (last checked September 15, 2007).

[156] Even projects widely viewed as otherwise socially and environmentally desirable-installing infill or low income housing, for example, or operating water-recycling facilities, or developing transit systems-still create GHG emissions, unless those projects are able to purchase their energy from sustainable sources. On-site mitigation measures can and should be used to reduce those emissions, but rarely will those measures eliminate emissions entirely.

[157] *See* The Climate Trust, About Offsets, at *http://www.climatetrust.org/about_offsets.php* (last checked September 15, 2007).

[158] *See, e.g., id.*

[159] *See* 14 Cal. Code Regs. § 15130(a)(3) (allowing this practice).

[160] *E.g.*, Berkeley Keep Jets over the Bay Com. v. Board of Port Commissioners, 91 Cal. App. 4th 1344, 1365 (2001) (referring to this technique); Kings County Farm Bureau v. City of Hanford, 221 Cal. App. 3d 692, 713 (1990) (same).

proper mitigation.[161] But so long as the reality of reductions or sequestration is rigorously verifiable, emissions trades should pass legal muster. Emissions trades also can facilitate mitigation that otherwise would not occur. While CEQA lead agencies sometimes may plausibly assert that off-site alternatives or on-site measures simply aren't capable of fully mitigating a project's emissions, purchasing offsets generally will be feasible; such offsets already are available.[162] Similarly, while project proponents might often argue that projects' climate change contributions are too small to justify full-scale environmental review or to necessitate alternatives or on-site mitigation methods, trading creates a correspondingly non-intrusive method for mitigating minor emissions. If a project's emissions contributions really are small, so too will be the cost of offsets, and *de minimis* arguments should provide no policy rationale for avoiding the mitigation measures that established CEQA rules require.[163] Trades thus can facilitate emissions reductions that agencies otherwise might not implement.

CONCLUSION

In coming years, local, state, and national governments will likely take many steps to regulate GHG emissions and reduce climate change. Those actions are indispensable; if we are to address this challenge, we have no choice but to develop new legal regimes and regulatory approaches. But the mandates of existing law also can help. The core principles of CEQA already require California's public agencies to evaluate and take steps toward addressing climate change. Compliance with those mandates can move the state-and, potentially, the nation and the world-toward resolving one of the most pressing environmental problems of our era.

This legal memo will be published in the Columbia Journal of Environmental Law in 2008.

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[161] *City of Marina v. Board of Trustees of California State University*, 39 Cal. 4th 341, 365 (2006). For a critique of offsets, and an explanation of the transparency and verifiability problems poorly-designed offset programs can present, see TONY DUTZIK AND ROB SARGENT, STOPPING GLOBAL WARMING BEGINS AT HOME: THE CASE AGAINST THE USE OF OFFSETS IN A REGIONAL POWER SECTOR CAP-AND-TRADE PROGRAM 9-11 (2004). *See also* Fiona Harvey and Stephen Fidler, *Industry Caught in Carbon 'Smokescreen,'* FINANCIAL TIMES, April 25, 2007, at *http://www.ft.com/cms/s/48e334ce-f355-11db-9845-000b5df10621.html.*

[162] *See, e.g.*, The Climate Trust, at *http://www.climatetrust.org/index.php* (last checked September 15, 2007); The Climate Exchange, *The Carbon Counter*, at *www.carboncounter.org*; A New Approach to Global Warming, THE ECONOMIST, Oct. 17, 2002 (describing the Chicago Climate Exchange); Jeff Goodell, Capital Pollution Solution?, NEW YORK TIMES, July 30, 2006 (discussing the Chicago Climate Exchange, and also describing the reservations of some of its critics).

[163] *See Communities for a Better Environment v. California Resources Agency*, 103 Cal. App. 4th 98, 116-21 (2002) (rejecting a *de minimis* exception to CEQA's cumulative impacts requirements). Offsets thus could allow agencies pursuing low-emissions projects to avoid the expense of preparing an EIR. Rather than arguing, probably unsuccessfully, that their emissions are insignificant, those agencies could offset their contribution and thus proceed under a mitigated negative declaration.

Additional climate resources/environmental gateway pages:

Planning and Conservation League: *http://www.pcl.org/*

Planning and Conservation League Foundation: *http://www.pclfoundation.org/*

National Wildlife Federation: *http://www.nwf.org/*

National Environmental Trust: *http://www.net.org/*

U.S. Fish and Wildlife Service: *http://www.fws.gov/*

National Environmental Policy Act (NEPA): *http://www.law.indiana.edu/envdec/a.html*

California Resources Agency: *http://resources.ca.gov/*

California Department of Fish and Game: *http://www.dfg.ca.gov/*

California Natural Diversity Database: *http:/www.dfg.ca.gov/bdb/html/cnddb.html*

Information Center for the Environment (UC Davis): *http://ice.ucdavis.edu/*

CEQAnet database: *http://www.ceqanet.ca.gov/*

Intergovernmental Panel on Climate Change: *http://www.ipcc.ch/*

U.S. EPA Climate Change: *http://www.epa.gov/climatechange/*

Pew Center on Global Climate Change: *http://www.pewclimate.org/*

California Climate Change Portal: *http://www.climatechange.ca.gov/index.html*

California Climate Action Team and Climate Change Initiative:
http://www.climatechange.ca.gov/climate_action_team/index.html

California Air Resources Climate Change: *http://www.arb.ca.gov/cc/cc.htm*

California Air Resources Board Climate Change Program for Mobile Sources:
http://www.arb.ca.gov/cc/ccms/ccms.htm

California Energy Commission Climate Change Proceedings:
http://www.energy.ca.gov/global_climate_change/

California Climate Action Registry: *http://www.climateregistry.org/Default.aspx?refreshed=true*

Our Changing Climate: Assessing the Risks to California - Summary Report
California Climate Change Center:
http://www.energy.ca.gov/2006publications/CEC-500-2006-077/CEC-500-2006-077.PDF

Progress on Incorporating Climate Change into Management of California's Water Resources
California Department of Water Resources:
http://baydeltaoffice.water.ca.gov/climatechange/DWRClimateChangeJuly06.pdf
Inventory of California Greenhouse Gas Emissions and Sinks 1990-2004 California Energy Commission:
http://www.climatechange.ca.gov/policies/greenhouse_gas_inventory/index.html

on 10 Sept (8)

Technical Support Document for Staff Proposal Regarding Reduction of Greenhouse Gas Emissions from Motor Vehicles - Climate Change Overview (2004) California Air Resources Board:

http://www.arb.ca.gov/cc/factsheets/support_ccoverview.pdf

Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001:
http://www.owue.water.ca.gov/Guidebook.pdf

CEQA net database: *http://www.ceqanet.ca.gov/*

Publications about CEQA

Guide to the California Environmental Quality Act
By Tina A. Thomas, James G. Moose, and Whitman F. Manley
(2006 [Eleventh] edition Solano Press) Single soft bound volume.
This is a very complete review of CEQA and includes a listing of the major CEQA cases, and useful index to topics covered in this book. The 2006 edition costs $85 plus tax, shipping and handlings. To order call Solano Press at (800) 931-9373. Solano press is also on the Internet at:0 *http://www.solano.com* email address: *spbooks@solano.com.*

Practice Under the California Environmental Quality Act
By Stephen Kostka and Michael Zischke 2-volume loose leaf.
This is also a very complete review of CEQA and includes the statute, Guidelines, and an index. Because it is loose leaf within a hard-shell three ring binder, it is updated regularly. (The last updated version costs $263.00 plus shipping and handling.) To order, call CEB at (800) 232-3444. Order online: *www.ceb.com.*

The California Environmental Quality Act - On the Front Line of California's Fight Against Global Warming
By Siegel, Vespa & Nowicki (Center for Biological Diversity, September 2007)
To download this report go to:
http://www.biologicaldiversity.org/swcbd/programs/policy/energy/CBD-CEQA-white-paper-10-03-07.pdf

Other Publications Referred to in Guide

An Inconvenient Truth - The Planetary Emergency of Global Warming and What We Can Do About It
By Al Gore (2006, RODALE).

Everyday Heroes Protect the Air We Breath, the Water We Drink, and the Natural Areas We Prize; Thirty Five Years of the California Environmental Quality Act
By PCL, PCL Foundation and California League of Conservation Voters
Everyday Heroes is a compilation of over 75 California Environmental Quality Act success stories written by a number of California's environmental leaders. You can download this report visiting: *http://www.pcl.org/projects/everydayheroes.html* or purchase a hard copy visiting: *http://www.pclfoundation.org/general/publications.html.*

Sciencexpress Report

Model Projections of an Imminent Transition to a More Arid Climate in Southwestern North America

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How anthropogenic climate change will impact hydroclimate in the arid regions of Southwestern North America has implications for the allocation of water resources and the course of regional development. Here we show that there is a broad consensus amongst climate models that this region will dry significantly in the 21st century and that the transition to a more arid climate should already be underway. If these models are correct, the levels of aridity of the recent multiyear drought, or the Dust Bowl and 1950s droughts, will, within the coming years to decades, become the new climatology of the American Southwest.

The Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) reported that the average of all the participating models showed a general decrease in rainfall in the subtropics during the 21st century although there was also considerable disagreement amongst the models (*1*). Subtropical drying accompanying rising CO_2 is also found in the models participating in the second Coupled Model Intercomparison Project (*2*). Here we examine future subtropical drying by analyzing the time history of precipitation in 19 climate models participating in the Fourth Assessment Report (AR4) of the IPCC (*3*). The future climate projections followed the A1B emissions scenario (*4*) in which CO_2 emissions increase until about 2050 and decrease modestly thereafter leading to a CO_2 concentration of 720 ppm in 2100. We also analyzed the simulations by these models of the 1860–2000 period in which the models were forced by the known history of trace gases and, with some variation amongst the models, estimated changes of solar irradiance, volcanic and anthropogenic aerosols and land use. These simulations provide initial conditions for the 21st century climate projections. For each model, climatologies were computed over the 1950–2000 period by averaging over all the simulations available for each model. All climate changes shown are departures from this climatology.

We define an area (shown as a box on Fig. 4) called 'The Southwest' including all land between 125°W and 95°W and 25°N and 40°N that incorporates the southwestern United States and parts of northern Mexico . Fig. 1 shows the modeled history and future of the annual mean precipitation minus evaporation ($P-E$) averaged over this region for the period common to all the models, 1900–2098. The median, 25th and 75th percentiles of the model $P-E$ distribution and the median of P and E are shown. For cases in which there were multiple simulations with a single model these were averaged together before computing the distribution. $P-E$ equals the moisture convergence by the atmospheric flow and, over land, the amount of water that goes into runoff.

In the multi-model ensemble mean there is a transition to a sustained drier climate that begins in the late 20th and early 21st centuries. In the ensemble mean both P and E decrease but the former by a larger amount. $P-E$ primarily reduces in winter when P reduces and E is unchanged or modestly increased while in summer both P and E decrease (not shown). The annual mean reduction in P for this region, calculated from rain gauge data within the Global Historical Climatology Network, was 0.09 mm/day between 1932 and 1939 (the Dust Bowl drought) and 0.13 mm/day between 1948 and 1957 (the 1950s Southwest drought). The ensemble median reduction in P that drives the reduction in $P-E$ reaches 0.1 mm/day in mid-century and one quarter of the models reach this in the early part of the current century.

Figure 2 shows for the 19 models the annual mean $P-E$ difference between 20 year periods in the 21st century and the model's 1950–2000 climatology. Almost all models have a drying trend in the American Southwest and consistently so throughout the century. Only one of the 19 models has a trend to a wetter climate. Of the total of 49 individual projections conducted with the 19 models, even as early as the 2021 to 2040 period, only 3 show a shift to a wetter climate. Examples of modeled history and future precipitation for single simulations of four individual models are shown in Fig. 3 and provide an idea of potential trajectories towards the more arid climate.

Figure 4 shows (contours, all panels) a map of the change in $P-E$ for the decades between 2021 and 2040 minus the

Enclosure (9)

1950–2000 period for one of the IPCC models: the Geophysical Fluid Dynamics Laboratory climate model CM2.1 (*5*). In general, large regions of the relatively dry subtropics dry further while wetter higher latitude regions become wetter still. In addition to the American Southwest, the Southern Europe-Mediterranean-Middle East region also experiences a severe drying. This pattern of subtropical drying and moistening at higher latitudes is a robust feature of current projections with different models of future climate (*6*).

The change (δ) in $P-E$ (in m/s) is balanced by a change in atmospheric moisture convergence, viz.:

$$\rho_w g\delta(P-E) = -\delta\left(\int_0^{p_s} \nabla\cdot(\overline{\underline{u}}\,\overline{q})dp + \int_0^{p_s} \nabla\cdot(\overline{\underline{u}'q'})dp\right) \quad (1)$$

Overbars indicate monthly means and primes departures from the monthly mean, ρ_w is the density of water. The change in moisture convergence can be divided into contributions from the 'mean flow' and from 'eddies'. In the former the atmospheric flow $(\overline{\underline{u}})$ and the moisture $(\overline{q})$ are averaged over a month before computing the moisture transport, while the latter is primarily associated with the highly variable wind $(\underline{u}')$ and moisture (q') fields within storm systems. The moisture convergence is integrated over pressure (p) from the top of the atmosphere ($p = 0$) to the surface (p_s). The mean wind and humidity fields in Eq. 1 can be taken to be their climatological fields. (The rectification of interannual variability in the monthly mean flow and moisture fields is found to be negligible.) Changes in the mean flow contribution can, in turn, be approximated by one part associated with the 1950–2000 climatological circulation $(\overline{\underline{u}}_P)$ operating on the increase in climatological atmospheric humidity $(\delta\overline{q}$, a consequence of atmospheric warming) and another part due to the change in circulation climatology $(\delta\overline{\underline{u}})$ operating on the 1950–2000 atmospheric humidity climatology $(\overline{q}_P)$. The nonlinear term involving changes in both the mean flow and moisture field is found to be relatively small (not shown). Hence Eq. 1 can be approximated by:

$$\rho_w g\delta(P-E) \sim -\int_0^{p_s} \nabla\cdot(\overline{q}_P\delta\overline{\underline{u}} + \overline{\underline{u}}_P\delta\overline{q})dp - \delta\int_0^{p_s} \nabla\cdot(\overline{\underline{u}'q'})dp \quad (2)$$

We therefore think in terms of a three-fold decomposition of $P-E$, as displayed in Fig. 4 (colors) for the GFDL CM2.1 model: a contribution from the change in mean circulation, a contribution from the change in mean humidity, and a contribution from eddies.

The mean flow convergence term involving only changes in humidity (Fig. 4B) causes increasing $P-E$ in regions of low level mean mass convergence and decreasing $P-E$ in regions of low level mean mass divergence, generally intensifying the existing pattern of $P-E$ (*6*). This term helps explain much of the reduction in $P-E$ over the subtropical oceans where there is strong evaporation, atmospheric moisture divergence and low precipitation (*6*). Over land areas, in general, there is no infinite surface water source and $P-E$ has to be positive and sustained by atmospheric moisture convergence. Over the American Southwest, in the current climate, it is the time varying flow that sustains most of the positive $P-E$ while the mean flow diverges moisture away. Here, the 'humidity contribution' leads to reduced $P-E$ as the moisture divergence by the mean flow increases with rising humidity. Over the Mediterranean region there is mean moisture divergence and again rising humidity leads to increased mean moisture divergence and reduced $P-E$.

Over the ocean the contribution of humidity changes to changes in $P-E$ can be closely approximated by assuming that the relative humidity remains fixed at its 1950–2000 values (*6*). Over almost all land areas, and especially over those that have reduced $P-E$, the relative humidity decreases in the early 21st century. This is because, unlike over the ocean, evaporation cannot keep pace with the rising saturation humidity of the warming atmosphere. Over land the humidity contribution to the change in $P-E$ is distinct from that associated with fixed relative humidity.

Decreases in $P-E$ can also be sustained by changes in atmospheric circulation that alter the mean moisture convergence even in the absence of changes in humidity (Fig. 4A). This 'mean circulation contribution' leads to reduced $P-E$ at the northern edge of the subtropics (e.g. the Mediterranean region, the Pacific and Atlantic around 30°N and parts of southwestern North America). The change in moisture convergence by the transient eddies (Fig. 4C) dries southern Europe and the subtropical Atlantic and moistens the higher latitude Atlantic but does not have a coherent and large impact over North America.

A significant portion of the mean circulation contribution, especially in winter, can be accounted for by the change in zonal mean flow alone (not shown), indicating that changes in the Hadley Cell and the extratropical mean meridional circulation are important. In summary, increases in humidity and mean moisture divergence, changes in atmospheric circulation and intensification of eddy moisture divergence, cause drying in the subtropics, including over western North America and the Mediterranean region. For the Southwest region, the annual mean $P-E$ reduces by 0.086 mm/day which is largely accounted for by an increase in the mean flow moisture divergence. Changes in the circulation alone contribute 0.095 mm/day of drying and changes in the humidity alone contribute 0.032 mm/day. This is modestly offset by an increased transient eddy moisture convergence of 0.019 mm/day.(*7*).

Within models the poleward edge of the Hadley Cell and the mid-latitude westerlies move poleward during the 21st century (*8–10*). The descending branch of the Hadley Cell causes aridity and hence the subtropical dry zones expand poleward. In models, a poleward circulation shift can be forced by rising tropical SSTs in the Indo-Pacific region (*11*) and by uniform surface warming (*12*). The latter results are relevant because the spatial pattern of surface warming in the AR4 models is quite uniform away from the poles. One explanation (*13, 14*) is that rising tropospheric static stability, an established consequence of moist thermodynamics, stabilizes the subtropical jet streams at the poleward flank of the Hadley Cell to baroclinic instability. Consequently the Hadley Cell extends poleward, increasing the vertical wind shear at its edge, to a new latitude where the shear successfully compensates for the suppression of baroclinic instability by rising static stability.

While increasing stability is likely to be a significant component of the final explanation, a fully satisfying theory for the poleward shift of the zonal mean atmospheric circulation in a warming world must account for the complex interplay between the mean circulation (Hadley Cell and the mid-latitude Ferrell Cell) and the transient eddies (*13, 14*) that will determine where precipitation will increase and decrease in the future. However not all of the subtropical drying in the Southwest and Mediterranean region can be accounted for by zonally symmetric processes and a full explanation will require attention to moisture transport within localized storm tracks and stationary waves.

The six severe, multiyear, droughts that have struck western North America in the instrumental record have all been attributed, using climate models, to variations of sea surface temperatures (SSTs) in the tropics, particularly persistent La Niña-like SSTs in the tropical Pacific Ocean (*15–19*). The future climate of intensified aridity in the Southwest is caused by different processes since the models vary in their tropical SST response to anthropogenic forcing. Instead it is caused by rising humidity that causes increased moisture divergence and changes in atmospheric circulation cells that include a poleward expansion of the subtropical dry zones. The drying of subtropical land areas that, according to the models is imminent or already underway, is unlike any climate state we have seen in the instrumental record. It is also distinct from the multidecadal megadroughts that afflicted the American Southwest during Medieval times (*20-22*) which have also been attributed to changes in tropical SSTs (*18, 23*). The most severe future droughts will still occur during persistent La Niña events but they will be worse than any since the Medieval period because the La Niña conditions will be perturbing a base state that is drier than any experienced recently (*25*).

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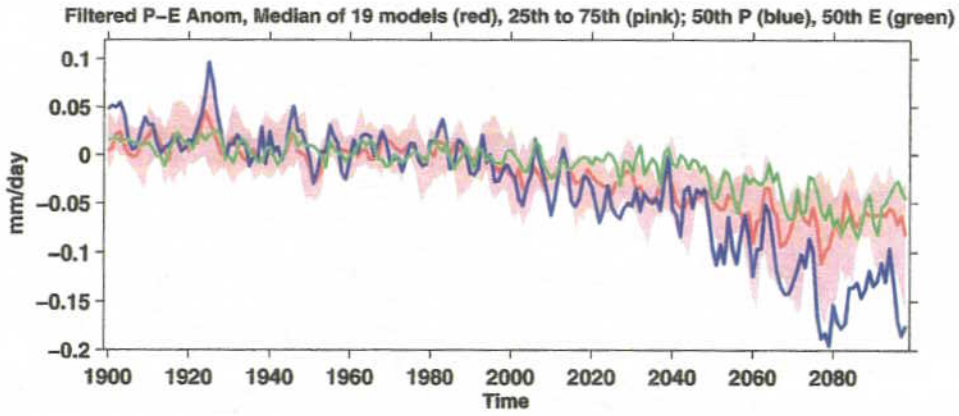
5 January 2007; accepted 26 March 2007
Published online 5 April 2007; 10.1126/science.1139601
Include this information when citing this paper.

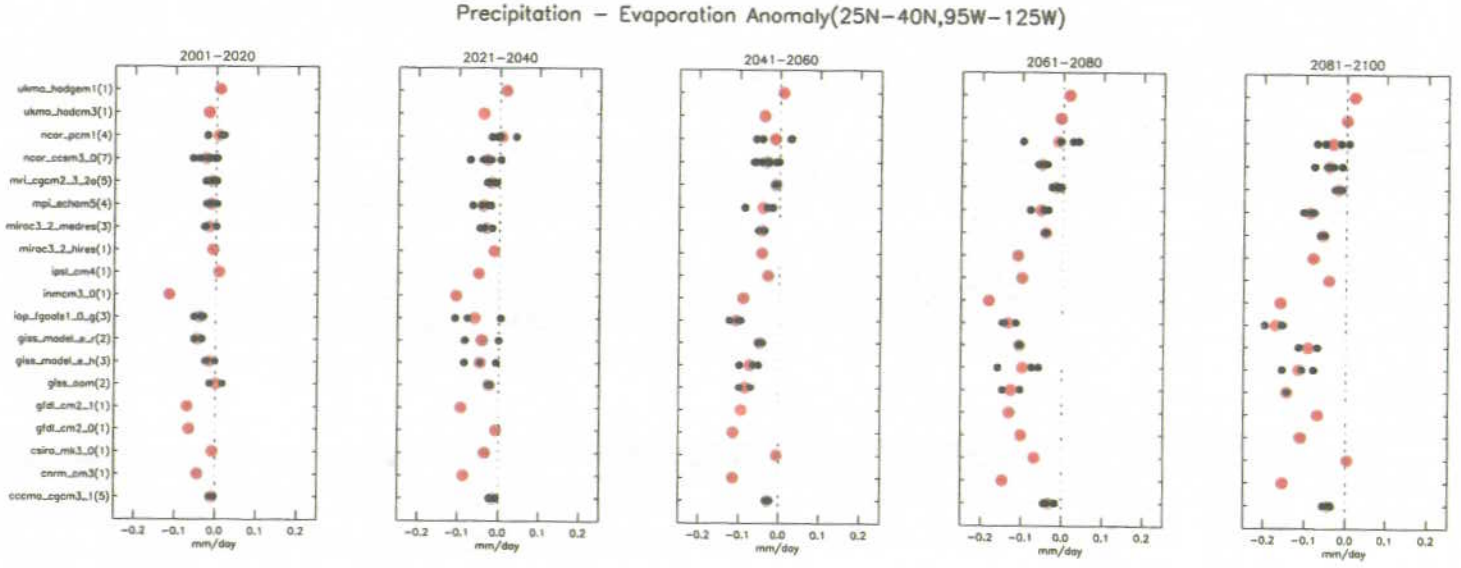
Fig. 1: Modeled changes in annual mean precipitation minus evaporation over the American Southwest (125°W–95°W, 25°N–40°N, land areas only) averaged over ensemble members for each of the 19 models. The historical period used known and estimated climate forcings and the projections used the SResA1B emissions scenario. Shown are the median (red line) and 25th and 75th percentiles (pink shading) of the *P–E* distribution amongst the 19 models, and the ensemble medians of *P* (blue line) and *E* (green line) for the period common to all models (1900 to 2098). Anomalies for each model are relative to that model's climatology for 1950–2000. Results have been six year low pass Butterworth filtered to emphasize low frequency variability that is of most consequence for water resources. Units are in mm/day. The model ensemble mean *P–E* in this region is around 0.3 mm/day.

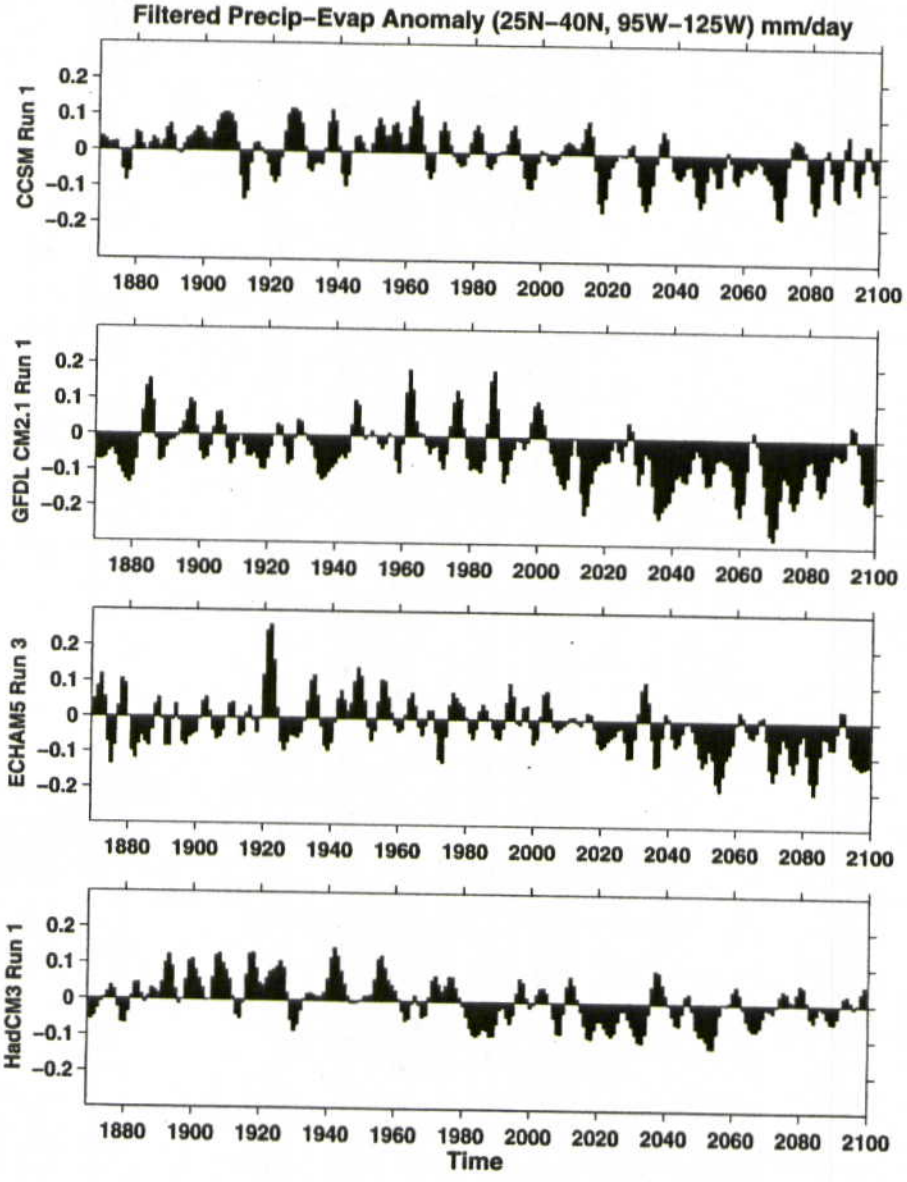
Fig. 2: The change in annual mean *P–E* over the American Southwest (125°W–95°W, 25°N–40°N, land areas only) for 19 models relative to model climatologies for 1950-2000. Results are averaged over twenty year segments of the current century. The number of ensemble members for the projections are listed by the model name at left. Black dots represent ensemble members, where available, and red dots represent the ensemble mean for each model. Units are in mm/day.

Fig. 3: The change in annual mean *P–E* over the American Southwest (125°W–95°W, 25°N–40°N, land areas only) for four coupled models relative to model ensemble mean climatologies for 1950–2000. The results are from individual simulations of the 1860 to 2000 period forced by known and estimated climate forcings and individual projections of future climate using the SResA1B scenarios of climate forcings. Since the modeled anomalies have not been averaged together here these time series provide an idea of plausible evolutions of Southwest climate towards a more arid state. The models are the National Center for Atmospheric Research Community Climate System Model, Geophysical Fluid Dynamics Laboratory model CM2.1, Max Planck Institut Für Meteorologie model ECHAM5 and Hadley Centre for Climate Change model HadCM3. All time series are for annual mean data and a six year low pass Butterworth filter has been applied. Units are in mm/day.

Fig. 4: The change in annual means of *P–E* for 2021–2040 minus 1950–2000 (all panels, contours) and contributions to the change in vertically integrated moisture convergence (colors, negative values imply increased moisture divergence) by the mean flow due to changes in the flow (top), the specific humidity (middle) and the transient eddy moisture convergence (bottom), all for the GFDL CM2.1 model. The box shows the area we define as the "Southwest."

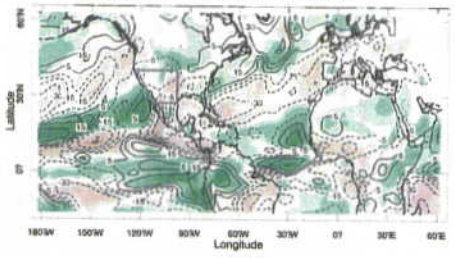

Filtered P–E Anom, Median of 19 models (red), 25th to 75th (pink); 50th P (blue), 50th E (green)
mm/day
0.1
0.05
0
−0.05
−0.1
−0.15
−0.2
1900
1920
1940
1960
1980
2000
2020
2040
2060
2080
Time


Precipitation – Evaporation Anomaly(25N–40N,95W–125W)
2001–2020
2021–2040
2041–2060
2061–2080
2081–2100
ukmo_hadgem1(1)
ukmo_hadcm3(1)
ncar_pcm1(4)
ncar_ccsm3_0(7)
mri_cgcm2_3_2a(5)
mpi_echam5(4)
miroc3_2_medres(3)
miroc3_2_hires(1)
ipsl_cm4(1)
inmcm3_0(1)
iap_fgoals1_0_g(3)
giss_model_e_r(2)
giss_model_e_h(3)
giss_aom(2)
gfdl_cm2_1(1)
gfdl_cm2_0(1)
csiro_mk3_0(1)
cnrm_cm3(1)
ccsmo_cgcm3_1(5)
−0.2 −0.1 0.0 0.1 0.2
mm/day

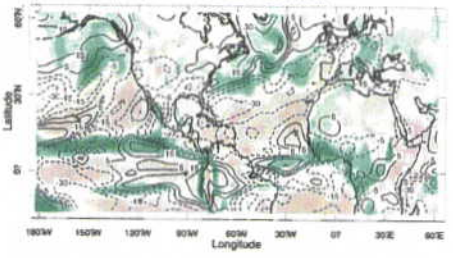

Filtered Precip–Evap Anomaly (25N–40N, 95W–125W) mm/day
CCSM Run 1
GFDL CM2.1 Run 1
ECHAM5 Run 3
HadCM3 Run 1
0.2
0.1
0
−0.1
−0.2
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Contributions to Change in Moisture Convergence (2021-2040) - (1950-2000)

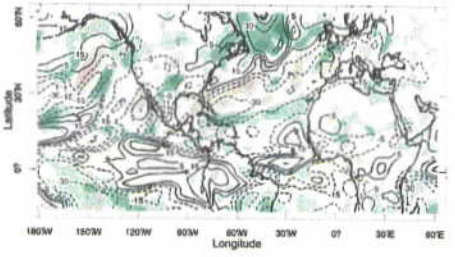
a) Mean Circulation Contribution



b) Q Contribution to Mean



c) Transient Contribution







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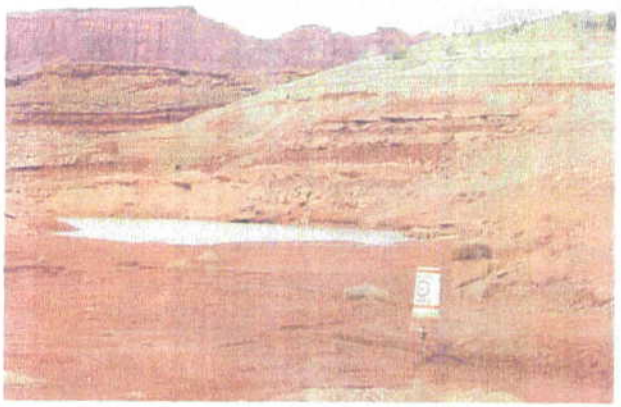
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An imminent transition to a more arid climate in southwestern North America

Richard Seager
Lamont-Doherty Earth Observatory of Columbia University

Take home lessons:

1. **Southwestern North America and other subtropical regions are going to become increasingly arid as a consequence of rising greenhouse gases.**
2. **The transition to a drier climate should already be underway and will become well established in the coming years to decades, akin to permanent drought conditions.**
3. **This is a robust result in climate model projections that has its source in well represented changes in the atmospheric hydrological cycle related to both rising humidity in a warmer atmosphere and poleward shifts of atmospheric circulation features.**



Low water at Lake Powell (April 2003. Farley Canyon), photo by Eric Nyre, Canoe Colorado.

Projections of anthropogenic climate change conducted by nineteen different climate modeling groups around the world, using different climate models, show widespread agreement that Southwestern North America - and the subtropics in general - are on a trajectory to a climate even more arid than now. According to the models, human-induced aridification becomes marked early in the current century. In the Southwest the levels of aridity seen in the 1950s multiyear drought, or the 1930s Dust Bowl, become the new climatology by mid-century: a perpetual drought. *A PDF of the complete article (Seager et.al, 2007) can be downloaded from Science Express.*

Mechanisms of Southwest and subtropical drying

Drying of the Southwest and the subtropics are caused by large scale changes in the atmospheric branch of the hydrological cycle. There are two aspects of this:

1. The subtropics are already dry because the mean flow of the atmosphere moves moisture out of these regions whereas the deep tropics and the higher latitudes are wet because the atmosphere converges moisture into those regions. As air warms it can hold more moisture and this existing pattern of the divergence and convergence of water vapor by the atmospheric flow intensifies. This makes dry areas drier and wet areas wetter.
2. As the planet warms, the Hadley Cell, which links together rising air near the Equator and descending air in the subtropics, expands poleward. Descending air suppresses precipitation by drying the lower atmosphere so this process expands the subtropical dry zones. At the same time, and related to this, the rain-bearing mid-latitude storm tracks also shift poleward. Both changes in atmospheric circulation, which are not fully understood, cause the poleward flanks of the subtropics to dry.

Besides Southwestern North America other land regions to be hit hard by subtropical drying include southern Europe, North Africa and the Middle East as well as parts of South America.

Future drying: historical droughts and Medieval megadroughts

The dynamical causes of imminent subtropical drying appear distinct from the causes of historical North American droughts such as occurred in the 1950s and during the 1930s Dust Bowl. Climate modeling has led to those being related to small, naturally occurring, changes in tropical Pacific (and, to a lesser extent, tropical Atlantic) sea surface temperature that also drive a change in atmospheric circulation that places anomalous

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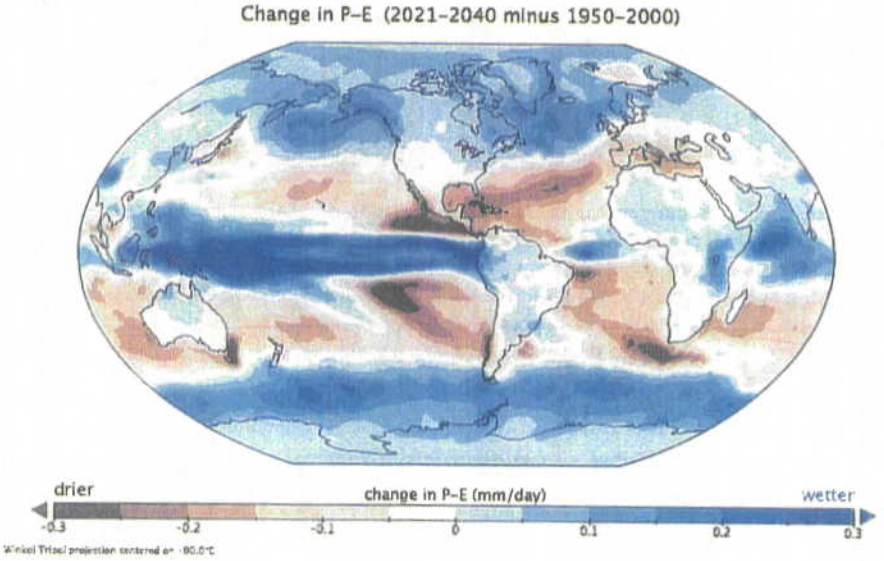
descent over Southwestern North America. See our Drought Research homepage and the page on the Causes and consequences of the nineteenth century droughts in North America.

The succession of 'megadroughts' - droughts like the Dust Bowl but which lasted for decades at a time - that occurred in the West in Medieval times have also been linked to equally persistent La Nina-like conditions in the tropical Pacific. However it is thought that the Sun was relatively strong at this time and volcanism weak which both would have resulted in positive radiative forcing of the climate system akin to rising greenhouse gases today. The differences and similarities of future drying with the Medieval megadroughts, and their global atmosphere-ocean contexts, needs to be determined. See our page on the North American Medieval megadroughts.

In contrast to historical droughts, future drying is not linked to any particular pattern of change in sea surface temperature but seems to be the result of an overall surface warming driven by rising greenhouse gases. Evidence for this is that subtropical drying occurs in atmosphere models alone when they are subjected to uniform increases in surface temperature.

Will this really happen and what are the implications?

Imminent drying of the Southwest and subtropics in the models is such a robust result because it does not depend on poorly understood and highly parameterized parts of the model (such as cloud physics) but instead arises as a response of the large scale atmospheric dynamics - which we think is quite well represented in models - to a warming world. Similarly there is little reason to think that the models are wrong to have this response even if the dynamics involved need to be fully worked out.



Change in precipitation (P) minus surface evaporation (E) for the 2021-2040 period minus the average over 1950-2000. Results are averaged over simulations with 19 different climate models. P-E is the net flux of water at the surface that, over land, sustains soil moisture, groundwater and river runoff. Figure by N. Naik.

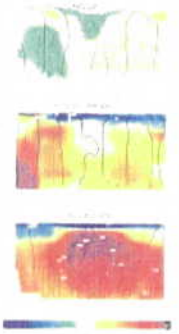
Drying of arid lands in the southwestern United States and northern Mexico will have important consequences for water resources, regional development and cross border relations and migration. According to the models the drying should already be underway and, over the length of time it takes to plan significant changes in water resource engineering and allocation (years to a few decades), will become well established.

How could we tell if this is happening?

(click on figure to enlarge)

The historical droughts were forced by natural variability of the tropical atmosphere-ocean system: persistent La Nina-like events in the tropical Pacific with a warm subtropical North Atlantic sometime playing a supporting role. Future drying is caused by overall warming. The aspect of the atmospheric circulation common to both is poleward shifted jet streams and mid-latitude storm tracks. But there are important differences that may allow identification of whether any drought that occurs is a naturally occurring one - and can be expected to end - or is anthropogenic - and can be expected to continue. For example droughts associated with persistent

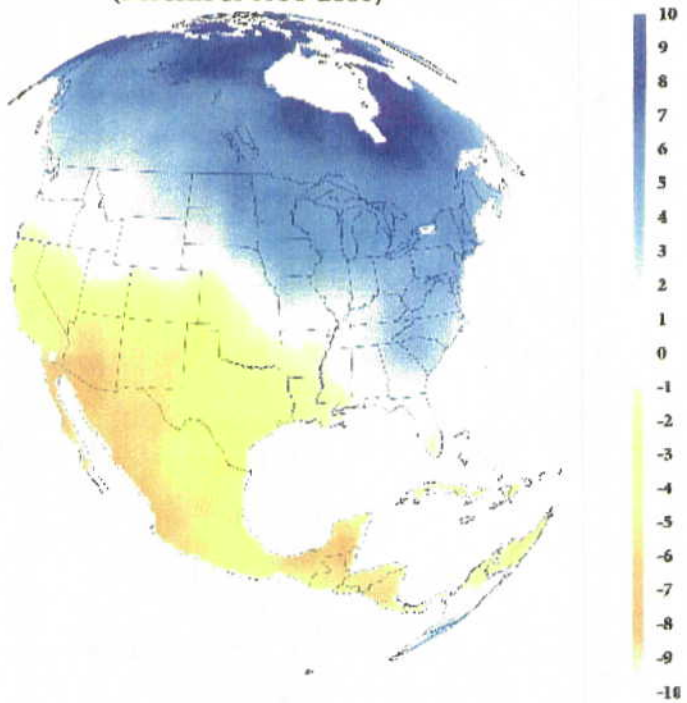
La Nina events involve increased heat uptake in the eastern and central equatorial Pacific Ocean and, hence, a cool tropical troposphere. The atmospheric dynamical response to this induces warming in the mid-latitudes. In contrast anthropogenic droughts will go along with warming almost everywhere and a maximum warming in the upper tropical troposphere. The tropical and subtropical zonal mean zonal winds are, necessarily, also distinct for natural and anthropogenic droughts. These differences may allow identification of onset of anthropogenic drying. Why La Nina events and global warming both induce subtropical drying is an active topic of research in atmospheric dynamics. Click on the thumbnail on the right for a relevant figure.



See also the GFDL Climate Modeling Research Highlight (volume 1, n5): *Will the wet get wetter and the dry drier?*

This work was performed as a collaboration of the scientists at Lamont-Doherty Earth Observatory (R. Seager, M.F. Ting, Y. Kushnir, H.-P. Huang, J. Velez, C. Li, N. Naik) NOAA Geophysical Fluid Dynamics Laboratory (I.M. Held, G. Vecchi, N.-C. Lau, A. Leetmaa) the National Center for Atmospheric Research (J. Lu) and Tel-Aviv University (N. Harnik).

Projected Change in Precipitation 1950-2000 to 2021-2040
(Percent of 1950-2000)



Projected change in precipitation for the 2021-2040 period minus the average over 1950-2000 as a percent of the 1950-2000 precipitation. Results are averaged over simulations with 19 different climate models. Figure by G. Vecchi.

References:

- R. Seager, M.F. Ting, I.M. Held, Y. Kushnir, J. Lu, G. Vecchi, H.-P. Huang, N. Harnik, A. Leetmaa, N.-C. Lau, C. Li, J. Velez, N. Naik, 2007. Model Projections of an Imminent Transition to a More Arid Climate in Southwestern North America. *Science*, Vol. 316. no. 5828, pp. 1181 - 1184 DOI: 10.1126/science.1139601. PDF

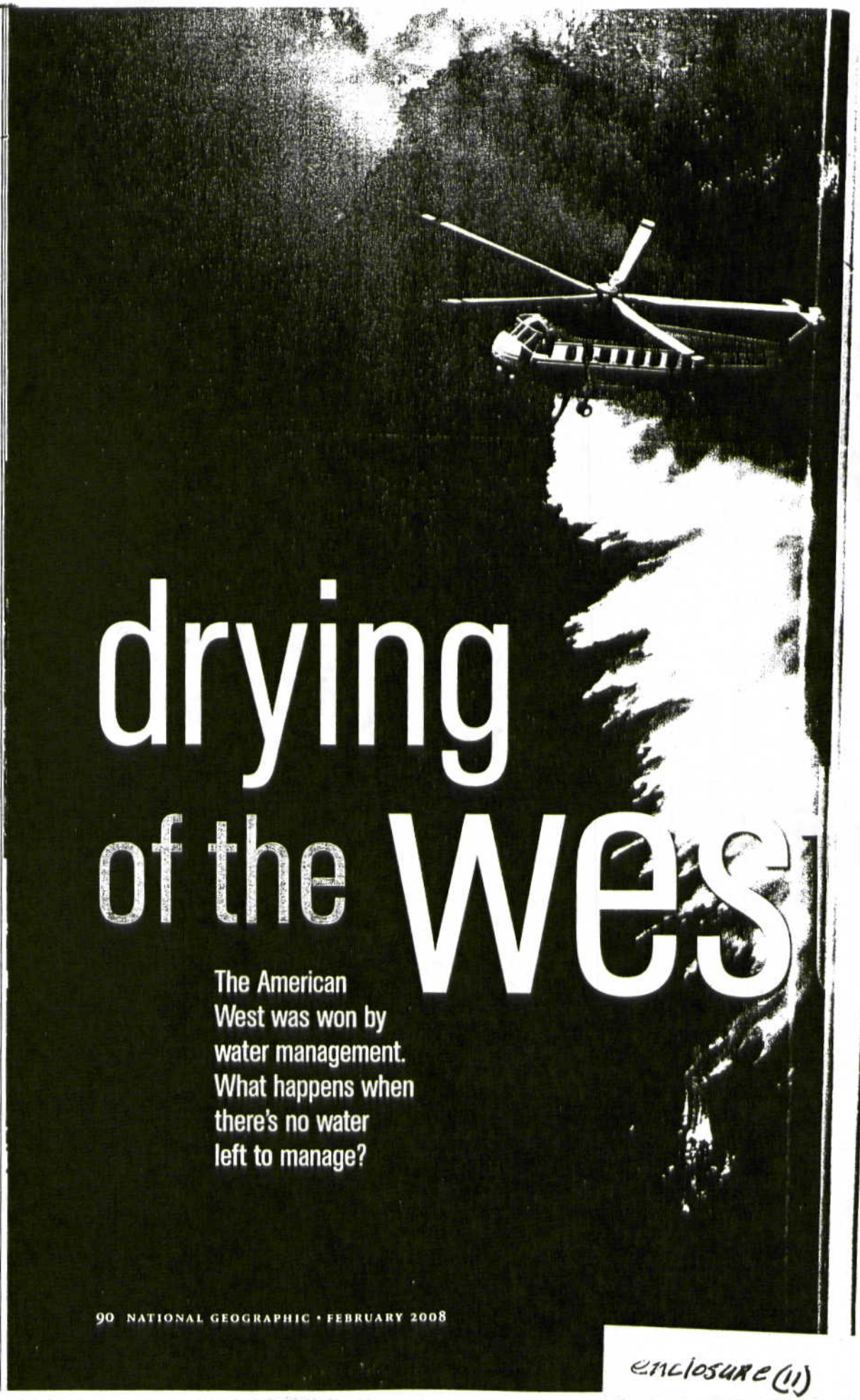
News Articles:

- "Denial in the Desert" by Mike Davis. *The Nation*, Tuesday, April 3, 2007.
- "Return of the dust bowl? Climate change set to make the arid southwest even drier" by Daemon Fairless. *news@nature.com*, Thursday, April 5, 2007.
- "Study Sees Drought Trend in U.S. Southwest". *NPR* , Friday, April 6, 2007,The Day to Day Program.
- "Southwest May Get Even Hotter, Drier" *Washington Post* , Friday, April 6, 2007; Page A03,
- And too many others to mention, see the Google news search for Friday Afternoon, April 6, 2006.

Opinions expressed are those of the authors and not necessarily those of their institutions.

Maintained by: Naomi Naik, Lamont-Doherty Earth Observatory of Columbia University

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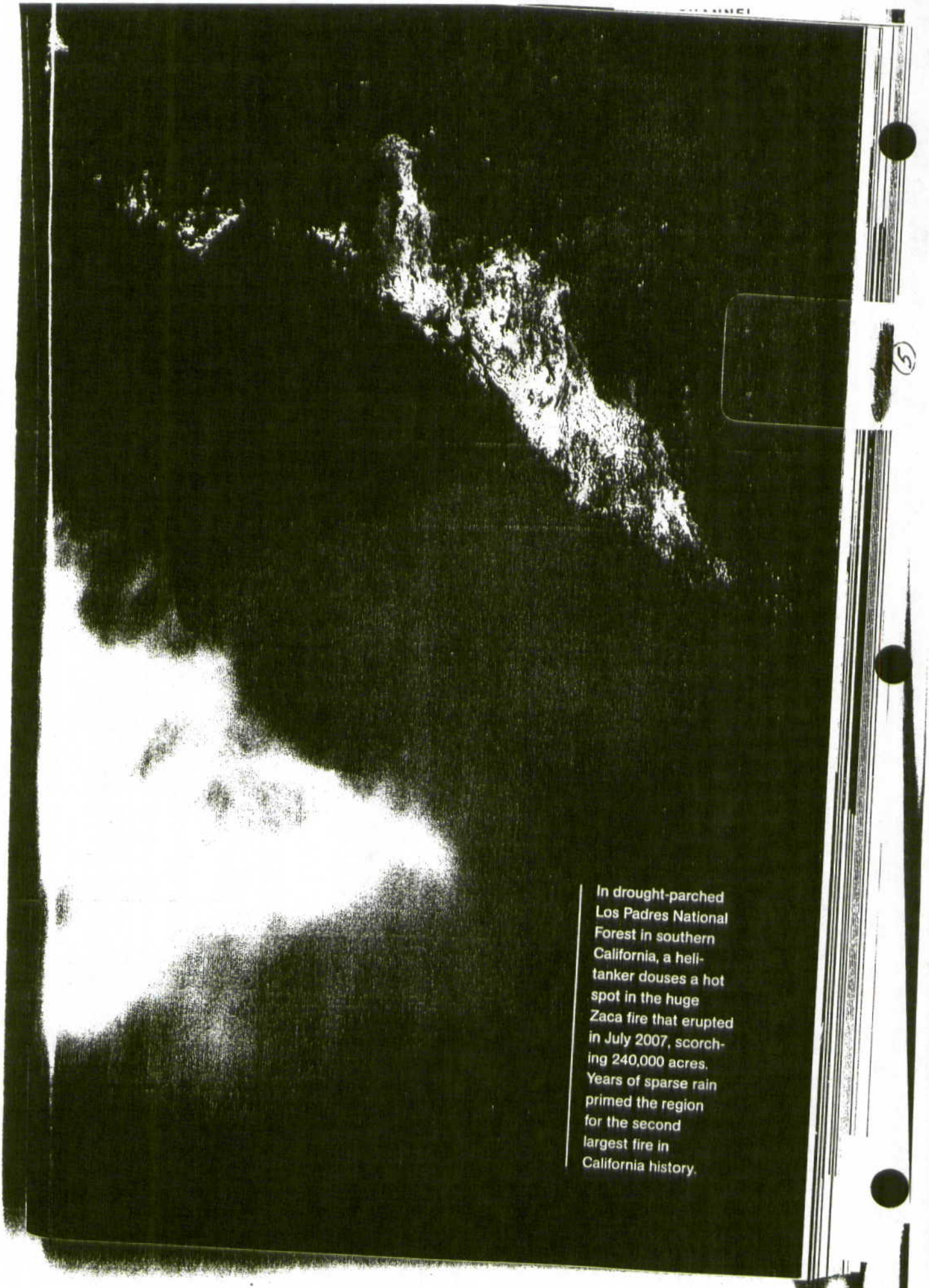


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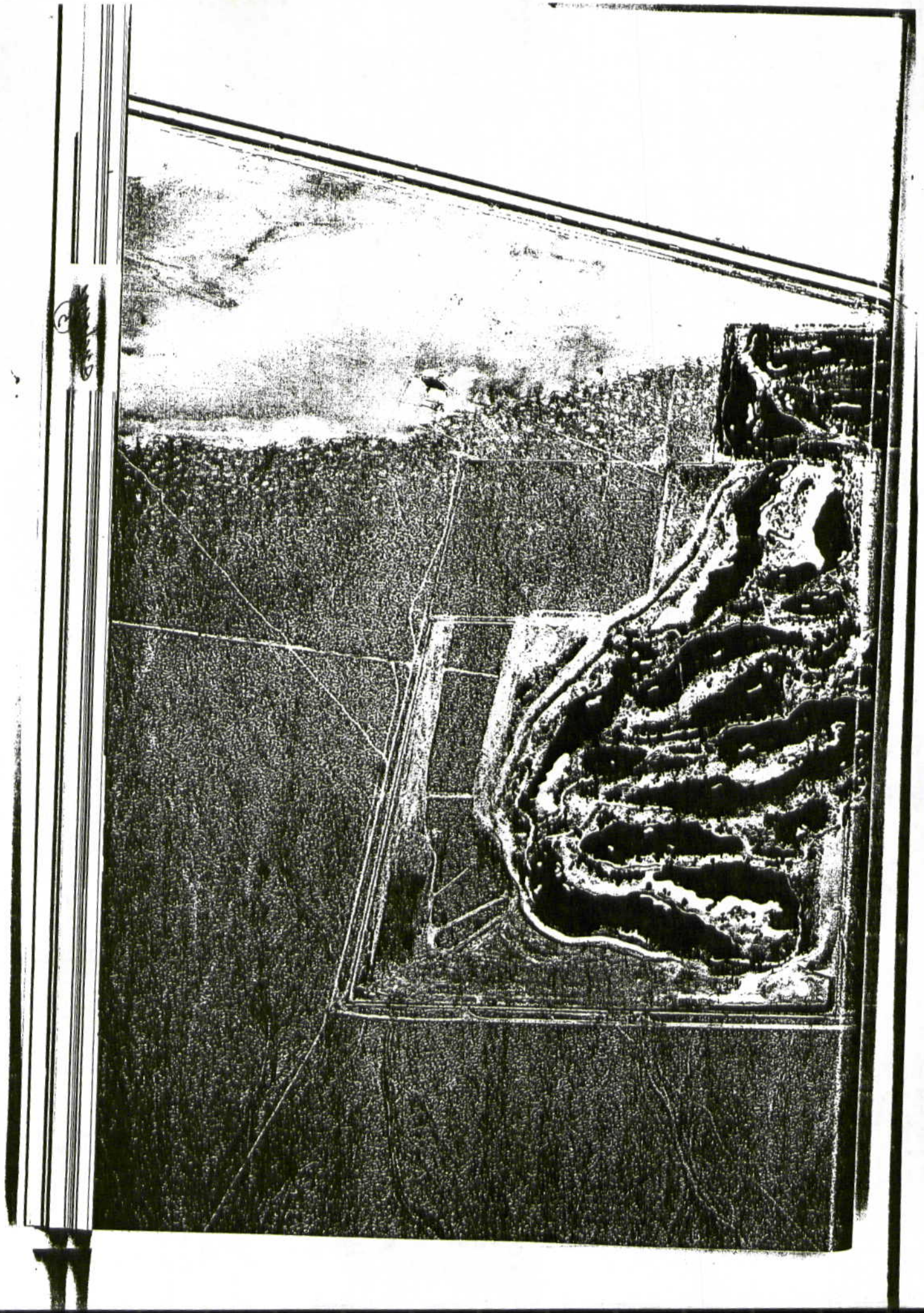
The American West was won by water management. What happens when there's no water left to manage?

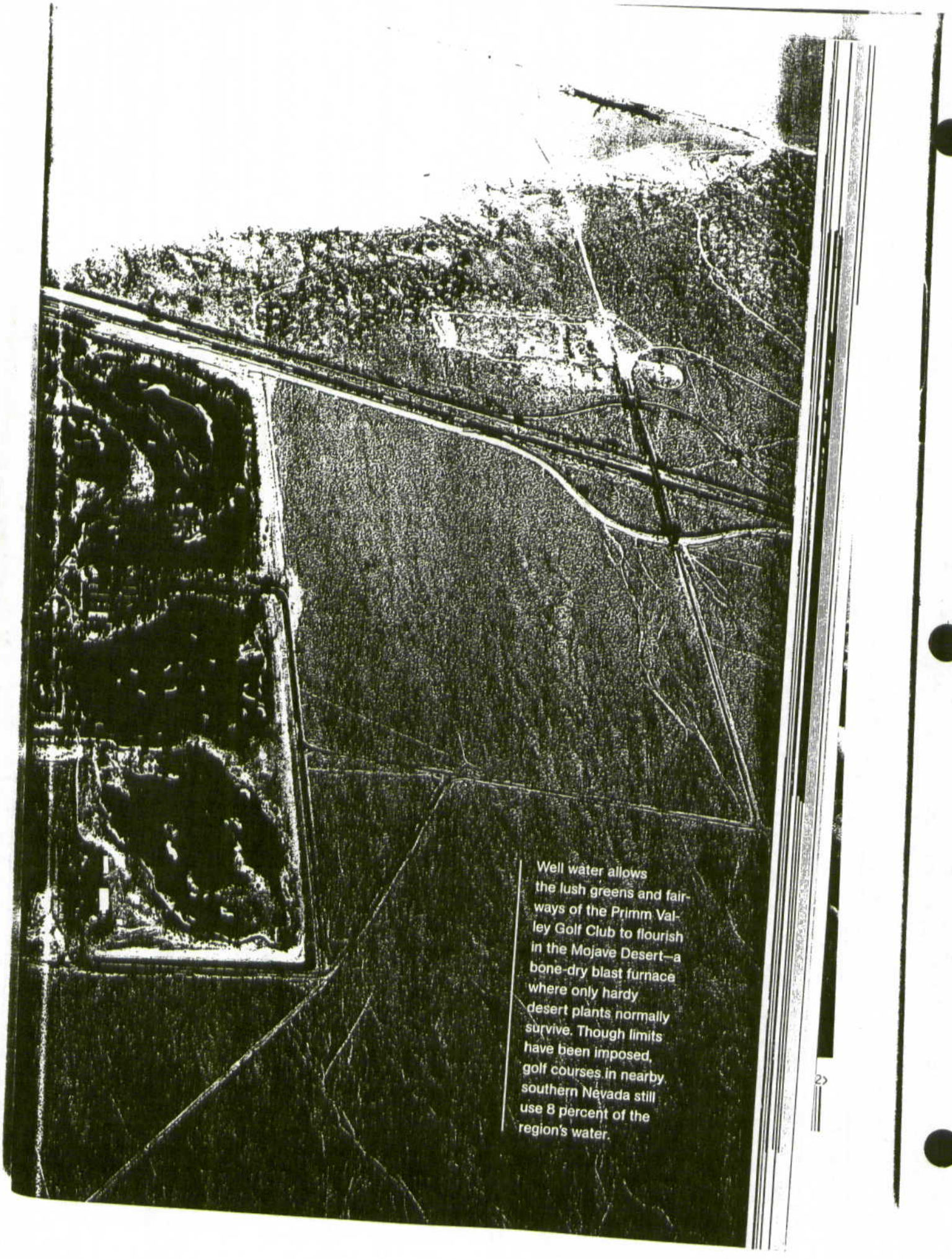
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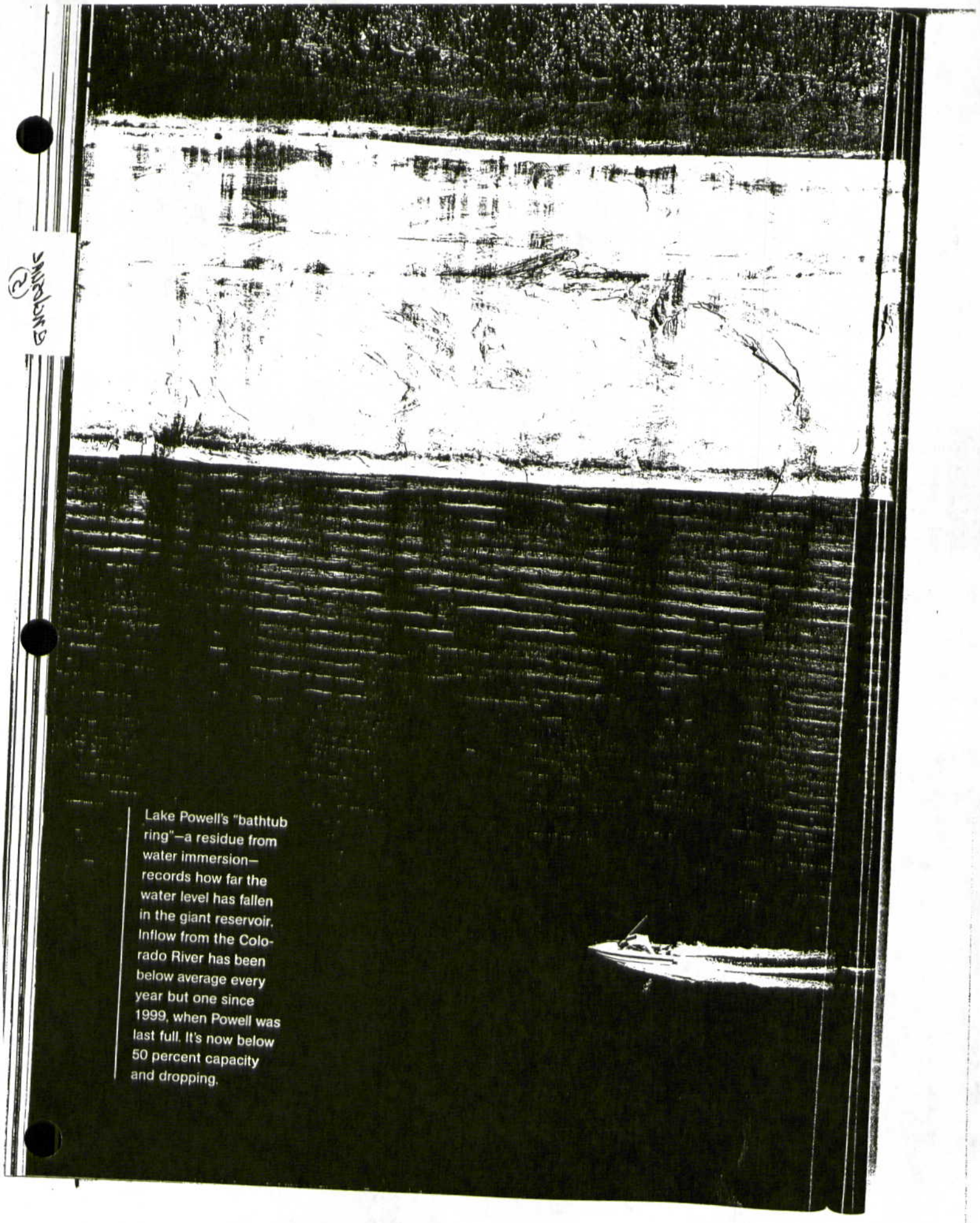


In drought-parched Los Padres National Forest in southern California, a heli-tanker douses a hot spot in the huge Zaca fire that erupted in July 2007, scorching 240,000 acres. Years of sparse rain primed the region for the second largest fire in California history.

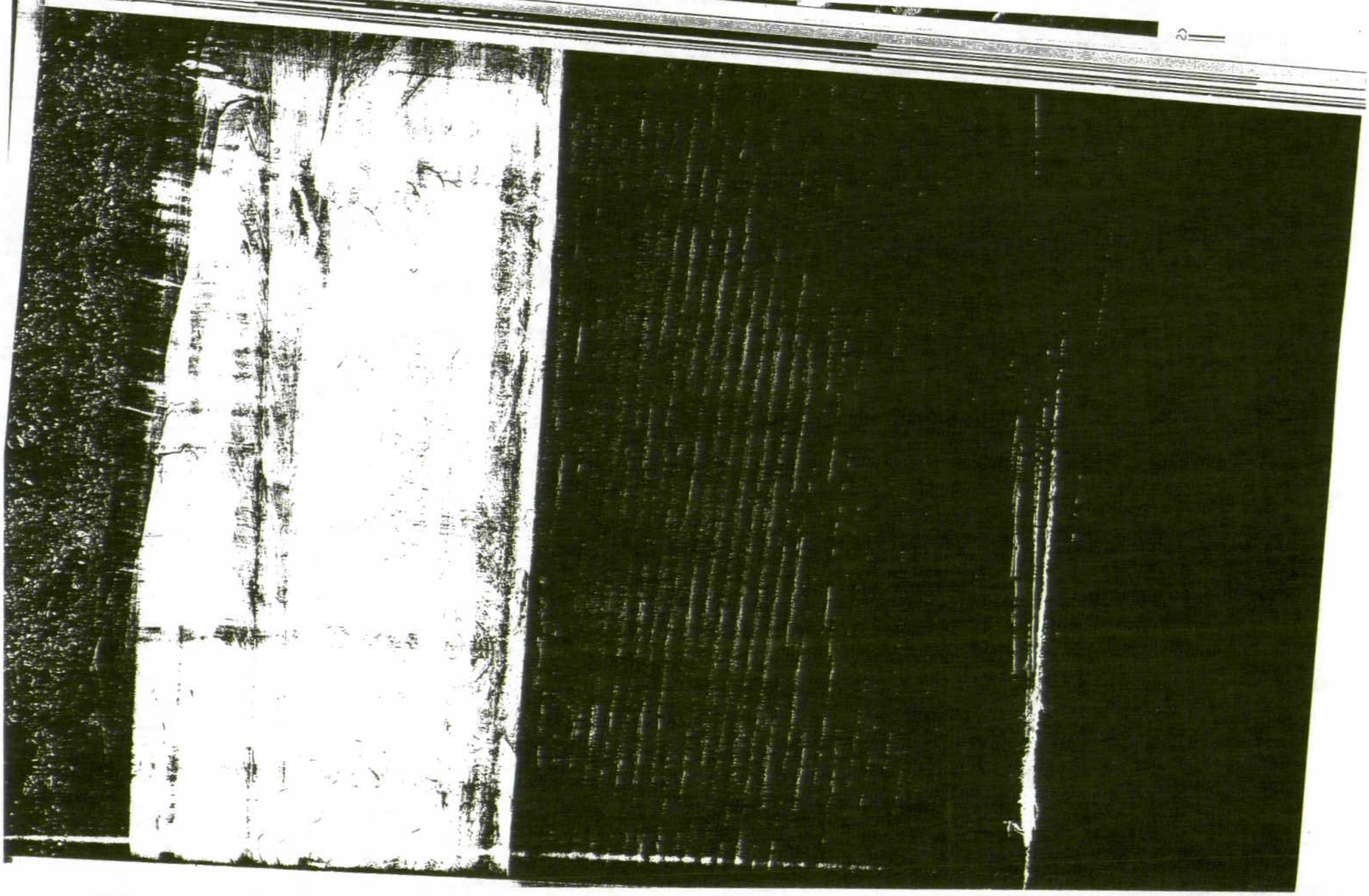




Well water allows the lush greens and fairways of the Primm Valley Golf Club to flourish in the Mojave Desert—a bone-dry blast furnace where only hardy desert plants normally survive. Though limits have been imposed, golf courses in nearby southern Nevada still use 8 percent of the region's water.



Lake Powell's "bathtub ring"—a residue from water immersion—records how far the water level has fallen in the giant reservoir. Inflow from the Colorado River has been below average every year but one since 1999, when Powell was last full. It's now below 50 percent capacity and dropping.



By Robert Kunzig
Photographs by Vincent Laforet

When provided with continuous nourishment, trees, like people, grow complacent.

Tree-ring scientists use the word to describe trees like those on the floor of the Colorado River Valley, whose roots tap into thick reservoirs of moist soil. Complacent trees aren't much use for learning about climate history, because they pack on wide new rings of wood even in dry years. To find trees that feel the same climatic pulses as the river, trees whose rings widen and narrow from year to year with the river itself, scientists have to climb up the steep, rocky slopes above the valley and look for gnarled, ugly trees, the kind that loggers ignore. For some reason such "sensitive" trees seem to live longer than the complacent ones. "Maybe you can get too much of a good thing," says Dave Meko.

Meko, a scientist at the Laboratory of Tree-Ring Research at the University of Arizona, has been studying the climate history of the western United States for decades. Tree-ring fieldwork is hardly expensive—you need a device called an increment borer to drill into the trees, you need plastic straws (available in a pinch from McDonald's) to store the pencil-thin cores you've extracted from bark to pith, and you need gas, food, and lodging. But during the relatively wet 1980s and early '90s, Meko found it difficult to raise even the modest funds needed for his work. "You don't generate interest to study drought unless you're in a drought," he says. "You really need a catastrophe to get people's attention," adds colleague Connie Woodhouse.

Then, in 2002, the third dry year in a row and the driest on record in many parts of the Southwest, the flow in the Colorado fell to a quarter of its long-term average. That got people's attention.

The Colorado supplies 30 million people in seven states and Mexico with water. Denver, Las Vegas, Phoenix, Tucson, Los Angeles, and San Diego all depend on it, and starting this year so will Albuquerque. It irrigates four million acres of farmland, much of which would otherwise be desert, but which now produces billions of dollars' worth of crops. Gauges first installed in the 19th century provide a measure of the flow of the river in acre-feet, one acre-foot being a foot of water spread over an acre, or about 326,000 gallons. Today the operation of the pharaonic infrastructure that taps the Colorado—the dams and reservoirs and pipelines and aqueducts—is based entirely on data from those gauges. In 2002 water managers all along the river began to wonder whether that century of data gave them a full appreciation of the river's eccentricities. With the lawns dying in Denver, a water manager there asked Woodhouse: How often has it been this dry?

Over the next few years Woodhouse, Meko, and some colleagues hunted down and cored the oldest drought-sensitive trees they could find growing in the upper Colorado basin, both living and dead. Wood takes a long time to rot in a dry climate; in Harmon Canyon in eastern Utah, Meko found one Douglas fir log that had laid down its first ring as a sapling in 323 B.C. That was an extreme case, but the scientists still collected enough old wood to push their estimates of annual variations in the flow of the Colorado back deep into the Middle Ages. The results came out last spring. They showed that the Colorado has not always been as generous as it was throughout the 20th century.

The California Department of Water Resources, which had funded some of the research, published the results as an illustrated poster. Beneath a series of stock southwestern postcard shots, the spiky trace of tree-ring data oscillates nervously across the page, from A.D. 762 on the left to 2005 on the right. One photo shows the Hoover Dam, water gushing from its outlets. When the dam was being planned in the 1920s to deliver river water to the farms of the Imperial Valley and the nascent sprawl of Los Angeles, the West, according to the tree rings, was in one of the wettest quarter centuries of the past millennium. Another photo shows the booming skyline of San Diego, which doubled its population between 1970 and 2000—again, an exceptionally wet period along the

The wet 20th century, the wettest of the past millennium, the century when Americans built an incredible civilization in the desert, is over.

river. But toward the far left of the poster, there is a picture of Spruce Tree House, one of the spectacular cliff dwellings at Mesa Verde National Park in southwestern Colorado, a pueblo site abandoned by the Anasazi at the end of the 13th century. Underneath the photo, the graph reveals that the Anasazi disappeared in a time of exceptional drought and low flow in the river.

In fact, the tree rings testified that in the centuries before Europeans settled the Southwest, the Colorado basin repeatedly experienced droughts more severe and protracted than any since then. During one 13-year megadrought in the 12th century, the flow in the river averaged around 12 million acre-feet, 80 percent of the average flow during the 20th century and considerably less than is taken out of it for human use today. Such a flow today would mean serious shortages, and serious water wars. "The Colorado River at 12 million acre-feet would be real ugly," says one water manager.

Unfortunately, global warming could make things even uglier. Last April, a month before Meko and Woodhouse published their latest results, a comprehensive study of climate models reported in *Science* predicted the Southwest's gradual descent into persistent Dust Bowl conditions by mid-century. Researchers at the National Oceanic and Atmospheric Administration (NOAA), meanwhile, have used some of the same models to project Colorado streamflow. In their simulations, which have been confirmed by others, the river never emerges from the current drought. Before mid-century, its flow falls to seven million acre-feet—around half the amount consumed today.

The wet 20th century, the wettest of the past millennium, the century when Americans built an incredible civilization in the desert, is over. Trees in the West are adjusting to the change, and not just in the width of their annual rings: In the recent drought they have been dying off and burning in wildfires at an unprecedented rate. For most people in the region, the news hasn't quite sunk in. Between 2000 and 2006 the seven states of the Colorado basin added five million people, a 10 percent population increase. Subdivisions continue to sprout in the desert, farther and farther from the cities whose own water supply is uncertain. Water managers are facing up to hard times ahead. "I look at the turn of the century as the defining moment when the New West began," says Pat Mulroy, head of the Southern Nevada Water Authority. "It's like the impact of global warming fell on us overnight."

In July 2007 a few dozen climate specialists gathered at Columbia University's Lamont-Doherty Earth Observatory to discuss the past and future of the world's drylands, especially the Southwest. Between sessions they took coffee and lunch outside, on a large sloping lawn above the Hudson River, which gathers as much water as the Colorado from a drainage area just over a twentieth the size. It was overcast and pleasantly cool for summer in New York. Phoenix was on its way to setting a record of 32 days in a single year with temperatures above 110 degrees. A scientist who had flown in from the West Coast reported that he had seen wildfires burning all over Nevada from his airplane window.

On the first morning, much of the talk was about medieval megadroughts. Scott Stine of California State University, East Bay, presented vivid evidence that they had extended beyond

Robert Kunzig's book Fixing Climate, *with Wallace Broecker, will be published in April. Vincent Laforet won a 2002 Pulitzer Prize for feature photography.*

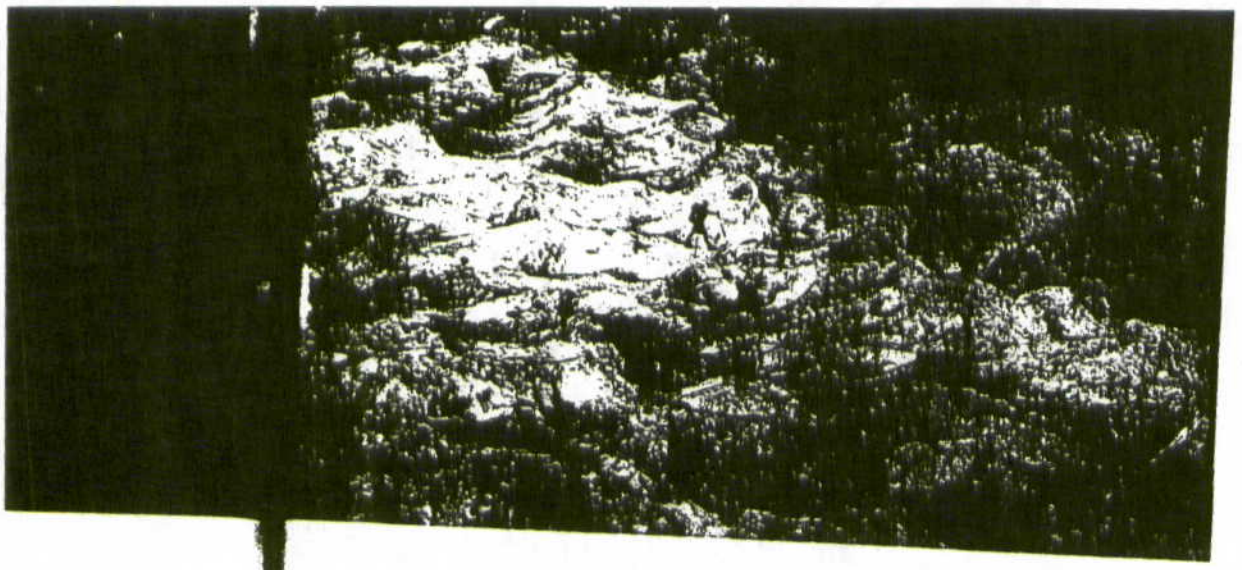


the Colorado River basin, well into California. Stine works in and around the Sierra Nevada, whose snows are the largest source of water for that heavily populated state. Some of the runoff drains into Mono Lake on the eastern flank of the Sierra. After Los Angeles began diverting the streams that feed Mono Lake in the 1940s, the lake's water level dropped 45 vertical feet.

In the late 1970s, tramping across the newly exposed shorelines, Stine found dozens of tree stumps, mostly cottonwood and Jeffrey pine, rooted in place. They were gnarled and ancient looking and encased in tufa—a whitish gray calcium carbonate crust that precipitates from the briny water of the lake. Clearly the trees had grown when a severe and long-lasting drought had lowered the lake and exposed the land where they had taken root; they had died when a return to a wetter climate in the Sierra Nevada caused the lake to drown them. Their rooted remains were now exposed because Los Angeles had drawn the lake down.

Stine found drowned stumps in many other places in the Sierra Nevada. They all fell into two distinct generations, corresponding to two distinct droughts. The first had begun sometime before 900 and lasted over two centuries. There followed several extremely wet decades, not unlike those of the early 20th century. Then the next epic drought kicked in for 150 years, ending around 1350. Stine estimates that the runoff into Sierran lakes during the droughts must have been less than 60 percent of the modern average, and it may have been as low as 25 percent, for decades at a time. "What we have come to consider normal is profoundly wet," Stine said. "We're kidding ourselves if we think that's going to continue, with or without global warming."

No one is sure what caused the medieval megadroughts. Today Southwestern droughts follow the rhythm of La Niña, a periodic cooling of the eastern equatorial Pacific. La Niña alternates every few years with its warm twin, El Niño, and both make weather waves around the globe. A La Niña cooling of less than a degree Celsius was enough to trigger the recent drought, in part because it shifted the jet stream and the track of the winter storms northward, out of the Southwest. Richard Seager, of Lamont, and his colleagues have shown that all the western droughts in the historical record,



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including the Dust Bowl, can be explained by small but unusually persistent La Niñas. Though the evidence is slimmer, Seager thinks the medieval megadroughts too may have been caused by the tropical Pacific seesaw getting stuck in something like a perpetual La Niña.

The future, though, won't be governed by that kind of natural fluctuation alone. Thanks to our emissions of greenhouse gases, it will be subject as well to a global one-way trend toward higher temperatures. In one talk at Lamont, climate theorist Isaac Held, from NOAA's Geophysical Fluid Dynamics Laboratory in Princeton, gave two reasons why global warming seems almost certain to make the drylands drier. Both have to do with an atmospheric circulation pattern called Hadley cells. At the Equator, warm, moist air rises, cools, sheds its moisture in tropical downpours, then spreads toward both Poles. In the subtropics, at latitudes of about 30 degrees, the dry air descends to the surface, where it sucks up moisture, creating the world's deserts—the Sahara, the deserts of Australia, and the arid lands of the Southwest. Surface winds export the moisture out of the dry subtropics to temperate and tropical latitudes. Global warming will intensify

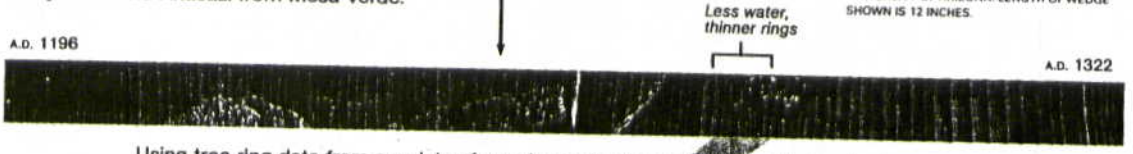
As the West dries out, the landscape is transformed. Without cold winters to kill off their larvae, mountain pine beetles infest up to 90 percent of lodgepole pines in Colorado forests, like this one near Granby (above left). The dead trees raise the risk of wildfires. In much of the West warmer, drier winters have reduced snowpack, a crucial water source. On California's Mount Shasta (above) a hiker traverses a snow patch diminished by milder temperatures.



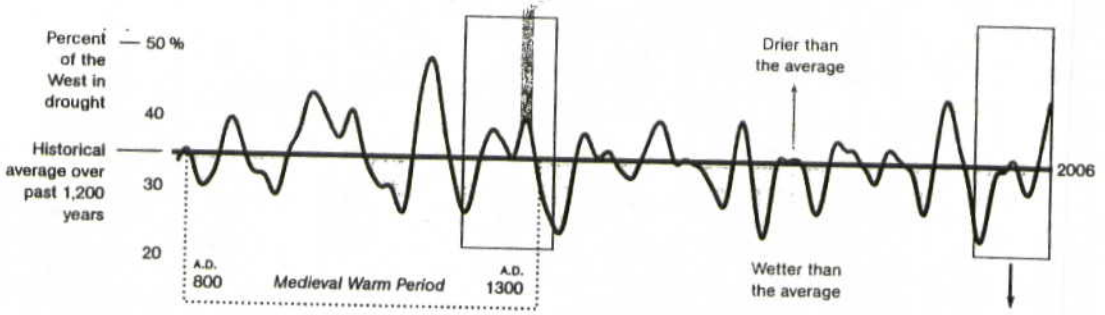
Reading the Rings

Climate patterns of centuries past can be tracked in a tree's annual growth rings: Dry years produce thinner bands than wet years. A wedge from a Douglas fir log (above), collected in Utah's Harmon Canyon, holds the precipitation record of the upper Colorado River Basin from the 10th to 17th centuries A.D. The enlarged section below highlights a decade-long drought in the late 1200s that likely drove the Anasazi from Mesa Verde.

PHOTO: LABORATORY OF TREE-RING RESEARCH, UNIVERSITY OF ARIZONA. LENGTH OF WEDGE SHOWN IS 12 INCHES.



Using tree-ring data from a variety of wood samples from across the West, scientists have graphed the region's climate fluctuations (below), finding the most prolonged droughts during the medieval period, when parts of the world experienced warmer temperatures.



Population Rise in a Wet 20th Century
The unusually wet past century amply met the water needs of a flood of newcomers to the West. But the 21st dawns drier, as population continues to rise.

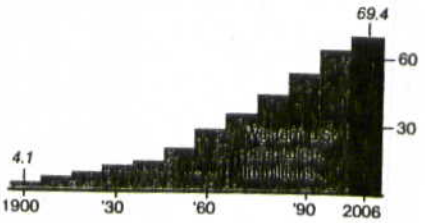
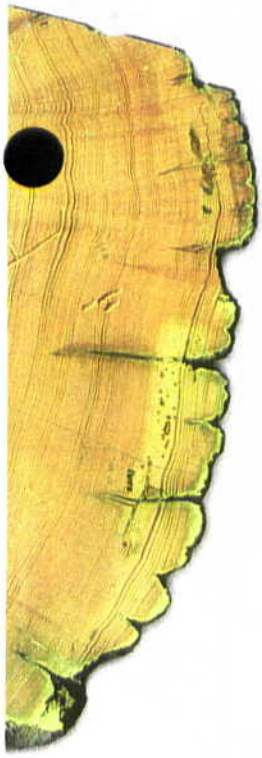
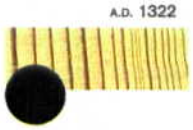


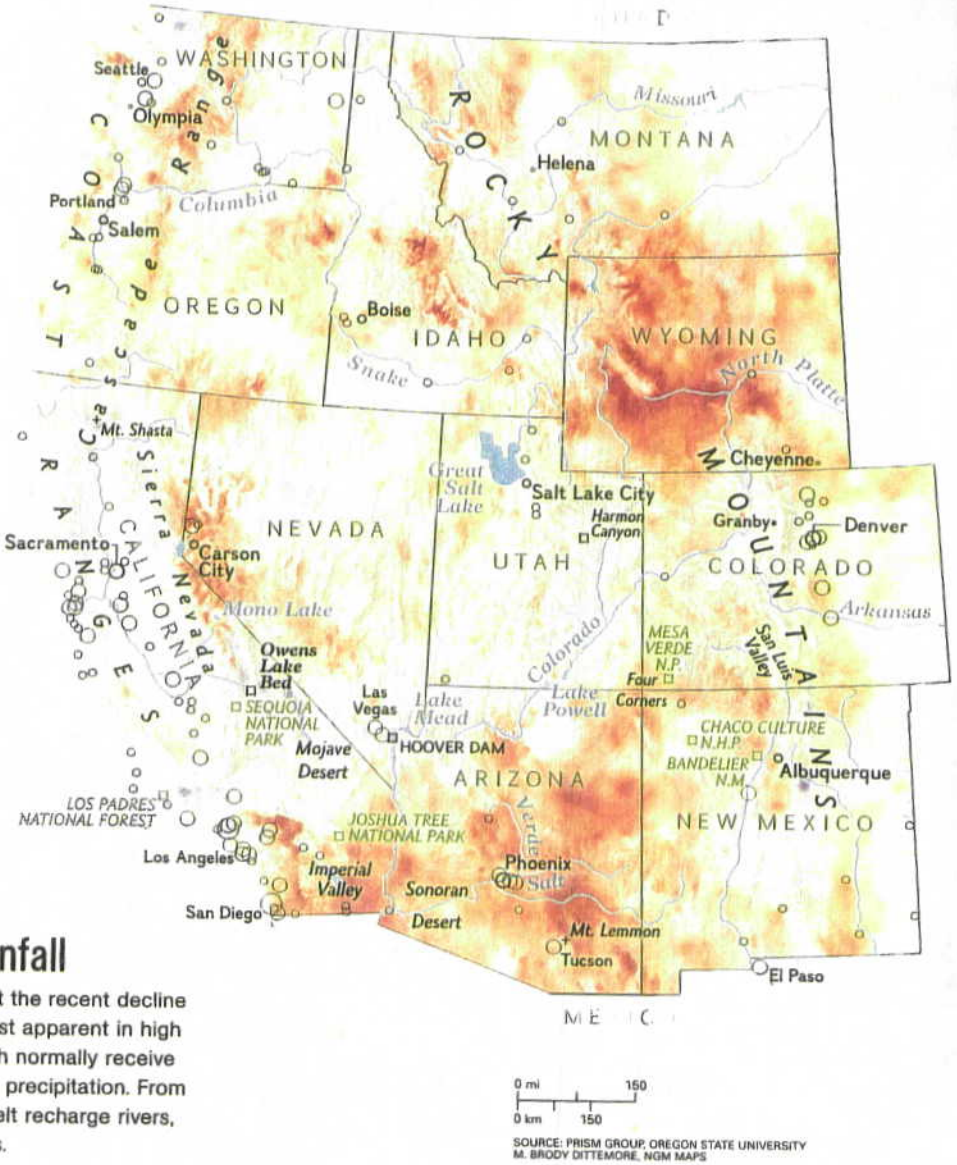
CHART ABOVE IS SMOOTHED USING A 50-YEAR MOVING AVERAGE. DATA: EDWARD COOK, TREE-RING LABORATORY, LAMONT-DOHERTY EARTH OBSERVATORY, COLUMBIA UNIVERSITY; U.S. CENSUS BUREAU. REPORTING AND GRAPHICS BY TOM ZELLER, JR., NGM ART



TORY OF TREE-RING RESEARCH, ARIZONA. LENGTH OF WEDGE CHES.







SOURCE: PRISM GROUP, OREGON STATE UNIVERSITY
M. BRODY DITTEMORE, NGM MAPS

Vanishing Rainfall

Over much of the West the recent decline in rain and snow is most apparent in high mountain ranges, which normally receive the bulk of the region's precipitation. From there, rain and snowmelt recharge rivers, reservoirs, and aquifers.

Once and Future Drought

The West is naturally dry, but just how dry it can get is only now being understood. In contrast to the 20th century, revealed by tree rings as the wettest of the past millennium, an era called the Medieval Warm Period was dominated by deep droughts. Those megadroughts lowered the flow of the Colorado River to less than the volume currently drawn from it by 30 million people from Los Angeles to Denver for consumption and irrigation.

Natural cycles of drought in the West, especially the Southwest, are thought to be triggered mainly by the Pacific Ocean phenomenon called La Niña, a pulse of cooler equatorial water that periodically shifts the jet stream and its winter storms to the north. With the effects of La Niña expected to be compounded in coming decades by global warming, the politics of sharing the Colorado—and all western water resources—will only intensify.

the whole process. The upshot is, the dry regions will get drier, and the wet regions will get wetter. "That's it," said Held. "There's nothing subtle here. Why do we need climate models to tell us that? Well, we really don't."

A second, subtler effect amplifies the drying. As the planet warms, the poleward edge of the Hadley cells, where the deserts are, expands a couple of degrees latitude farther toward each Pole. No one really knows what causes this effect—but nearly all climate models predict it, making it what modelers call a robust result. Because the Southwest is right on the northern edge of the dry zone, a northward shift will plunge the region deeper into aridity.

As the meeting neared its close, Held and Seager stood out on the lawn, discussing Hadley cells and related matters through mouthfuls of coffee and doughnuts. The two men had lately become collaborators, and a few months before had published with colleagues the sobering *Science* paper analyzing the results of 19 different simulations done by climate modeling groups around the world. They then averaged all these results into an "ensemble."

The ensemble shows precipitation in the Southwest steadily declining over the next few decades, until by mid-century, Dust Bowl conditions are the norm. It does not show the Pacific locked in a perpetual La Niña. Rather, La Niñas would continue to happen as they do today (the present one is expected to continue at least through the winter of 2008), but against a background state that is more profoundly arid. According to the ensemble model, the descent into that state may already have started.

People are not yet suffering, but trees are. Forests in the West are dying, most impressively by burning. The damage done by wildfires in the U.S., the vast majority of them in the West, has soared since the late 1980s. In 2006 nearly ten million acres were destroyed—an all-time record matched the very next year. With temperatures in the region up four degrees F over the past 30 years, spring is coming sooner to the western mountains. The snowpack—already diminished by drought—melts earlier in the year, drying the land and giving the wildfire season a jump start. As hotter summers encroach on autumn, the fires are ending later as well.

The fires are not only more frequent; they are also hotter and more damaging—though not entirely because of climate change. According to Tom Swetnam, director of the University of Arizona tree-ring lab, the root cause is the government's policy, adopted early in the 20th century, of trying to extinguish all wildfires. By studying sections cut from dead, thousand-year-old giant sequoias in the Sierra Nevada and from ponderosa pines all over Arizona and New Mexico, Swetnam discovered that most southwestern forests have always burned often—but at low intensity, with flames just a few feet high that raced through the grasses and the needles on the forest floor. The typical tree bears the marks of many such events, black scars where flames ate through the bark and perhaps even took a deep wedge out of the tree, but left it alive to heal its wound with new growth. Suppressing those natural fires has produced denser forests, with flammable litter piled up on the floor, and thickets of shrubs and young trees that act as fire ladders. When fires start now, they don't stay on the ground—they shoot up those ladders to the crowns of the trees. They blow thousand-acre holes in the forest and send mushroom clouds into the air.

One day last summer, Swetnam took a few visitors up Mount Lemmon, just north of Tucson, to see what the aftermath of such events looks like. In May 2002 the Bullock fire roared up the northeast slope of Mount Lemmon, consuming 30,000 acres. Firefighters stopped it at the Catalina Highway, protecting the village of Summerhaven. But the very next year, the Aspen fire started on the slope just below the village, destroying nearly half of the 700-odd houses in Summerhaven and burning 85,000 acres, all the way down to the outskirts of Tucson. The entire mountainside beyond the village remains covered with the gray skeletons of ponderosa pines, like one big blast zone. "Ponderosa pine is not adapted to these crown fires," Swetnam

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"Sequoias may not survive in Sequoia National Park. What do you do? Do you irrigate these things? Or do you let a 2,000-year-old tree die?"

–Craig Allen, landscape ecologist

said, contemplating the site from the scenic overlook above the village. "It has heavy, wingless seeds that don't go very far. When you get a large hole like this, it will take hundreds of years to fill in from the edges."

Mount Lemmon's forests are also experiencing a slower, broader change. The Catalina Highway starts out flat, at an altitude of 2,500 feet in the Sonoran Desert, with its saguaros and strip malls. As the road leaves the last of Tucson behind, it climbs steeply through the whole range of southwestern woodland ecosystems —first scrub oak, then piñon and juniper, then ponderosa pine and other conifers, until finally, after less than an hour and a climb of 7,000 feet, you reach the spruce and fir trees on the cool peak. There is a small ski area there, the southernmost in the United States, and its days are certainly numbered.

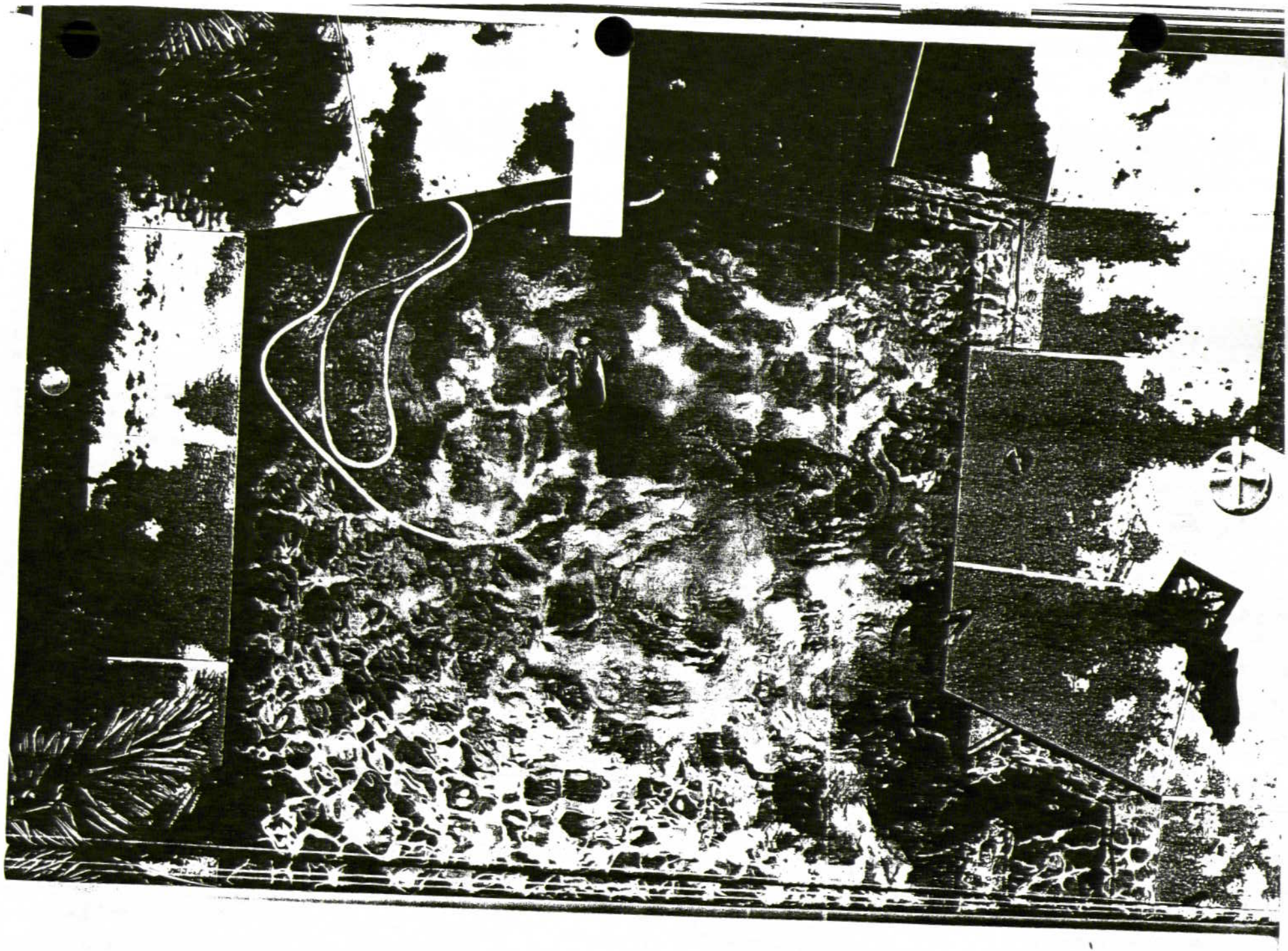
As Swetnam explained, the mountain is one of an archipelago of "sky islands" spread across southeastern Arizona, New Mexico, Texas, and into Mexico—mountains isolated from one another by a sea of desert or grassland. Like isles in the ocean, these islands are populated in part by endemics—species that live nowhere else. The sky-island endemics are cool- and wet-loving species that have taken refuge on the mountaintops since the last ice age. They are things like the corkbark fir, or the endangered red squirrel that lives only on nearby Mount Graham. Their future is as bleak as that of the ski area. "They'll be picked off the top," said Swetnam. "The islands are shrinking. The aridity is advancing upslope."

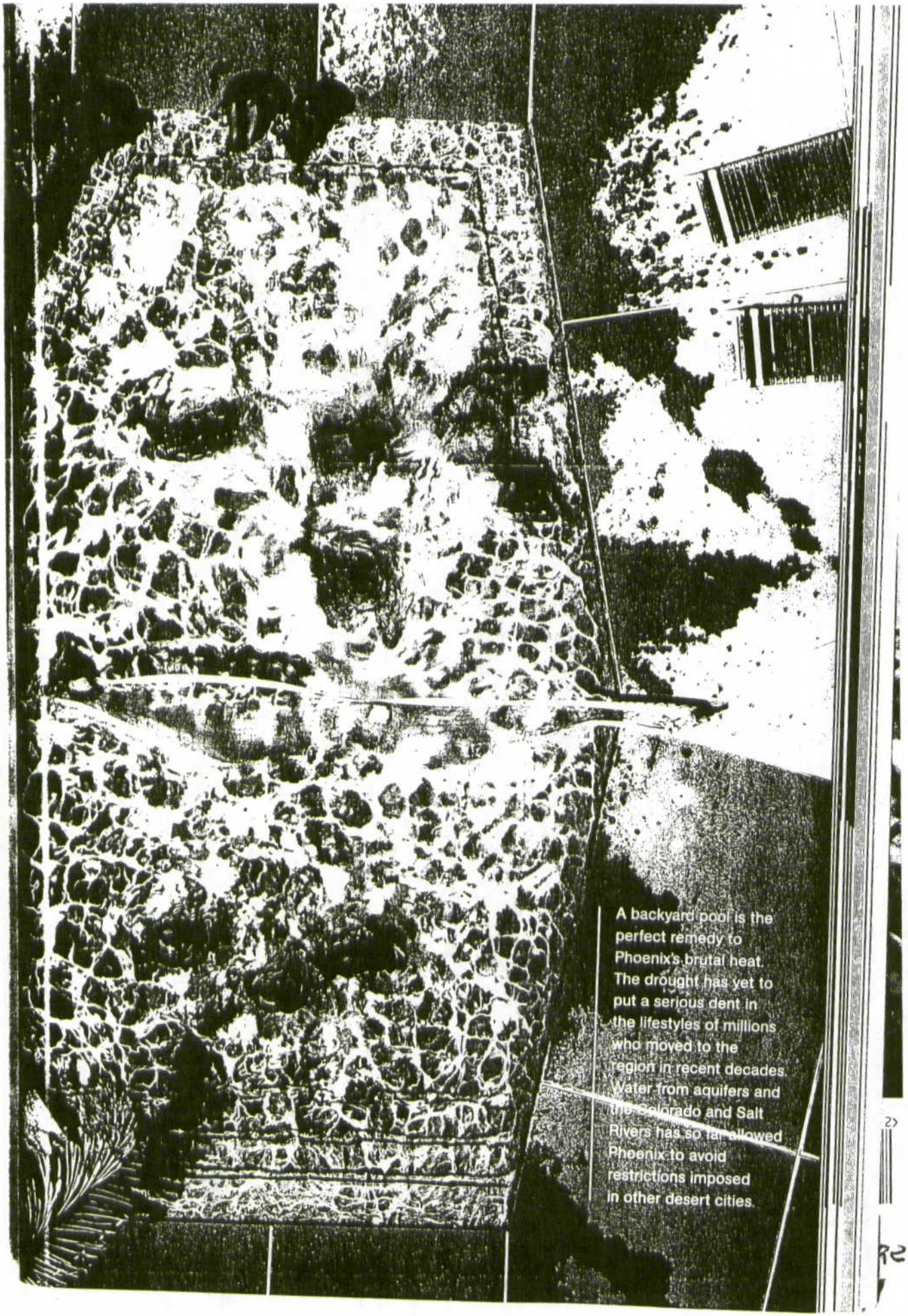
All over the Southwest, a wholesale change in the landscape is under way. Piñons and scrubbier, more drought-resistant junipers have long been partners in the low woodlands that clothe much of the region. But the piñons are dying off. From 2002 to 2004, 2.5 million acres turned to rust in the Four Corners region alone. The immediate cause of death was often bark beetles, which are also devastating other conifers. The Forest Service estimates that in 2003, beetles infested 14 million acres of piñon, ponderosa, lodgepole pine, and Douglas fir in the American West.

Bark beetles tend to attack trees that are already stressed or dying from drought. "They can smell it," says Craig Allen, a landscape ecologist at Bandelier National Monument in the Jemez Mountains of New Mexico. Global climate change may be permanently teasing the piñons and junipers apart, and replacing piñon-juniper woodland with something new. At Bandelier, Allen has observed that junipers, along with shrubs such as wavyleaf oak and mountain mahogany, now dominate the beetle-ravaged landscape: pockets of green gradually spreading beneath a shroud of dead piñons.

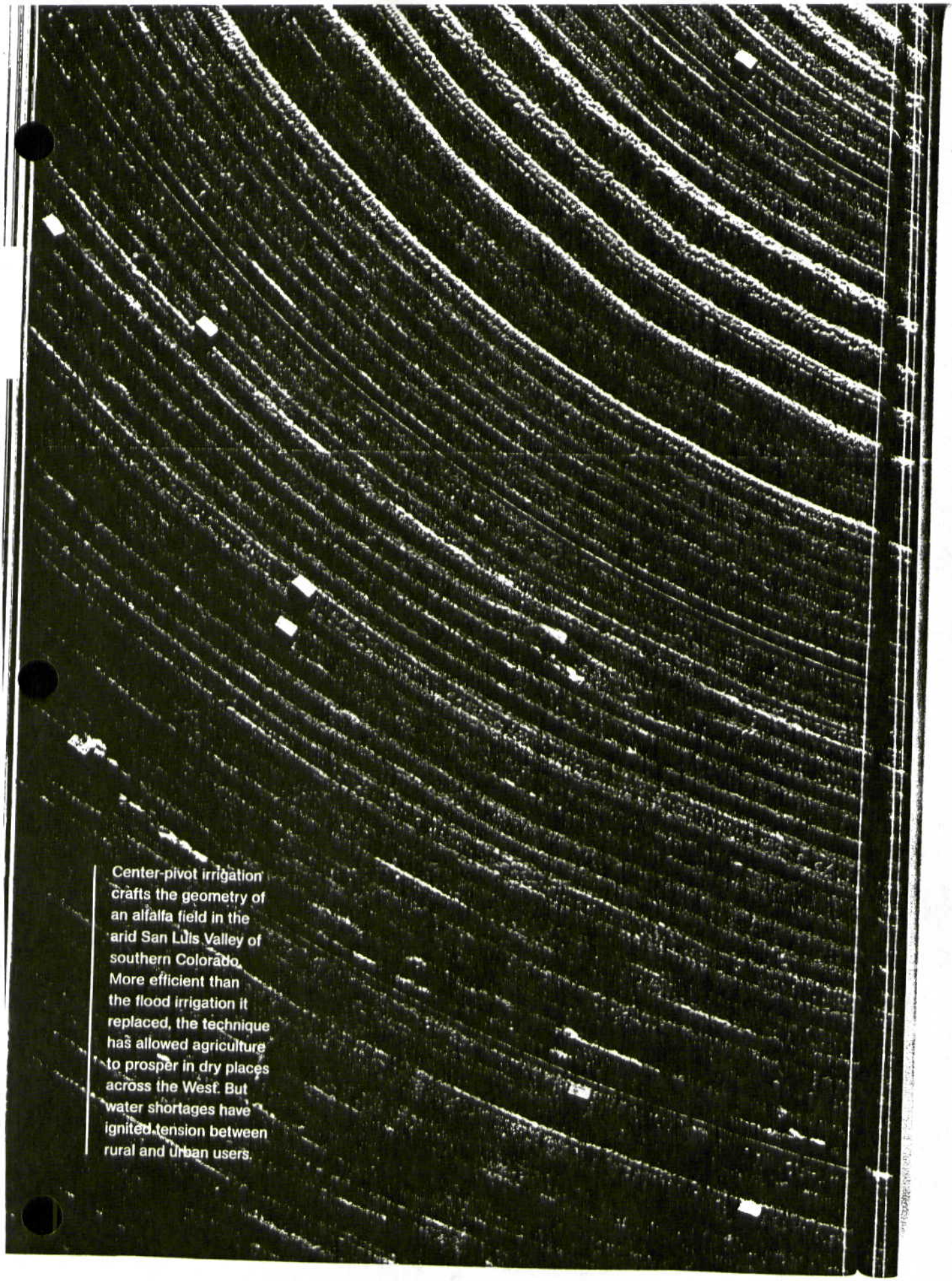
Just as there are global climate models, there are global models that forecast how vegetation will change as the climate warms. They predict that on roughly half of Earth's surface, something different will be growing in 2100 than is growing there now. The models are not good, however, at projecting what scientists call "transient dynamics"—the damage done by droughts, fires, and beetle infestations that will actually accomplish the transformation. Large trees cannot simply migrate to higher latitudes and altitudes; they are rooted to the spot. "What happens to what's there now?" Allen wonders. "Stuff dies quicker than it grows."

Over the next few decades, Allen predicts, people in the Southwest will be seeing a lot of death in the old landscapes while waiting for the new ones to be born. *(Continued on page 108)*





A backyard pool is the perfect remedy to Phoenix's brutal heat. The drought has yet to put a serious dent in the lifestyles of millions who moved to the region in recent decades. Water from aquifers and the Colorado and Salt Rivers has so far allowed Phoenix to avoid restrictions imposed in other desert cities.



Center-pivot irrigation crafts the geometry of an alfalfa field in the arid San Luis Valley of southern Colorado. More efficient than the flood irrigation it replaced, the technique has allowed agriculture to prosper in dry places across the West. But water shortages have ignited tension between rural and urban users.

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"This is a dilemma for the Park Service," he says. "The projections are that Joshua trees may not survive in Joshua Tree National Park. Sequoias may not survive in Sequoia National Park. What do you do? Do you irrigate these things? Or do you let a 2,000-year-old tree die?"

While the trees die, the subdivisions proliferate. "Our job was to entice people to move to the West, and we did a darn good job," says Terry Fulp, who manages water releases at Hoover Dam. The federal Bureau of Reclamation built the dam in the 1930s primarily to supply the vegetable farms of the Imperial Valley and only secondarily to supply the residents of Los Angeles. Farmers had first claim to the water—they still do—but there was plenty to go around. "At Lake Mead, we basically gave the water away," says Fulp. "At the time, it made perfect sense. There was no one out here." After Reclamation built Hoover and the other big dams, more people came to the desert than anyone ever expected. Few of them are farmers anymore, and farming, crucial as it is to human welfare, is now a small part of the economy. But it still uses around three-quarters of the water in the Colorado River and elsewhere in the Southwest.

In the wet 1920s, as the dam was being planned, seven states drew up the Colorado River Compact to divvy up 15 million acre-feet of its water. California, Nevada, and Arizona—the so-called Lower Basin states—would get half, plus any surplus from the Upper Basin states of Wyoming, Colorado, New Mexico, and Utah. The compact also acknowledged Mexico's rights to the water. Surpluses were almost always on hand, because the Upper Basin states have never fully used the 7.5 million acre-feet they are entitled to under the compact. They are only entitled to use it, in fact, if in so doing they don't prevent the Lower Basin states from getting *their* 7.5 million—the compact is unfair that way. But in the wet 20th century, it didn't seem to matter.

In 1999 both Lake Mead and Lake Powell —created in 1963 upstream of Lake Mead to ensure that the Upper Basin would have enough water even in drought years to meet its obligation to the Lower Basin—were nearly full, with 50 million acre-feet between them. Two years later, representatives of the states in the basin completed long and difficult negotiations with the Bureau of Reclamation on new guidelines for dividing up the surpluses from Lake Mead. Then came the drought. Both lakes are now only half full. "Those guidelines are almost a joke now," says the Southern Nevada Water Authority's Pat Mulroy. "All of a sudden, seven states that had spent years in surplus discussions had to turn on a dime and start discussing shortages."

Mulroy, a crisp, tanned, fiftysomething blonde with a tailored look and a forceful personality, has run the Las Vegas water district since 1989. During that time she has watched the area's population growth consistently outstrip demographic projection. The population is almost two million now, having grown by 25 percent during the drought years; Mulroy is convinced it will go to three million. Before the drought, she and her colleagues nevertheless thought their water supply, 90 percent of it from Lake Mead, was safe for 50 years. In 2002 they were celebrating the opening of a second water intake from Lake Mead, 50 feet lower than the old one, which more than doubled their pumping capacity. Now they are scrambling to insert a third "straw" even deeper into the sinking lake. Las Vegas is also trying to reduce its dependence on the Colorado. The SNWA is exercising water rights and buying up ranches in the east-central part of the state. It plans to sink wells and tap groundwater there and pump as much as 200,000 acre-feet of it through a 250-mile pipeline to the city. There is considerable local opposition, of course, and an environmental impact statement must be prepared—but there is "zero chance," Mulroy says grimly, that the pipeline won't be built.

Other southwestern cities are also realizing their vulnerability to drought. Phoenix, hellish as it is in summer and bisected by the dry bed of the Salt River, is better off than most—for the moment. "In 2002 Phoenix was virtually the only city in the Southwest that had no mandatory

The West was built by dreamers. As the climate that underpinned that expansive vision vanishes, the vision needed to replace it has not yet emerged.

restrictions," says Charlie Ester, water resources manager at the Salt River Project in Phoenix. "We didn't need them." Phoenix pumps groundwater whenever it needs to, though it is under a state mandate to stop depleting the aquifer. And it gets a little over a third of its water from the Colorado River via the Central Arizona Project, a 336-mile-long canal. But the Salt River remains its biggest source. The riverbed is dry in the city because the SRP has half a dozen dams in the mountains north and east of the city, which convert the Salt and its tributary, the Verde, into chains of terraced lakes.

Phoenix would thus seem to possess that holy grail of water managers: a diversified portfolio. But Ester was still disconcerted to see his lake levels dropping in the drought, until they were less than half full. After he called the tree-ring lab, Dave Meko and climatologist Katie Hirschboeck looked into the tree-ring records for the Salt and Verde Rivers' watersheds.

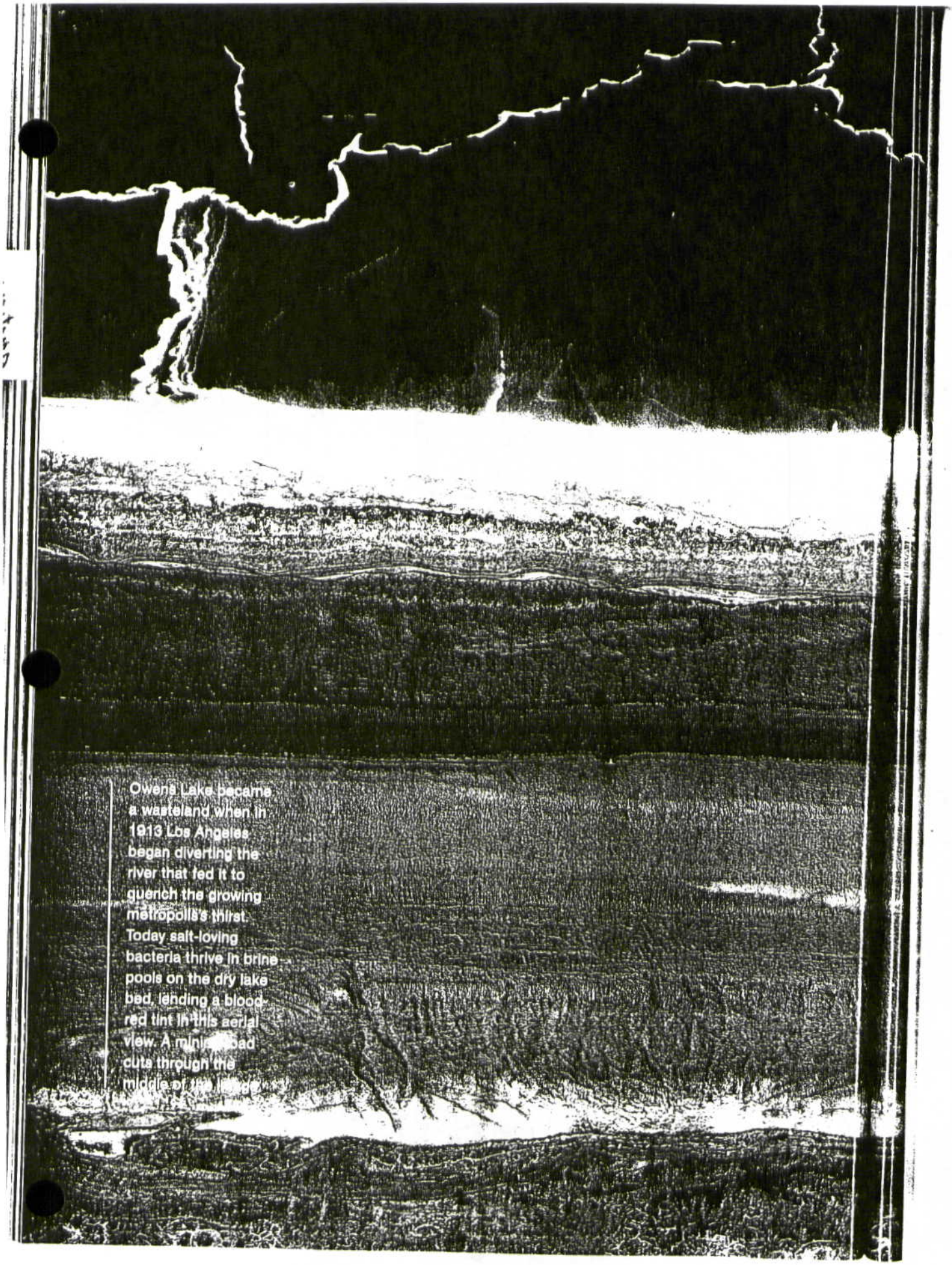
"They found they were virtually identical," Ester says. "There were only three years out of 800 where the Colorado was wet and the Salt was dry or vice versa. What that means is, if we have a bad drought in Arizona, and the Salt dries up, we can't rely on the Colorado to bail us out. So what are we going to do? Well, we're going to hurt. Or move."

Since the Hoover Dam was built, there has never been a water shortage on the Colorado, never a day when there was simply not enough water in Lake Mead to meet all the downstream allocations. Drought, and a realistic understanding of the past, have made such a day seem more imminent. Under the pressure of the drought, the seven Colorado basin states have agreed for the first time on how to share prospective shortages. Arizona will bear almost all the pain at first, because the Central Arizona Project, which came on line in 1993, has junior rights. Nevada will lose only a small percentage of its allotment.

Meanwhile California would give up nothing, at least until Lake Mead falls below 1,025 feet, nearly 200 feet below "full pool." At that point, negotiations would resume. According to Bureau of Reclamation calculations, a return of the 12th-century drought would force Lake Mead well below that level, perhaps even to "dead pool" at 895 feet—the level at which water no longer flows out of the lake without pumping. Reclamation officials consider this extremely unlikely. But their calculations do not take into account the impact of global warming.

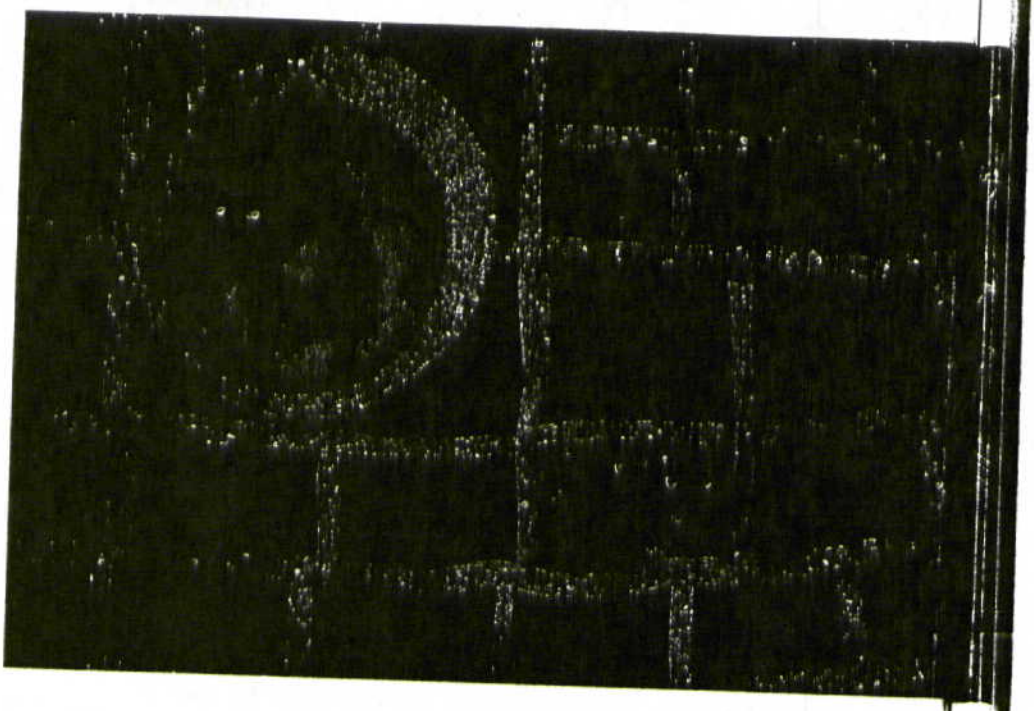
Every utility in the Southwest now preaches conservation and sustainability, sometimes very forcefully. Las Vegas has prohibited new front lawns, limited the size of back ones, and offers people two dollars a square foot to tear existing ones up and replace them with desert plants. Between 2002 and 2006, the Vegas metro area actually managed to reduce its total consumption of water by around 20 percent, even though its population had increased substantially. Albuquerque too has cut its water use. But every water manager also knows that, as one puts it, "at some point, growth is going to catch up to you."

Looking for new long-term sources of supply, many water managers turn their lonely eyes to the Pacific, or to deep, briny aquifers that had always seemed unusable. Last August, El Paso inaugurated a new desalination plant that will allow the city to tap one such aquifer. The same month, the Bureau of Reclamation opened a new research center devoted to desalination in Alamogordo, New Mexico. The cost of desalination has dropped dramatically—it's now around four dollars per thousand gallons, or as little as $1,200



Owens Lake became a wasteland when in 1913 Los Angeles began diverting the river that fed it to quench the growing metropolis's thirst. Today salt-loving bacteria thrive in brine pools on the dry lake bed, lending a blood-red tint in this aerial view. A mini-road cuts through the middle of the landscape.

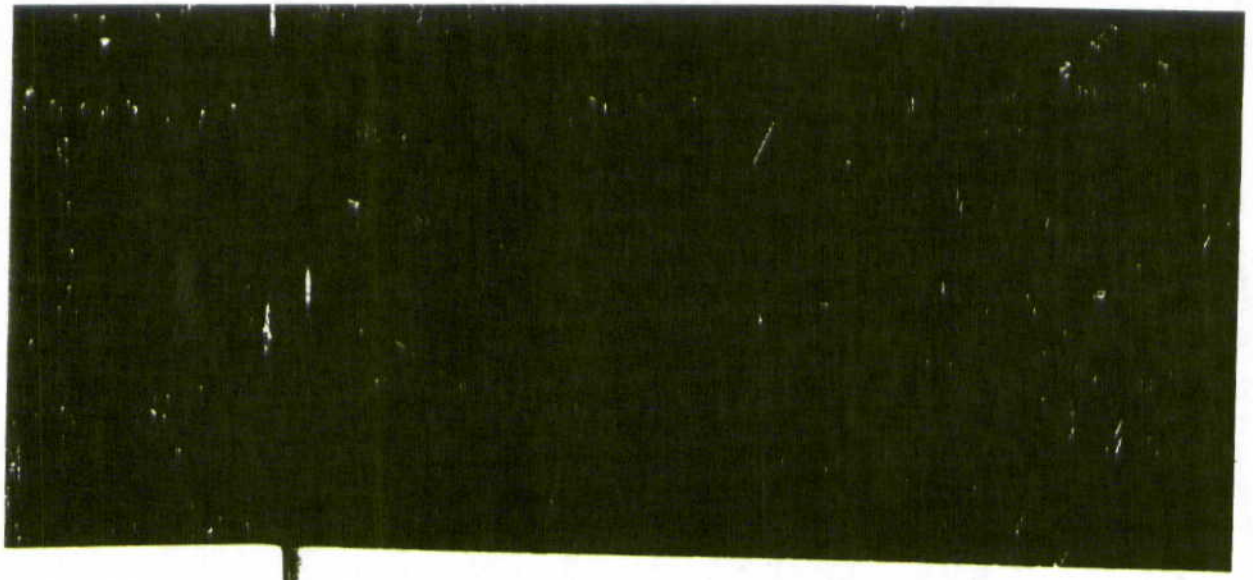
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A viable desert home during a long wet spell may be uninhabitable when the rains stop. The ancient Anasazi created a flourishing culture in New Mexico's Chaco Canyon, epitomized by Pueblo Bonito (above). Then prolonged drought hit the region in 1130. By the time it ended 30 years later, the Anasazi were gone. Sprawling cities in the present-day Southwest like Scottsdale (above right) grew by the millions during half a century of above-average rainfall. But with no end to the present drying trend in sight, the region faces an uncertain future.

per acre-foot—but that is still considerably more than the 50 cents per acre-foot that the Bureau of Reclamation charges municipal utilities for water from Lake Mead, or the zero dollars it charges irrigation districts. The environmental impacts of desalination are also uncertain—there is always a concentrated brine to be disposed of. Nevertheless, a large desalination plant is being planned in San Diego County. In Las Vegas, Mulroy envisions one day paying for such a plant on the coast of California or Mexico, in exchange for a portion of either's share of the water in Lake Mead. "The problem is, if there's nothing in Lake Mead, there's nothing to exchange," she says.

A more obvious solution for cities facing shortages is to buy irrigation water from farmers. In 2003 the Imperial Irrigation District was pressured into selling 200,000 of its three million acre-feet of Colorado water to San Diego, as part of an overall deal to get California to stop exceeding its allotment. San Diego paid nearly $300 per acre-foot for water that the farmers in the Imperial Valley get virtually for free. The government favors such market mechanisms, says the Bureau of Reclamation's Terry Fulp, "so people who really want the water get it." At that



price, the irrigation water in the Imperial Valley is worth nearly as much as its entire agricultural revenue, which is around a billion dollars a year. But not everyone favors drying up farms so that more water will be available for subdivisions. The valley is one of the poorest regions in California, yet the richest farmers stand to benefit most from the sale. Many more people fear the loss of jobs and, ultimately, of a whole way of life.

The West was built by dreamers. The men who conceived Hoover Dam were, in the words beneath a flagpole on the Nevada side, "inspired by a vision of lonely lands made fruitful." As the climate that underpinned that expansive vision vanishes, the vision needed to replace it has not yet emerged. In a drying climate, the human ecosystems established in a wetter one will have to change—die and be replaced by new ones. The people in the Southwest face the same uncertain future, the same question, as their forests: What happens to the stuff that's there now?

In the second half of the 13th century, as a drying trend set in, people who had lived for centuries at Mesa Verde moved down off the mesa into the canyons. They built villages around water sources, under overhangs high up in the walls of the cliffs, and climbed back up the cliffs to farm; their handholds in the rock are still visible. Some of the villages were fortified, because apparently their position on a cliff face was not defense enough. Those cliff dwellings, abandoned now for seven centuries but still intact and eerily beautiful, are what attract so many visitors today. But they are certainly not the product of an expansive, outward-looking civilization. They are the product of a civilization in a crouch, waiting to get hit again. In that period, the inhabitants of the Mesa Verde region began carving petroglyphs suggesting violent conflict between men armed with shields, bows and arrows, and clubs. And then, in the last two or three decades of the century, right when the tree rings record one of the most severe droughts in the region, the people left. They never came back. □

Water Woes See more images of the causes and consequences of drought at **ngm.com.**

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September 25, 2007

Assemblyman Bill Maze
5959 S. Mooney Blvd.
Visalia, CA 93277

Dear Assemblyman Maze:

There is an impending water crisis facing Tulare County and all of California. This is an ongoing problem, and the situation will only worsen in the coming years.

In September of 2006, the Friant Water Users Authority reached an agreement that will restore water flows down the San Joaquin River to help sustain a salmon fishery. This will force a reduction in water to Friant users at an average of 19% and a maximum of 23%. Friant contractors include the City of Lindsay, the City of Orange Cove, and the community of Strathmore, among others. The City of Fresno receives 40% of its water from the Friant system.

In August 2007, Judge Oliver Wanger reached a decision to reduce pumping in the Sacramento-San Joaquin Delta to save an endangered fish; the Delta Smelt. As a result, water supplies to Northern, Central, and Southern California will be reduced by 14-35%. An estimated 25 million people statewide use water from the Delta. The Central Valley, the Bay Area and Los Angeles will be affected by this ruling.

The decreased supply of surface water will lead to more pumping from the underground aquifers. We are currently in an overdraft situation, and the two recent lawsuits will further exacerbate this problem. Pumping additional water can lead to higher levels of contaminants in our residents' drinking water.

As you can see, the current water situation in Tulare County is in dire need of assistance. Losing water will affect agriculture and people. Our citizens will be left with a minimal supply of drinking water, and our farmers will not be able to irrigate their crops. Something must be done about this dangerous situation.

enclosure (12)

We urge you to support the Governor's plans for additional water storage and to impress upon your urban colleagues the need to endorse his plan. It is time to take action on this issue of great importance.

Sincerely,

Allen Ishida, Chairman
Tulare County Board of Supervisors

Connie Conway, Vice-Chairman
Tulare County Board of Supervisors

Phil Cox, District Three
Tulare County Board of Supervisors

J. Steven Worthley, District Four
Tulare County Board of Supervisors

Mike Ennis, District Five
Tulare County Board of Supervisors

CC: Tulare County Legislative Delegation

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The Quality of Our Nation's Waters: Nutrients and Pesticides *Circular 1225 (8-6-99)*

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DATE:	15 January 2008	SIGNATURE:	_____

SUBJECT: ***FEBRUARY 2006 DRAFT IRRIGATED LANDS EXISTING CONDITIONS REPORT***

I have reviewed Chapter 4 (Groundwater Quality) of the February 2006 *Draft Irrigated Lands Existing Conditions Report*. In general, it would be helpful to add an introduction to this Chapter that emphasizes the importance of and need to protect groundwater quality and that provides information that would be useful in developing a long-term regulatory program that will protect groundwater quality. Some of the introductory sections of each of the groundwater basins could be transferred to this introduction. Some suggestions for the Chapter 4 Introduction, Sacramento and San Joaquin Valley Groundwater Basins sections, and the long-term regulatory program follow.

CHAPTER 4 INTRODUCTION

Importance of Groundwater

For purposes of discussing the importance of groundwater in the Region, the Chapter Introduction could include very brief discussions of the following:

1. The importance of groundwater in the Central Valley Region.

   The extent of the groundwater basins and agriculture and the use of groundwater for agriculture uses as well as urban uses in the Region are significant and have been quantified in the Department of Water Resources Bulletin 118 available at http://www.groundwater.water.ca.gov/bulletin118/. Additional information on this can be found in United States Geological Survey (USGS) Scientific Investigation Report 2007-5179 available at http://pubs.usgs.gov/sir/2007/5179.

2. The connection of groundwater and surface water.

   The connection between groundwater and surface water is important in the development of any program designed to protect water resources since the movement of water from one hydrologic system to another can also move pollutants between the two systems. Discussions of the importance of the interconnection between groundwater and surface water can be found in *Why Protecting Land Helps Protect Water* available at http://www.tpl.org/tier3_print.cfm?folder_id=1885&content_item_id=21897&mod_type=1

and the California Department of Water Resources Bulletin 118 (*California's Groundwater*) available at http://www.groundwater.water.ca.gov/bulletin118/.

Groundwater systems are part of the entire hydrologic system and consist of recharge, discharge, and storage (aquifers) areas. Groundwater systems can be connected to surface water in each of these areas. It would be useful to include a conceptual model of a hydrologic system showing groundwater recharge, discharge, and storage areas. Some examples of recharge and discharge areas that could be included are:

- Recharge areas:
  - Infiltration of precipitation
  - Inflow from streams, rivers
  - Irrigation water leaching below a crop's root zone
  - Surface water pumped into an injection well to artificially store water in an aquifer
  - Agricultural return flows recirculated back to cropland

- Discharge areas:
  - Groundwater discharging to surface water along a stream
  - Groundwater pumping (discharging) from an aquifer to irrigate cropland running off the cropland as tailwater into a nearby stream or river
  - Shallow groundwater discharging to surface water via subsurface drains

An example conceptual model can be found at http://in.water.usgs.gov/NAWQAWHMI/act_sugar.php.

A discussion of groundwater in the California hydrologic cycle can be found in University of California's Division of Agriculture and Natural Resources (ANR) Publication 8083 (Basic Concepts of Groundwater Hydrology) available at http://anrcatalog.ucdavis.edu/pdf/8083.pdf.

The differences in the movement of surface water and groundwater are also important in the effects and solutions to pollution. Most important is that groundwater does not typically flow to a single outlet and groundwater movement occurs on a different time scale than surface water pollution. A discussion of this can be found in University of California's Division of Agriculture and Natural Resources (ANR) Publication 8084 (Groundwater Quality and Groundwater Pollution) available at http://groundwater.ucdavis.edu/Publications/Harter_FWQFS_8084.pdf.

Useful Information To Consider In Development of a Long-Term Regulatory Program

How agriculture impacts groundwater quality and the vulnerability of groundwater to pollution from agricultural practices will be important considerations when developing a long-term regulatory program for irrigated lands. The Chapter 4 Introduction should include a brief discussion of these issues as suggested below.

1. How agriculture impacts groundwater quality.
   To provide an understanding of how agriculture impacts groundwater quality in the Region, it would be helpful to include a discussion of the following:

- The methods of impact (irrigation resulting in leaching of imported, naturally occurring, or concentrated pollutants; tillage: drainage; chemical use; application of animal waste)
- The common pollutants in groundwater related to agriculture and their characteristics

Information on this can be found in the following:

- USGS Fact Sheet 2004-3098 (*Studies by the U.S. Geological Survey on Sources, Transport, and Fate of Agricultural Chemicals*, September 2004) available at http://pubs.usgs.gov/fs/2004/3098/pdf/fs2004-3098.pdf.
- Irrigated Agriculture Technical Advisory Committee Report available at http://www.swrcb.ca.gov/nps/docs/tacrpts/tac_irriag.doc.
- University of California's Division of Agriculture and Natural Resources (ANR) Publication 8055 (*Nonpoint Sources of Pollution in Irrigated Agriculture*) available at http://anrcatalog.ucdavis.edu/pdf/8055.pdf.
- University of California Sustainable Agriculture Research and Education Program Components Newsletter Spring 1990 (*California Agriculture and Groundwater Quality*) available at http://www.sarep.ucdavis.edu/newsltr/components/v1n2/sa-3.htm.

2. The importance of groundwater vulnerability to pollution.

Several agencies have recognized the importance of identifying the vulnerability of groundwater to pollution as a result of agricultural practices and use this information to prioritize where and what solutions are needed. A brief discussion of the Department of Pesticide Regulation's (DPR's) Groundwater Protection Program, the California Department of Food and Agriculture's (CDFA's) Fertilizer Research and Education Program (FREP), the California Department of Health Services Drinking Water Source Assessment Program, and the State Water Resources Control Board Groundwater Ambient Monitoring and Assessment (GAMA) Program would be helpful.

The discussion could include the factors used to evaluate groundwater vulnerability, what potential pollutants are evaluated, how the information is used, and where additional information on these programs can be found (DPR's Groundwater Protection Program at http://www.cdpr.ca.gov/docs/emon/grndwtr/index.htm, CDFA's FREP at http://www.cdfa.ca.gov/is/fflders/criteria.html, CDHS's DWSAP at http://www.cdph.ca.gov/certlic/drinkingwater/Pages/DWSAP.aspx, and the State Water Resources Control Board GAMA Program at http://www.waterboards.ca.gov/gama/index.html).

A brief discussion of the drainage problems along the west side of the San Joaquin Valley should also be included in this section. The San Joaquin Valley Drainage Program has identified areas along the west side of the San Joaquin Valley between the Sacramento-San Joaquin Delta and the Tehachapi Mountains to the south that are vulnerable to drainage problems caused by irrigation of cropland where the underlying groundwater is shallow and there are marine sediments derived from the Coast Ranges

that naturally contain elevated levels of salts and trace elements. Irrigation of these areas has leached the salts and trace elements from the sediments to groundwater. A shallow clay layer underlying these areas obstructs vertical movement of the irrigation water. Because of the poor drainage, the groundwater table rises to within a few feet of the surface and subsurface drainage is required to remove this water from the crop's root zone. The San Joaquin Valley Drainage Implementation Program (SJVDIP) was established in 1991 to implement recommendations of the San Joaquin Valley Drainage Program to address the drainage problems on the west side of the San Joaquin Valley. Information on these drainage problem areas is available at http://www.sjd.water.ca.gov/drainage/index.cfm and information on the SJVDIP is available at http://www.owue.water.ca.gov/statedrain/index.cfm.

Other Topics from the Sacramento River and San Joaquin Valley Groundwater Basin Introductory Sections

The Chapter 4 Introduction could also include some of the common topics that are included in the introductory sections for Sacramento River and San Joaquin Valley Groundwater Basins. These topics could then be removed from each of the Groundwater Basin discussions. These topics include the following.

1. Organization and Elements and General Sources of Information for both groundwater basins. This information is available under the separate introductory sections for the Sacramento River and San Joaquin Valley Groundwater Basin and would best be combined into the introduction to Chapter 4.

2. Constituents of Concern in Groundwater related to agriculture. Table 4 in the General Concepts and Processes Affecting Groundwater Quality in the Sacramento River Basin is also applicable to the San Joaquin Valley Groundwater Basin and could be included in the Chapter 4 Introduction.

SACRAMENTO RIVER AND SAN JOAQUIN VALLEY GROUNDWATER BASIN SECTIONS

Introductory Sections

The introductory section for each of the groundwater basins should be consistent. Assuming the Chapter 4 Introduction includes the recommendations above, the remaining topics in the introductory sections for each groundwater basin should include:

1. Overview of Agricultural Chemical Impacts to Groundwater
   This information for the Sacramento River Basin is currently under the heading General Concepts and Processes Affecting Groundwater Quality in the introductory section to the Sacramento River Basin. This heading (not the information under the heading) should be revised to Overview of Agricultural Chemical Impacts to Groundwater to be consistent with the San Joaquin Valley Groundwater Basin.

2. Groundwater Movement and Solute Transport
   The section on Groundwater Movement and Solute Transport in the Sacramento River Basin introductory section discusses results of a GAMA study on the susceptibility of groundwater in the Chico area to contamination (The report should provide a reference for this discussion). It is not mentioned that the GAMA program has also completed similar studies in the Fresno, Stanislaus, Sacramento, and Kern County areas and is also

working on a similar study in the San Joaquin County area. It would be appropriate to discuss the GAMA study results for the Sacramento County area or at least refer to the study in the Sacramento River Basin introductory section.

It would also be appropriate to include a section on Groundwater Movement and Solute Transport in the San Joaquin Valley Groundwater Basin introductory section where the results of the GAMA studies in the Fresno, Stanislaus, and Kern County areas could be summarized. A table similar to Table 4-3 (Summary of Groundwater Quality Issues for the Groundwater Basins) in the introductory section of the Sacramento River Basin under the subheading Groundwater Quality Summary would be very useful in the San Joaquin Valley Groundwater introductory section as well.

3. General Management Practices
Management Measures are discussed for each groundwater subbasin in the Sacramento River Basin. Management Measures are not discussed for the subbasins in the San Joaquin Valley Groundwater Basin although the introductory section for the San Joaquin Valley Groundwater Basin includes a discussion of General Management Practices. A consistent approach should be used for both groundwater basins. Since most of the subbasins for the Sacramento River Basin indicate that management measures were not identified and management measures for subbasins that have the same crops were the same, it would be appropriate to summarize management practices specific to certain crop types grown in the Sacramento River Basin under the heading General Management Practices in the introductory section of the Sacramento River Basin.

The discussions of groundwater level and groundwater quality monitoring by government agencies and Groundwater Management Plans that are included in the Sacramento River Subbasin discussions are not appropriate under the heading Management Measures. Such information is useful but would be more appropriate in the section on Pertinent Ordinances or Regulations.

4. Assessment of Data Adequacy
Each Sacramento River Subbasin includes a discussion of the Assessment of Data Adequacy and Need for Added Data. There is no discussion of data adequacy for each groundwater subbasin in the San Joaquin Valley Groundwater Basin although the introductory section for the San Joaquin Valley Groundwater Basin includes a discussion of Assessment of Data Adequacy. A consistent approach should be used for both groundwater basins. Since for most of the subbasins in the Sacramento River Basin "Data from DWR provide somewhat limited picture of groundwater quality...in that there is not extensive areal coverage for groundwater quality" it would be appropriate to summarize this in the introductory section to the Sacramento River Basin and remove the Assessment of Data Adequacy and Need for Added Data from the subbasin discussions. Also, the following should be removed from the Sacramento River Basin under the heading Assessment of Data Adequacy: (1) the discussion of the Need for Added Data since the purpose of the Existing Conditions Report does not include identifying where more data is needed, and (2) groundwater quality issues for each subbasin should be moved to the Water Quality section of each subbasin.

Other useful information (available in California Department of Water Resources Bulletin 118) that could be included in the introductory section for each groundwater basin includes:

- General hydrogeology (general groundwater flow direction, Coast Range sediments on west side and Sierra Nevada sediments on east side – additional information is available in *A Management Plan for Agricultural Subsurface Drainage and Related problems on the Westside San Joaquin Valley, Final Report of the San Joaquin Valley Drainage Program*, September 1990 available at http://www.owue.water.ca.gov/docs/RainbowReportIntro.pdf).
- Groundwater development

Subbasin Sections

The Sacramento River Subbasin and San Joaquin Valley Groundwater Subbasin discussions should follow the same format. The following differences were noted.

1. Management Measures
   For the Sacramento River Subbasins, this information should be moved to the introductory section to the Sacramento River Basin under the heading General Management Practices as noted on page 5 above.

2. Assessment of Data Adequacy and Need for Added Data
   For the Sacramento River Subbasins, this information should be moved to the introductory section to the Sacramento River Basin under the heading Assessment of Data Adequacy as noted on page 5 above.

3. Water Quality
   The Water Quality discussions for the Sacramento River Subbasins only include general water quality information on inorganics from DWR Bulletin 118, while the Water Quality discussions for the San Joaquin Valley Groundwater Subbasins includes the general water quality information from DWR Bulletin 118 (Inorganic Constituents) and information on pesticides from the Department of Pesticide Regulation (DPR). Pesticides in the Sacramento River Basin counties are discussed in the introductory section of the Sacramento River Basin. A consistent approach should be used for both groundwater basins. Some consistency could be provided without having to add additional information to the Water Quality section of the Sacramento River Basin by including a table similar to Table 4-2 (Pesticide Detections in Wells for Counties in the Sacramento River Basin (1985-2003)) in the San Joaquin Valley Groundwater Basin introductory section with the appropriate counties listed.

4. The introductory section and the subbasin sections for the Sacramento River Basin use the word "we" in describing what is included or discussed in the report. The word "we" does not occur in the San Joaquin Valley Groundwater Basin or Subbasin discussion. Use of the word "we" is not appropriate in the report and should be removed.

LONG-TERM PROGRAM CONCERNS

Dairies

The current waiver program for discharges from irrigated lands does not cover discharges from irrigated lands that receive liquid waste from sources such as dairy operations and food

processors and requires that owners and/or operators of facilities that receive such liquid waste must obtain waste discharge requirements or a separate conditional waiver. Under Waste Discharge Requirements General Order No. R5-2007-035 for Existing Milk Cow Dairies (General Order), owners and/or operators of existing dairies that apply dairy waste (liquid or solid) to land that is under their control are required to develop and implement a nutrient management plan and monitor discharges of storm water and tailwater (when irrigation has occurred less than 60 days after application of manure and/or wastewater) to surface water. Dairy owners/operators who transfer their wastewater to a third party for the third party's use are only required to have a written agreement with the third party. While the third party agrees to use the wastewater at agronomic rates and prevent runoff of wastewater to surface water in the written agreement, the third parties are not currently directly regulated under either the General Order or the Irrigated Lands Waiver Program.

If third parties are put under waste discharge requirements, it would likely discourage them from receiving dairy wastewater and would likely require significant staff resources since such transfers of waste can fluctuate significantly within short periods of time. It may be appropriate to consider allowing these lands to be covered under the long-term irrigated lands program with the requirement that a nutrient management plan be developed and implemented for any such land. This requirement could also be applied to third parties that receive solid waste from dairies, who are now covered under the irrigated lands waiver program.

Water Quality Protection Measures

The long-term regulatory program should be an integrated approach with the goal of protecting both surface water and groundwater quality. Any required management measures to protect surface water should not have a negative impact on groundwater quality, and vice versa.

RECOMMENDED NEXT STEPS

The most efficient way to revise Chapter 4 would be a stepwise approach. The first revisions should include the following (see the discussion above and the outline below).

1. Draft the Chapter 4 Introduction.

2. Revise the introductory section to the San Joaquin Valley Groundwater Basin (this section needs more additional information than the Sacramento River Basin introductory section).

3. Revise the first subbasin of both the Sacramento River Basin and the San Joaquin Valley Groundwater Basin.

Once these revisions are completed, then the introductory section of the Sacramento River Basin and the remaining subbasin discussions can be completed.

The following outline for a revised Chapter 4 should be used as guide to complete Chapter 4.

Chapter 4 Introduction
Importance of Groundwater
Useful Information to Consider in Development of a Long-Term Regulatory Program
    How Agriculture Impacts Groundwater Quality
    Importance of Groundwater Vulnerability to Pollution
Organization and Elements
General Sources of Information
Constituents of Concern in Groundwater Related to Agriculture .

Sacramento River Basin
Introduction
    Overview of Agricultural Chemical Impacts to Groundwater - *This is under the heading General Concepts and Processes Affecting Groundwater Quality in the Sacramento River Basin in the 2006 Draft Existing Conditions Report*
    Groundwater Movement and Solute Transport – *add discussion of GAMA study in Sacramento County area*
    Groundwater Quality Summary
    General Management Practices
    Assessment of Data Adequacy
    General Hydrogeology
    Groundwater Development

Subbasins (Individual)
General Basin Parameters
    Acreage, Physiography, and Water-Bearing Units
    Major Sources of Recharge
    Land Use
    Coalitions, Water Districts, Major Urban Areas
    Pertinent Ordinances or Regulations – *include any Groundwater Management Plans or groundwater level or groundwater quality monitoring by government agencies as noted under Management Measures in the 2006 Draft Existing Conditions Report*
Water Quality – *move water quality discussions covered under the heading Assessment of Data Adequacy and Need for Added Data in the 2006 Draft Existing Conditions Report to this section*
    Inorganics
    Pesticides
    Other
Discharge Pathways and Sources of Contaminants - *The subheadings Dissolved Solids, Nitrate, Boron, and Pesticides should be moved to the Water Quality section.*

San Joaquin Valley Groundwater Basin
Introduction
    Overview of Agricultural Chemical Impacts to Groundwater - *Include a table similar to Table 4-2 (Pesticide Detections in Wells for Counties in the Sacramento River Basin (1985-2003)) with the appropriate counties listed*

Groundwater Movement and Solute Transport – *add discussion of GAMA studies in Fresno, Kern, and Stanislaus County areas*
Groundwater Quality Summary – *add a table similar to Table 4-3 (Summary of Groundwater Issues for the Groundwater Basins)*
General Management Practices
Assessment of Data Adequacy
General Hydrogeology
Groundwater Development

Subbasins (Individual)
General Basin Parameters
Acreage, Physiography, and Water-Bearing Units
Major Sources of Recharge
Land Use
Coalitions, Water Districts, Major Urban Areas
Pertinent Ordinances or Regulations
Water Quality
Inorganics
Pesticides
Other
Discharge Pathways and Sources of Contaminants

Temporal trends in concentrations of DBCP and nitrate in groundwater in the eastern San Joaquin Valley, California, USA

K. R. Burow · N. M. Dubrovsky · J. L. Shelton

Abstract Temporal monitoring of the pesticide 1,2-dibromo-3-chloropropane (DBCP) and nitrate and indicators of mean groundwater age were used to evaluate the transport and fate of agricultural chemicals in groundwater and to predict the long-term effects in the regional aquifer system in the eastern San Joaquin Valley, California. Twenty monitoring wells were installed on a transect along an approximate groundwater flow path. Concentrations of DBCP and nitrate in the wells were compared to concentrations in regional areal monitoring networks. DBCP persists at concentrations above the US Environmental Protection Agency's maximum contaminant level (MCL) at depths of nearly 40 m below the water table, more than 25 years after it was banned. Nitrate concentrations above the MCL reached depths of more than 20 m below the water table. Because of the intensive pumping and irrigation recharge, vertical flow paths are dominant. High concentrations (above MCLs) in the shallow part of the regional aquifer system will likely move deeper in the system, affecting both domestic and public-supply wells. The large fraction of old water (unaffected by agricultural chemicals) in deep monitoring wells suggests that it could take decades for concentrations to reach MCLs in deep, long-screened public-supply wells, however.

Résumé Les suivis en temps du pesticide 1,2-dibromo-3-chloropropane (DBCP), des nitrates et des indicateurs de l'âge moyen des eaux souterraines ont été utilisés dans le but d'estimer le transport et le devenir des produits agrochimiques dans les eaux souterraines, et de prédire leurs effets à long terme dans le système aquifère régional de la San Joaquin Valley orientale, en Californie. Vingt piézomètres ont été implantés en alignement, approximativement selon une ligne de flux souterrain. Les concentrations en DBCP et nitrates mesurées dans les piézomètres ont été comparées aux concentrations dans les réseaux de surveillance du secteur. Le DBCP dépasse continuellement la valeur limite fixée par l'US Environmental Protection Agency, à des profondeurs proches de 40 m sous le niveau piézométrique, et plus de 25 ans après son interdiction. Les concentrations en nitrates supérieures aux limites se retrouvent à des profondeurs supérieures à 20 m sous le niveau piézométrique. Les écoulements verticaux sont prépondérants, du fait des pompages intensifs et de la réalimentation par irrigation. Les concentrations élevées (supérieures aux limites) présentes dans la tranche la plus superficielle de l'aquifère sont susceptibles de migrer plus en profondeur dans le système, et d'affecter les puits privés et ceux destinés à l'alimentation en eau potable. Cependant, la large proportion d'eau ancienne (non affectée par les produits agrochimiques) dans les piézomètres profonds suggère que les limites de concentration ne seront pas dépassées avant longtemps dans les puits d'alimentation en potable, qui sont profonds et présentent des hauteurs crépinées conséquentes.

Resumen La monitorización temporal del plaguicida 1,2-dibromo-3cloropropano (DBCP) y de los nitratos así como indicadores de la media de edad del agua subterránea han sido utilizados para evaluar el transporte y el destino de los compuestos químicos en el agua subterránea y para predecir los efectos a largo plazo en el sistema acuífero regional situado al este del Valle de San Joaquín, California. Se instalaron veinte pozos de control en un transecto situado aproximadamente siguiendo la línea de flujo del agua subterránea. Las concentraciones de DBCP y nitratos en los pozos se compararon con las concentraciones en la red de control regional. DBCP persiste con concentraciones por encima de los niveles máximos contaminantes (MCL) de la Agencia de Protección Medioambiental de Estados Unidos a profundidades cercanas a los 40 fm por debajo del nivel piezométrico, más de 25 años después de haber sido prohibido. Las concentraciones de nitratos por encima de MCL alcanzaron profundidades de más de 20 m por debajo del nivel piezométrico. Debido al bombeo intensivo y los retornos de riego, las líneas de flujo verticales son dominantes. Las altas concentraciones (por encima de MCLs) situadas en la parte superficial del sistema acuífero regional probablemente se moverán más profundamente en el sistema,

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afectando a los pozos domésticos y a los pozos de abastecimiento. No obstante, la alta proporción de aguas antiguas (no afectadas por compuestos químicos de origen agrícola) en los pozos de control profundos sugiere que pueden pasar décadas para que se alcancen concentraciones que alcancen MCLs en profundidad, en los pozos de abastecimiento totalmente ranurados.

Keywords Agriculture · Contamination · San Joaquin Valley · Groundwater monitoring · Groundwater age

Introduction

Widespread occurrence of 1,2-dibromo-3-chloropropane (DBCP) and nitrate at concentrations of concern affects both rural and public drinking-water supplies in the eastern San Joaquin Valley, California. DBCP, a soil fumigant used to control nematodes, was applied to crops nationwide beginning in the 1950s. In 1977, agricultural use of DBCP was suspended in California in response to concern about the potential hazardous effects of DBCP on human health; however, DBCP persists in groundwater in this region at concentrations above the US Environmental Protection Agency (USEPA) maximum contaminant level (MCL) of 0.2 μg/L, posing a threat to drinking-water supplies more than 25 years after it was banned from use (California State Water Resources Control Board 2002a). Similarly, nitrate occurrence in groundwater is an issue of concern, in part, because nitrate concentrations persist in oxic groundwater and have increased over time in many areas (Nightingale 1970; Schmidt 1972; Madison and Brunett 1985; Lowry 1987; Anton et al. 1988; Almasri and Kaluarachchi 2004). Nitrate has been widely detected in groundwater in the eastern San Joaquin Valley. Nitrate concentrations exceeded the USEPA MCL of 10 mg/L (as nitrogen) in 24% of domestic wells sampled during 1993–1995 (Dubrovsky et al. 1998), and the Central Valley is one of the top three regions in the state in regards to the number of public drinking-water wells exceeding the USEPA MCL for nitrate (California State Water Resources Control Board 2002b). Nitrate concentrations in groundwater in the eastern San Joaquin Valley are expected to persist over the long term, owing to continued anthropogenic nitrogen inputs and generally oxic geochemical conditions.

Many studies have addressed issues of DBCP and nitrate occurrence and sources in the eastern San Joaquin Valley aquifer (Schmidt 1972; Miller and Smith 1976; Nightingale and Bianchi 1974; Schmidt 1986, 1987; Burow et al. 1998a; Harter et al. 1998; Loague et al. 1998a,b; Loague and Abrams 1999) and some studies have analyzed data on temporal trends in concentration (Nightingale 1970; Schmidt 1972; California State University Fresno Foundation 1994; Kloos 1996; Burow et al. 1998b; Burow et al. 1999); however, long-term monitoring data are scarce, and few wells have been sampled over time spans long enough to assess the potential for long-term degradation of the groundwater resource. Predicting the long-term fate of agricultural chemicals in groundwater in this region is difficult owing to intensive groundwater pumping, mixing sources of recharge water, and complex flow paths through heterogeneous alluvial fan sediments. Coupling chemical concentrations with groundwater age indicators can aid in understanding groundwater-flow systems and identifying trends in groundwater quality (Cook and Böhlke 1999; Lindsey et al. 2003; MacDonald et al. 2003; Broers and van der Grift 2004; Puckett and Hughes 2005). Understanding the behavior of nonpoint source agricultural constituents such as DBCP and nitrate, is fundamental to predicting the long-term effects of anthropogenic practices on the quality of groundwater in the eastern San Joaquin Valley. Analysis of these constituents can assist in characterizing dominant aquifer processes controlling the fate and transport of a wide range of possible chemicals of concern in the subsurface.

To assess temporal trends in groundwater quality in the study area and determine the possible long-term effects of agricultural management practices on groundwater quality in this region, DBCP and nitrate concentrations in groundwater were analyzed in samples collected from monitoring wells in 1994–1995 and in 2003. The monitoring wells were installed at multiple depths along a transect, representing a range of groundwater ages. The groundwater ages, determined from CFC concentrations, were used to estimate the concentration of DBCP and nitrate in recharge through time. Simulated age distributions for each monitoring well, derived from a groundwater flow and transport model developed for the study site (Weissmann et al. 2002b), were evaluated in relation to DBCP concentrations and compared to previous estimates of the in-situ half-life of DBCP in the aquifer (Burow et al. 1999). Spatial and temporal patterns of nitrate concentrations were also evaluated and compared to nitrogen fertilizer applications. Simulated age distributions (Weissmann et al. 2002b) were used to adjust fertilizer application curves to further interpret apparent changes in nitrate concentration over time. Results of the analysis at the study site were compared to data from regional areal well networks to extrapolate the findings to a larger spatial scale.

Study area

Hydrogeology of Fresno study area

The study area is west of the foothills of the Sierra Nevada and east of the San Joaquin Valley trough on the upper part of the Kings River alluvial fan (Fig. 1). The alluvial sediments consist primarily of interlayered lenses of gravel, sand, silt, and clay deposited by the Kings River in aggradation sequences linked to Pleistocene glacial episodes (Burow et al. 1997; Weissmann et al. 2002a). These sediments were derived from source materials in the Sierra Nevada that consist primarily of granitic rocks, with lesser amounts of metasedimentary and metavolcanic rocks (Page and LeBlanc 1969; Cehrs et al. 1980).

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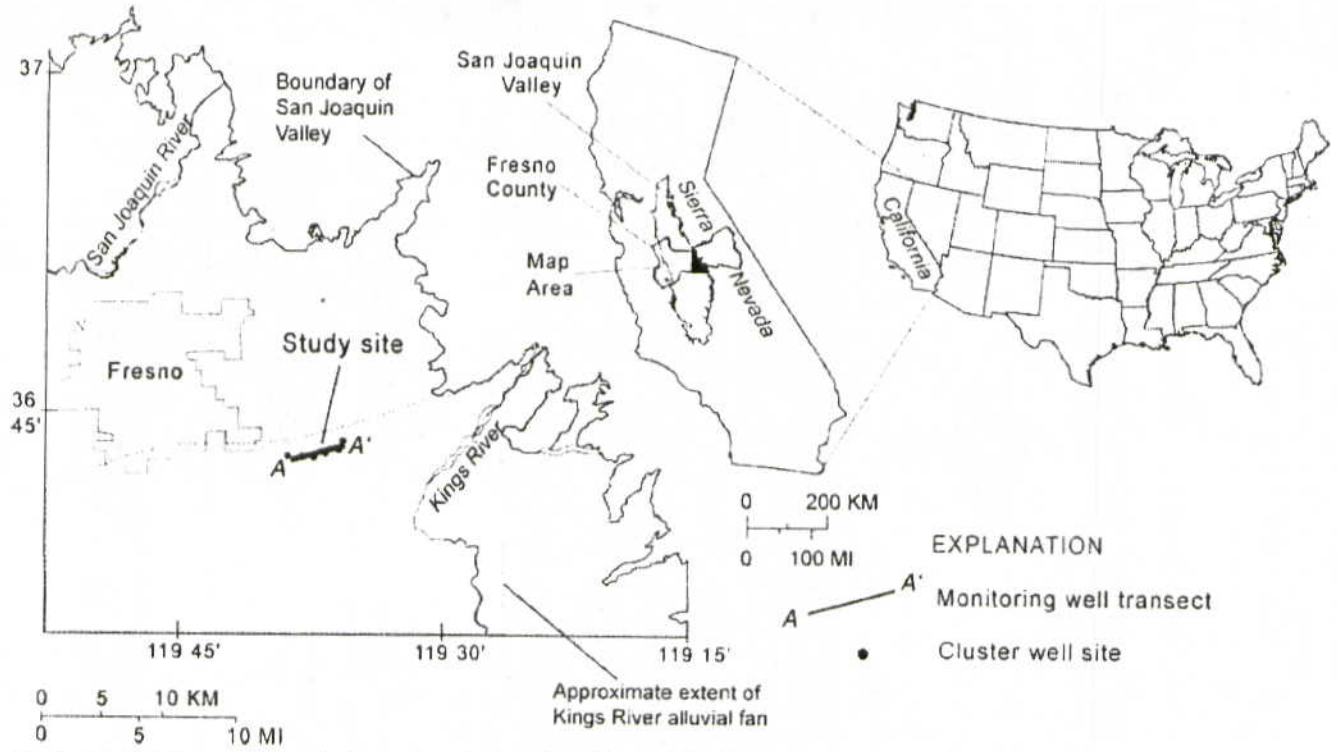


Fig. 1 Study site near Fresno in the eastern San Joaquin Valley, California

The aquifer in the study area is unconfined. Locally, water-bearing layers of sand and gravel are confined by clay layers, but at the regional scale, the sand layers are interconnected (Page and LeBlanc 1969). The transmissivity of the aquifer sediments ranges from about 650 to 2,000 m^2/day (Page and LeBlanc 1969); the hydraulic conductivity of the individual hydrogeologic facies units ranges over several orders of magnitude (Burow et al. 1999).

Regional movement of groundwater is southwest, toward the axis of the San Joaquin Valley; however, because of the intensive pumping and irrigation recharge, the dominant flow paths in the aquifer system are vertically downward. The horizontal gradient along the transect is about 0.002, whereas vertical gradients between monitoring wells varied from 0.0003 to 0.1, due to local confining clay layers or pumping of nearby irrigation wells (Burow et al. 1999). Groundwater in the study area is recharged by artificial recharge from canal seepage and infiltration of excess irrigation water; by natural recharge from precipitation, rivers, and streams; and by subsurface inflow from adjacent areas. Pumping is the primary mechanism of groundwater withdrawal in the study area, although some groundwater flows downgradient to adjacent areas or discharges into the San Joaquin and Kings Rivers (Muir 1977).

Groundwater development in the study area began in about 1880. Groundwater withdrawals increased slowly until the 1940s and 1950s when groundwater pumping for irrigation increased sharply (Bertoldi et al. 1991). Beginning in the early 1950s, water from the San Joaquin River, which has low nitrate and DBCP concentrations, was diverted into canals to distribute surface water to farms in the study area. In 2000, about 14 m^3/day of water was used in this region; more than 90% of the water is used for irrigation (Hutson et al. 2004). The relative proportion of surface water and groundwater used for irrigation varies spatially and temporally. Fields adjacent to the irrigation canals likely receive more surface water than fields at greater distances. During wet years, surface-water supplies may be available during the irrigation season, but during dry years, many farmers rely solely on groundwater for irrigation. Although the source of water to specific locations varies from year to year, about 50% of the total urban and agricultural water use is supplied by groundwater (Fred Stumpf, California Department of Water Resources, unpublished data, 1988; Hutson et al. 2004).

Land use and sources of DBCP and nitrate

Agriculture is the predominant land use in the San Joaquin Valley. In the eastern San Joaquin Valley, vineyards occupy about 19% of the more than 1.1 million ha of agricultural land. In eastern Fresno County near the monitoring well transect, grapes have been grown since the late 1800s and the area of harvested grapes has increased steadily from about 570 km^2 in 1958 to more than 900 km^2 in the late 1990s (Fresno County Agricultural Commissioner, unpublished data, 2005). The acreage of vineyards near the monitoring well transect has remained relatively constant during the last several decades (Fig. 2); however, some individual fields were converted from vineyards to other crops (primarily orchards) between 1987 and 2000 (California Department of Water Resources 1971, 2001).

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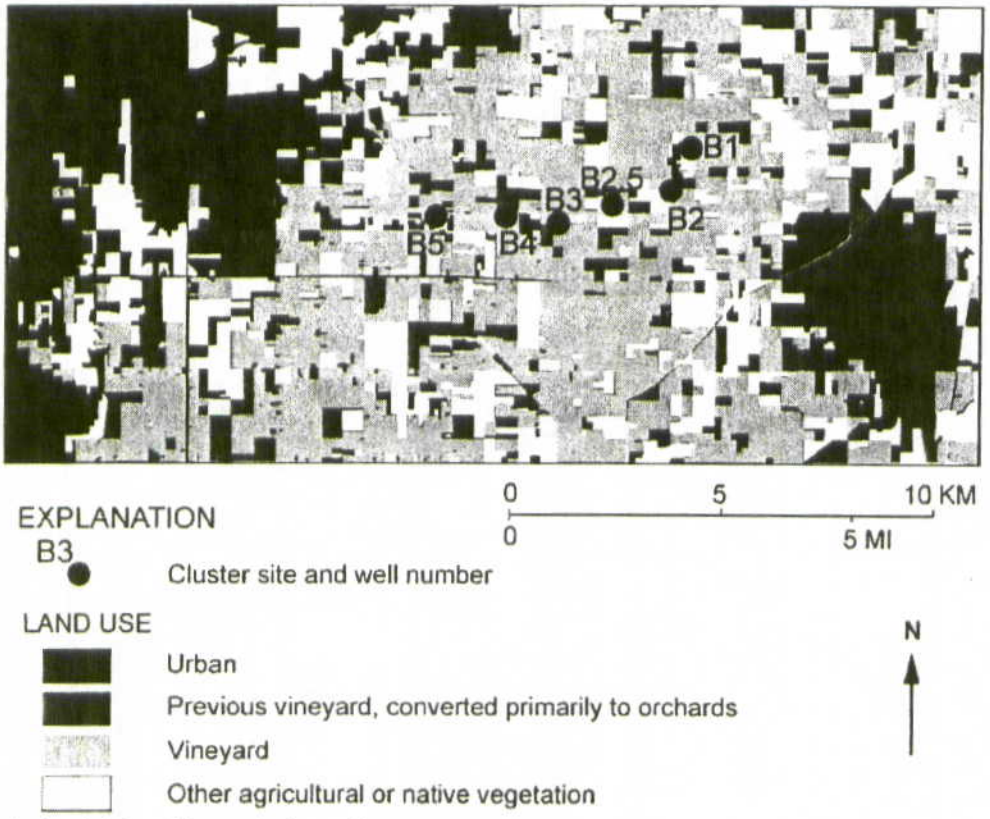


Fig. 2 Land use in the vicinity of the monitoring well transect

Application of DBCP to crops is not well documented, although partial reporting of applications to the California Department of Pesticide Regulation indicates that DBCP was used primarily on vineyards and orchards beginning in the 1950s; the most intensive use was between about 1960 and 1977 (California Department of Food and Agriculture 1973; Domagalski 1997). DBCP was used intermittently to treat nematode problems that occurred especially in older, well-established crops; at many locations it was used only once (California State University Fresno Foundation 1994). In 1977, agricultural use of DBCP was suspended in California in response to concern about the potential hazardous effects of DBCP on human health (California State Water Resources Control Board 2002a).

The persistence of DBCP was documented in laboratory studies, which indicated a half-life ranging from 6.1 years (Deeley et al. 1991) to more than 140 years (Burlinson et al. 1982). The term half-life is a radioactive decay rate that is often used to represent organic chemical transformation. Half-life is used here to represent the time required for the concentration of DBCP to decrease to one-half of the original value, and was determined in laboratory studies by curve-fitting the kinetic data. Several of the chemical and physical properties of DBCP facilitate its transport to groundwater and its continued presence in the aquifer near Fresno. DBCP has a relatively low vapor pressure, 0.8 torr at 21°C, and a moderate water solubility, 700–1,230 mg/L at 20°C (Burlinson et al. 1982; US Environmental Protection Agency 1985). Using subsurface sediments from the Fresno area, Deeley et al. (1991) determined that DBCP is weakly sorbed (K_D, sorption coefficient, ranged from 0.06 to 0.07 l/kg), owing to the predominantly low organic content of soils in this area. Laboratory experiments by Castro and Belser (1968) indicate that DBCP could undergo biological transformation in soils, but DBCP is resistant to biological transformation in well-oxygenated groundwater (Bloom and Alexander 1990) such as the groundwater in the Fresno area. An apparent half-life for DBCP determined from a contaminant transport modeling study (Burow et al. 1999) is consistent with the 6.1-year half-life determined by Deeley et al. (1991). Results from Burow et al. (1999) indicate that chemical transformation of DBCP to 2-bromoallyl alcohol (BAA) is not a dominant process, however, and the mechanism for decreases in concentrations observed in the Fresno region was not determined. Apparent decreases in DBCP concentrations may be due to unknown transformation processes or the result of physical processes such as hydrodynamic dispersion and pumping and reapplication of irrigation water (Burow et al. 1999).

Nitrate occurs naturally in groundwater; however, in agricultural areas, elevated concentrations of nitrate (above background levels) occur as the result of farming operations where nitrogen fertilizers or manure are applied (Nightingale 1972; Owens et al. 1992), confined animal feeding operations, and rural septic systems. In the study

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area, confined animal feeding operations were not present, and background concentrations of nitrate are expected to be less than 3 mg/L (Schmidt 1972). Septic inputs were expected to be small, relative to the contribution from the surrounding crops, although locally they could affect concentrations in water from individual wells. In contrast to DBCP use in the area, nitrogen fertilizer use has generally increased since the 1950s (Alexander and Smith 1990; Battaglin and Goolsby 1994; Ruddy et al. 2006). Nitrogen fertilizers were applied more consistently (spatially and temporally) than DBCP and continued to be applied after DBCP use was banned.

Methods

Twenty monitoring wells were installed in 1994–1995 at depths ranging from 21.3 to 81.7 m below land surface at six cluster sites along a 5.9-km transect southeast of Fresno (Figs. 2 and 3). The length of the screened interval of each well is about 1.5 m (Burow et al. 1997, 1999). The monitoring well transect generally was aligned in the direction of regional groundwater flow in the study area.

Groundwater samples were collected during 1994–1995 and 2003 and analyzed for DBCP and nitrate concentrations. Groundwater samples were also collected and analyzed for CFCs and SF_6 concentrations to estimate mean groundwater ages along the transect. Concentrations of nitrate plus nitrite are hereafter referred to as nitrate because nitrite was only detected in three samples and accounted for less than 3% of the total nitrate plus nitrite in those samples.

Groundwater samples were collected using protocols developed by the USGS National Water-Quality Assessment (NAWQA) program (Koterba et al. 1995) and are further described in Burow et al. (1999). Analyses of DBCP and nitrate were completed at the USGS National Water-Quality Laboratory (NWQL) in Arvada, Colorado. DBCP samples were collected by filling 40-ml vials with unfiltered water and analyzed by liquid/liquid extraction followed by gas chromatography/electron-capture detection (GC/ECD; Fishman 1993). The detection limit for DBCP using this method was 0.03 μg/L. Nitrate samples were filtered using a 0.45-μm pleated capsule filter and analyzed using standard methods of analysis (Fishman and Friedman 1985). Following collection of the samples described above, a submersible, positive-displacement piston pump with 0.6-cm diameter aluminum tubing was used to collect samples for analysis of CFC concentrations using methods described by Busenberg and Plummer (1992). The samples were analyzed for dichlorodifluoromethane (CFC-12), trichlorofluoromethane (CFC-11), and trichlorotrifluoromethane (CFC-113) by the USGS labo-

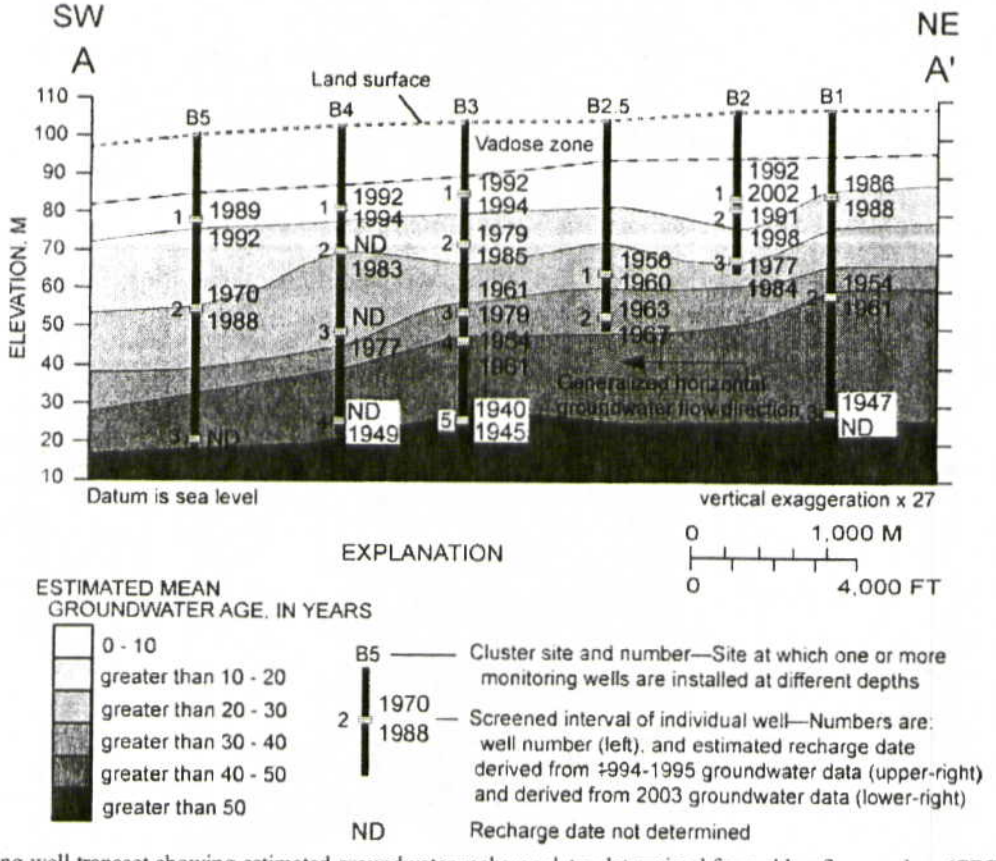


Fig. 3 Monitoring well transect showing estimated groundwater recharge dates determined from chlorofluorocarbon (CFC) concentrations in groundwater samples collected from wells during 1994–1995 and 2003 (refer to Fig. 1 for transect location)

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ratory in Reston, Virginia, using a purge-and-trap GC/ECD procedure (Busenberg and Plummer 1992). Samples were collected for dissolved gases (N_2, Ar, CO_2, CH_4, and O_2) and sulfur hexafluoride (SF_6) also. The dissolved gas samples were analyzed by gas chromatography after extraction in headspaces of glass samplers (Busenberg et al. 1998), and SF_6 was determined by methods described in Busenberg and Plummer (2000).

Results and analysis

Groundwater age

Mean groundwater ages (the mean age of groundwater reaching the wells) were estimated along the monitoring well transect using CFC concentrations in samples collected in 1994–1995 (Burow et al. 1999) and in 2003 (Table 1). CFC concentrations were the primary age tracers used in this analysis; SF_6 concentrations were used primarily to corroborate the CFC-determined ages.

In the study area, CFC-based mean groundwater age increased with depth (Fig. 3). Groundwater in the shallow aquifer depth zone, less than or equal to 10 m below the water table, was generally less than 15 years old, whereas groundwater in the deep aquifer depth zone, more than 60 m below the water table, was generally more than 45 years old (Table 1). In most samples, concentrations of two or more tracers were evaluated and compared to simple analytical models of groundwater age (e.g., Cook and Böhlke 1999) using the TRACERMODEL software (Böhlke 2005). The groundwater age interpreted from concentrations of the various tracers were generally concordant, indicating a lack of significant mixing between young (1940s or younger) and old, pre-tracer-aged groundwater. The mean groundwater ages determined from CFC concentrations were based primarily on a piston-flow model (Plummer and Busenberg 2004), where the ages of groundwater samples from different depths are nearly uniform. Some samples indicated local contamination problems and other samples had concentrations consistent with the early (1940s) or late (after 1990s) part of the input curve, which resulted in a greater uncertainty in interpreted mean ages. Additional factors considered in the interpretation of mean age included comparison to concentrations of other solutes, knowledge of specific site history, and fitting of a conceptual model for position of the well in the flow system.

Mean groundwater ages determined from groundwater flow and transport simulations (Weissmann et al. 2002b) were older than the CFC-based mean ages-about 25 years in the shallow aquifer depth zone and more than 100 years in the intermediate (10–60 m below the water table) and the deep depth zones. Simulated CFC concentrations were similar to observed concentrations, however (Weissmann et al. 2002b). The mean ages determined from the simulations were older than CFC-based mean ages because the simulated mean ages account for the full distribution of ages of water reaching the well screens, including water that is older than the introduction of the age-dating tracers into the environment. As noted by Kazemi et al. (2006), it is difficult to accurately represent complex groundwater-flow systems with simple analytical models; however, the simulated age distributions resembled a piston-flow type curve in the shallow part of the system, and resembled an exponential-piston-flow- or dispersion-type curve with depth as the proportion of old, pre-tracer-aged groundwater increased. Conceptually, the piston-flow part of the age distribution curves likely represents the young fraction of water traveling through preferential flow paths, whereas the exponential part of the age distribution curves represent older water traveling along slower flow paths or diffusing from fine-grained sediments. Because the CFC concentrations indicated a lack of significant mixing, the CFC-based mean ages reflect the mean age of the young, piston-flow fraction of water reaching the wells.

Change in DBCP concentrations

DBCP concentrations in 2003 persisted at concentrations above the USEPA MCL at 7 of the 20 wells along the monitoring well transect (Table 1), at depths of nearly 40 m below the water table. DBCP concentrations increased in 6 of the 20 wells between 1994–1995 and 2003 but decreased in 8 other wells. DBCP was not detected in either 1994–1995 or 2003 in the remaining six wells, likely reflecting variability in application patterns and the effects of heterogeneity on transport in the subsurface. The largest changes in concentration were decreases in the high concentrations at site B2 (Table 1) in the shallow and intermediate depths of the aquifer, suggesting that high-DBCP water was replaced by recharge with low-DBCP water at this site (Fig. 4). DBCP concentrations varied greatly near the water table. DBCP was not detected in either 1994–1995 or 2003 at shallow aquifer depths at sites B3 and B4. DBCP was also not detected in the deepest wells at sites B3, B4, and B5 (Fig. 4). DBCP concentrations increased at intermediate aquifer depths at sites B2.5, B3, and B4, and although the concentrations were low, the largest percentage change in concentrations between 1994–1995 and 2003 was at wells with increases in low concentrations (Table 1). The largest percentage change in concentration occurred at B1-3, the deepest well along the transect where DBCP was detected. DBCP concentrations also increased in the intermediate and shallow depth wells at site B1, indicating that high concentrations of DBCP have moved laterally and downward within the aquifer adjacent to site B1.

Persistence of DBCP and initial concentrations

Using the change in concentration of DBCP and estimated groundwater recharge dates derived from CFC concentrations in groundwater samples collected in 1994–1995 and 2003, an in-situ half-life estimate for DBCP in groundwater was calculated. The DBCP half-life was calculated using a first-order decay equation (Domenico and Schwartz 1998),

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Table 1 Mean groundwater age determined from chlorofluorocarbon (CFC) concentrations, and 1,2-dibromo-3-chloropropane (DBCP) and nitrate concentrations in groundwater samples in 1994–1995 and 2003 in the eastern San Joaquin Valley, California

Well (Figs. 2 and 3)	Depth below land surface to midpoint of screened interval (m)	Depth below water table (m)	Depth zone[a]	Mean age for 1994–95 samples (years)	Mean age for 2003 samples (years)	DBCP in 1994–1995 (μg/L)[b]	DBCP in 2003 (μg/L)[b]	Difference in DBCP concentration (percent)	Nitrate in 1994–1995 (mg/L)[c]	Nitrate in 2003 (mg/L)[c]	Difference in nitrate concentration (%)
B1-1	22.4	7.2	Shallow	8	16	2.6	3.1	19	8.6	11	28
B1-2	48.9	33.7	Intermediate	41	43	0.29	0.49	69	2.3	2.4	4
B1-3	79.4	64.2	Deep	48	ND	<0.03	0.18	500	1.4	2.1	50
B2-1	22.4	7.2	Shallow	2	2	2.8	0.17	−94	12	20	67
B2-2	25.2	10.0	Shallow	4	6	3.0	0.44	−85	14	18	29
B2-3	38.9	23.7	Intermediate	18	19	6.4	3.6	−44	11	13	18
B2.5-1	40.4	25.2	Intermediate	39	43	<0.03	0.08	170	1.9	2.2	16
B2.5-2	51.7	36.5	Intermediate	32	37	0.86	0.47	−45	3.3	3.9	18
B3-1	19.0	3.8	Shallow	3	9	<0.03	<0.03	0	6.3	30	380
B3-2	32.2	17.0	Intermediate	16	19	0.3	0.08	−73	11	17	55
B3-3	50.1	34.9	Intermediate	33	24	0.04	0.12	200	5.1	8.6	69
B3-4	57.8	42.6	Intermediate	41	43	0.46	0.17	−63	2.9	3	3
B3-5	78.5	63.3	Deep	55	58	<0.03	<0.03	0	2.3	2	−13
B4-1	21.5	6.3	Shallow	2	9	<0.03	<0.03	0	6	14	130
B4-2	32.8	17.6	Intermediate	ND	20	<0.03	<0.03	0	6.1	8.7	43
B4-3	53.8	38.6	Intermediate	ND	26	0.86	1.1	31	4.1	5.1	24
B4-4	77.3	62.1	Deep	ND	55	<0.03	<0.03	0	2.6	2.6	0
B5-1	22.1	6.9	Shallow	6	12	1.3	0.06	−95	31	40	29
B5-2	45.9	30.7	Intermediate	25	16	2.0	1.7	−12	8.1	10	23
B5-3	79.4	64.2	Deep	ND	ND	<0.03	<0.03	0	5	7.9	58

[a] *Shallow* includes depths of less than or equal to 10 m below the water table, *intermediate* includes depths of more than 10 m to 60 m below the water table, and *deep* includes depths of more than 60 m below the water table

[b] Micrograms per liter

[c] Milligrams per liter

ND no data

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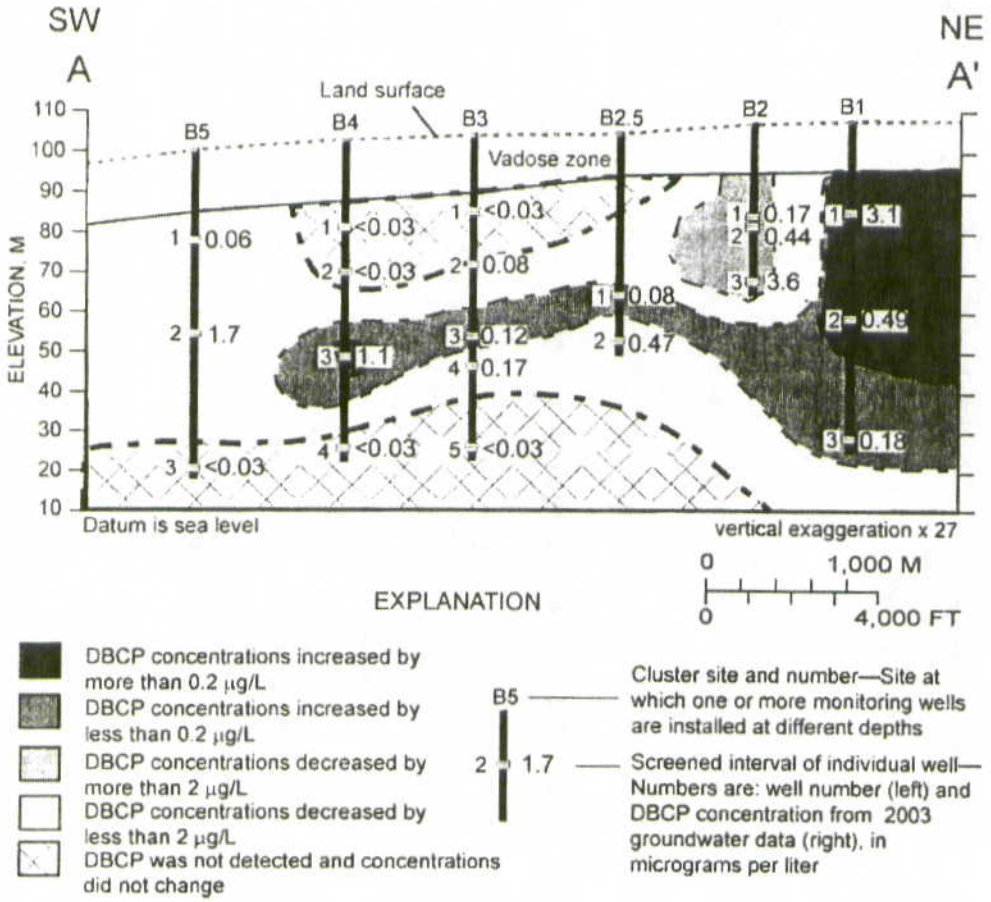


Fig. 4 DBCP concentrations in groundwater samples collected from wells in 2003 and change in DBCP concentrations between 1994–1995 and 2003

$$C_o = C(t)e^{kt}, \tag{1}$$

and

$$k = \frac{0.693}{t_{1/2}}, \tag{2}$$

where C_o is the initial DBCP concentration, $C(t)$ is the DBCP concentration at time t, t is the time since beginning of the reaction, k is the rate constant for a first-order reaction, and $t_{1/2}$ is the half-life for the reaction. The difference in concentrations of DBCP between 1994–1995 and 2003 for wells with similar recharge dates in 1994–1995 and 2003 were used in the half-life calculations (Table 2). Samples were paired if the estimated recharge dates were within 1 year. In most cases, there was only one sample from 1994–1995 and one sample from 2003 for each recharge date. Although the first-order reaction rate may not adequately reflect DBCP reaction rates in the aquifer, limited data were available to characterize the decay function, and previous work was limited to the use of a first-order reaction rate (Burow et al. 1999).

Resulting DBCP half-life estimates ranged from 2 to 6 years, with a median of 4 years. An estimated half-life of in this range is consistent with results of earlier work, in which contaminant transport model results suggested that the effective in-situ half-life of DBCP was about 6 years (Burow et al. 1999). Although the results indicated by this analysis compare generally well with previous estimates

Table 2 Calculated 1,2-dibromo-3-chloropropane (DBCP) half-life from changes in DBCP concentration and groundwater age dates for groundwater samples with common recharge dates in the eastern San Joaquin Valley California

Recharge date	DBCP in 1994–1995 (µg/L)[a]	DBCP in 2003 (µg/L)[a]	Calculated DBCP half-life (years)
1960	0.04	0.17	[b]
1977	6.4	1.1	3
1979	0.3	0.12	6
1986	2.6	0.89	5
1989	1.3	3.1	[b]
1992	2.8	0.06	2
Mean	2.2	0.91	4
Median	2.0	0.53	4

[a] Micrograms per liter

[b] Half-life could not be calculated because concentrations increased Elapsed time between sample dates was 8.5 years

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of the in-situ half-life of DBCP determined through contaminant transport modeling, this approach assumes that DBCP is generally well-distributed throughout the profile and that the mixing of older water does not affect the calculations. A mass-balance approach would likely provide a better estimate of in-situ DBCP half-life; however, the data and analysis requirements to attempt a mass balance in this system were prohibitive.

Estimated initial concentrations of DBCP in recharge through time were calculated, again using the first-order decay Eqs. 1 and 2 and the CFC-based and simulated mean groundwater age estimates. Initial concentrations of DBCP calculated using groundwater recharge dates estimated from CFC concentrations and a half-life of 6 years ranged from less than 1 to 70 μg/L (Table 3). Maximum measured concentrations in production wells sampled during the early 1980s were about 50 μg/L (California Department of Pesticide Regulation 1992, 1993, 1994). For comparison, initial concentrations of DBCP were calculated using the simulated mean groundwater age (Weissmann et al. 2002b). Initial concentrations resulting from the simulated mean age were from 2 to 5 orders of magnitude higher than the estimates from the CFC mean age (Table 3). The initial concentration estimates from the simulation-based mean age were extremely high because the simulated age distributions include water that is older than the introduction of DBCP into the environment, and, thus, the simulated mean age does not represent the mean age of the fraction of water containing DBCP. In 6 of 14 wells where DBCP was detected in 2003 (B2-3, B2.5-1, B2.5-2, B3-3, B3-4, and B4-3), estimated groundwater recharge dates from the simulated mean groundwater ages were before 1950, probably before DBCP was used (California State University Fresno Foundation 1994).

The analysis described above indicates that the mean age determined by CFC concentrations better reflects the age of the water containing DBCP than the simulated mean age because the CFC-based mean ages correspond more closely with the timing of the input of DBCP. Additionally, the uncertainty in the simulated mean ages determined in the transport simulations ranged from 10 to 30 years (Weissmann et al. 2002b), suggesting that the simulated mean ages may be a coarse evaluation of age for interpreting changes in chemical concentrations of less than a few decades. To accurately represent the true mean age and predict long-term concentrations in the aquifer, however, a complete distribution of age is needed that includes the age distributions of both the young and old fractions of water.

Change in nitrate concentrations and relation to nitrogen fertilizer use

Nitrate was detected in samples from all wells along the monitoring well transect. Concentrations in 2003 ranged from about 2 mg/L (as nitrogen) in the deepest monitoring wells to 30 to 40 mg/L in the shallow wells (Table 1). Concentrations above the USEPA MCL reached depths of more than 20 m below the water table. As noted in Burow et al. (1999), and corroborated with dissolved gas data collected in 2003, groundwater along the transect is oxic. Nitrate is expected to be persistent in the aquifer and assumed to be transported conservatively through the system.

Nitrate concentrations increased by more than 1 mg/L between 1994–1995 and 2003 in 12 of 20 wells along the monitoring well transect (Table 1). Increases in nitrate concentrations were the greatest in the shallow part of the aquifer (Fig. 5). Nitrate concentrations in shallow wells at sites B2, B3, B4, and B5 increased by 8–23 mg/L. A plum orchard was in production immediately upgradient from site B3 during the 1990s, and other citrus and nectarine orchards were planted upgradient from site B4 by 2000. Nitrogen fertilizer application rates are typically much higher for orchard crops (158 kg/ha/year) than for grapes (60 kg/ha/year; Rauschkolb and Mikkelsen 1978), although it is not known whether the high nitrate concentrations are due to the differences in crops or whether other sources of nitrate or management practices may have affected concentrations at these sites. Nitrate concentrations increased at a slower rate in wells screened in the intermediate part of the aquifer. Nitrate concentrations generally increased less than 1 mg/L in the deepest wells and remained at concentrations of less than 3.0 mg/L in the intermediate and deep wells at sites B1, B3, and B4.

Nitrate concentrations were compared to nitrogen fertilizer applications to evaluate whether the observed changes in nitrate concentration in recharge through time could be explained by fertilizer use. Using a method outlined by (Böhlke 2002), nitrate concentration in recharge water from nitrogen fertilizer applications were estimated using groundwater recharge dates and data for county-level fertilizer applications. Based on the mean groundwater age from CFC concentrations, a linear groundwater age gradient was characterized, indicating a constant vertical water velocity with depth (Cook and Böhlke 1999). Although the aquifer in the study area is a heterogeneous mixture of alluvial fan sediments, the aquifer receives distributed recharge and lacks extensive confining clays, which is consistent with a generally linear or logarithmic age gradient with depth. The estimated recharge rate, r, was calculated using the equation,

$$r = nZ/\tau, \tag{3}$$

where n is the effective porosity, Z is the saturated thickness of the aquifer, and τ is the mean age of groundwater in the aquifer (Cook and Böhlke 1999; Böhlke 2002). An effective porosity of 0.3 was calculated, assuming an effective porosity ranging from 0.2 to 0.35 and using the proportion of each of the four hydrogeologic facies identified in the study area (Weissmann and Fogg 1999). A saturated thickness of about 50 m was assumed. A mean age of groundwater of 24 years was calculated by averaging the apparent CFC-based mean ages from 1994–1995 and 2003 concentrations (Table 1). The resulting

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Table 3 Initial 1,2-dibromo-3-chloropropane (DBCP) concentrations in recharge determined from chlorofluorocarbon (CFC) age dates and simulated age distributions in the eastern San Joaquin Valley, California

Well (Figs. 2 and 3)	Estimated recharge date from CFC age dates in 1994–1995 (year)	Estimated recharge date from CFC age dates in 2003 (year)	Initial DBCP concentration from CFC age dates in 1994–1995 using a half-life of 6 years (μg/L)[a]	Initial DBCP concentration from CFC age dates in 2003 using a half-life of 6 years (μg/L)[a]	Simulated mean age[b] (years)	Estimated recharge date from simulated mean age[b] (year)	Simulated fraction of groundwater younger than 50 years[b] (%)	Initial DBCP concentration from simulated mean age using a half-life of 20 years[b] (μg/L)[a]
B1-1	1986	1988	6.6	20	22	1981	100	40
B1-2	1954	1961	33	70	ND	ND	ND	ND
B1-3	1947	ND	ND	ND	ND	ND	ND	ND
B2-1	1992	2002	3.5	0.2	32	1971	70	6.8
B2-2	1991	1998	4.8	0.9	33	1970	70	20
B2-3	1977	1984	51	32	57	1946	60	2,600
B2.5-1	1956	1960	ND	11	81	1922	60	920
B2.5-2	1963	1967	35	32	140	1863	40	5.0E+6
B3-1	1992	1994	ND	ND	18	1985	90	ND
B3-2	1979	1985	1.9	0.7	34	1969	70	4.1
B3-3	1961	1979	1.8	1.9	87	1916	60	2,800
B3-4	1954	1961	52	24	97	1906	40	12,000
B3-5	1940	1945	ND	ND	ND	ND	ND	ND
B4-1	1992	1994	ND	ND	19	1984	100	ND
B4-2	ND	1983	ND	ND	44	1959	70	ND
B4-3	ND	1977	ND	22	100	1903	30	110,000
B4-4	ND	1949	ND	ND	120	1883	<1	ND
B5-1	1989	1992	2.6	0.2	24	1979	70	1.0
B5-2	1970	1988	36	10	52	1951	60	690
B5-3	ND	ND	ND	ND	120	1883	0	ND

[a] Micrograms per liter

[b] Simulations from Weissmann et al. 2002b

ND No data

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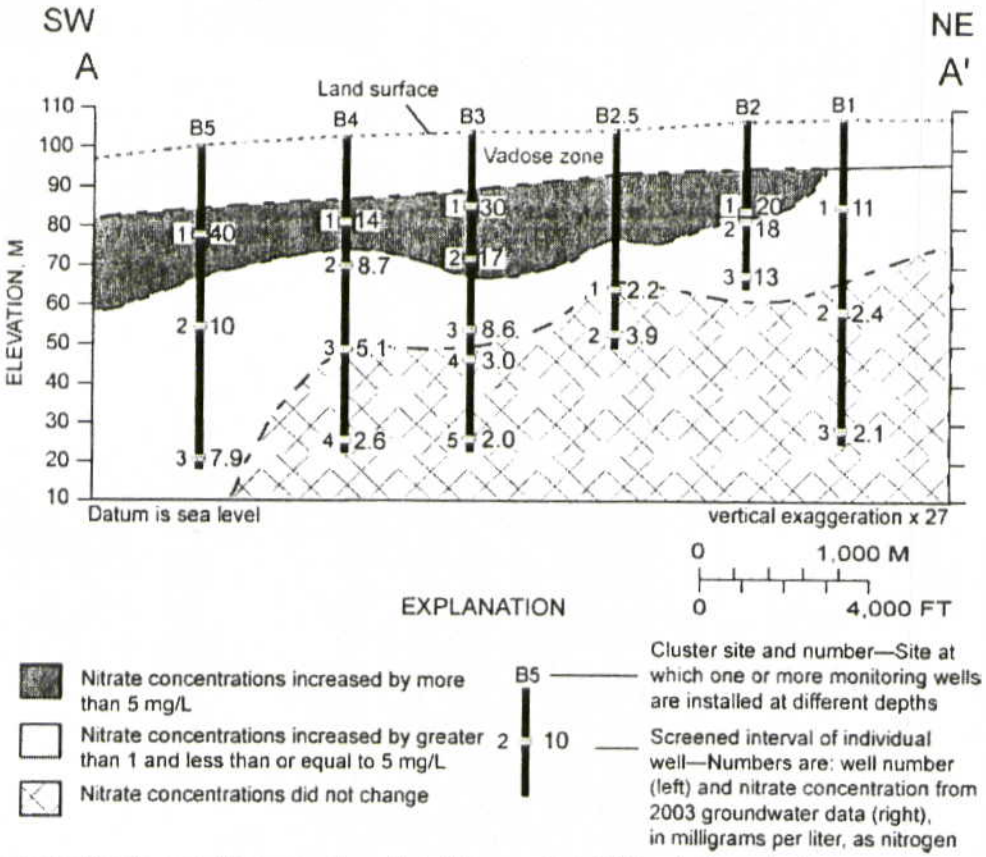


Fig. 5 Nitrate concentrations in groundwater samples collected from wells in 2003 and change in nitrate concentrations between 1994–1995 and 2003

estimated recharge rate was 0.6 m/year. The mean age of groundwater used in the estimate of the recharge rate is based on the CFC mean ages because the elevated nitrate concentrations are likely contained within the piston-flow component of the age distribution, which appears to be adequately represented by the CFC-based ages. The nitrogen application was estimated by dividing the reported application by the area of fertilized land in the county, as determined from annual crop estimates, and assuming that 50% of the nitrogen fertilizer reached the water table.

Estimated initial nitrate concentrations in recharge, represented as observed nitrate concentrations and estimated groundwater recharge dates, generally increased over time (Fig. 6). Estimated nitrogen fertilizer applications also generally increased over time. The axes representing initial nitrate concentration and nitrogen fertilizer application are quantitatively related through the recharge rate such that the application amount on one axis corresponds to the expected concentration in recharge on the other axis (Fig. 6). The estimated nitrogen fertilizer applications were higher than observed nitrate concentrations before about 1980. After this time, the observed nitrate concentrations appear to have increased significantly, whereas the nitrogen fertilizer applications leveled off.

The analysis using nitrogen fertilizer applications may cause the amount of nitrogen expected in the groundwater samples from annual fertilizer applications to be overestimated because the applications do not account for the wide range of ages represented in each groundwater sample: each fertilizer application amount is associated with only 1 year. Therefore, the nitrogen fertilizer applications were corrected using the distribution of groundwater age from simulations of Weissmann et al. (2002b). The estimated fertilizer application was applied to the fraction of water for each year for each well for which an age distribution was simulated. Before about 1970, the resulting age-corrected nitrogen fertilizer applications correspond more closely to the observed nitrate concentrations than the uncorrected applications, but after 1970, the age-corrected applications appear to be much lower than the observed concentrations (Fig. 6). Local variability in management practices may have contributed to the high observed nitrate concentrations in recent years. The highest observed concentrations are at site B5; concentrations of nitrate were 31 mg/L in 1994–1995 and 40 mg/L in 2003. The history of land use at this site includes vineyards and corn in 1986 and vineyards and orchards in 2000; vineyards comprise about 50% of the area around the well. Consistently high nitrate concentrations relative to those at the other sites along the transect may be due to the presence of orchards and/or corn, which typically receive much more nitrogen fertilizer than vineyards. Concentrations of 30 to 40 mg/L were observed in samples from other wells in the eastern San

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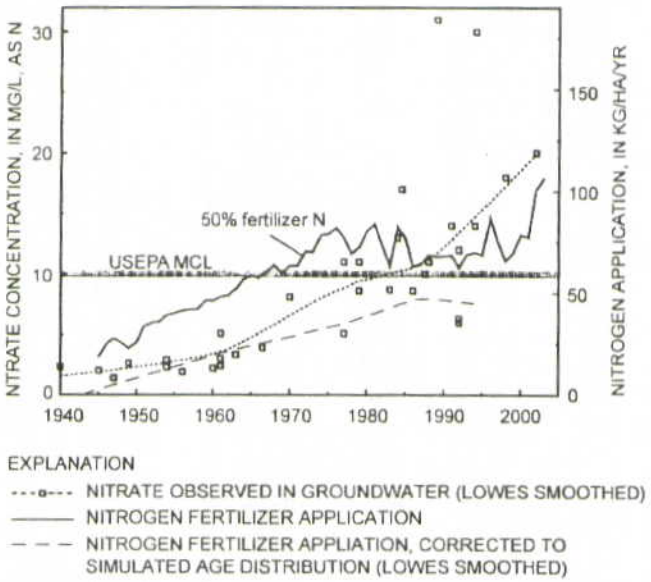


Fig. 6 Estimated initial nitrate concentrations in recharge and nitrogen concentrations estimated from county-level annual nitrogen fertilizer applications. The fertilizer loading curves represent 50% of the nitrogen fertilizer applications divided by the area of fertilized land, dissolved in 0.6 m/year of recharge. Fertilizer loads are also shown corrected for simulated distribution of ages at monitoring wells. *USEPA* US Environmental Protection Agency; *MCL* maximum contaminant level

Joaquin Valley representing groundwater beneath almond orchards and corn, alfalfa, and vegetable crops (Burow et al. 1998a).

The discrepancy between observed nitrate concentrations and nitrogen fertilizer applications may also have been caused by evapoconcentration of nitrate as groundwater containing nitrate was pumped and reapplied as irrigation water (Nightingale and Bianchi 1974). Burow et al. (1999) indicated that recycling of groundwater through groundwater pumping and reapplication of irrigation water was likely a dominant process in the study area. This process is likely to result in increasing concentrations of nitrate even without increasing fertilizer applications. Because of the complexity of the groundwater system in this area, however, it is difficult to separate the effect of the recycling of groundwater from other processes such as the mixing of groundwater and surface water used for irrigation and local variability or changes in management practices over the long term. Surface water supplied for irrigation has low nitrate concentrations and using this water would result in lower nitrate concentrations in recharge than groundwater-derived irrigation water.

Long-term changes in water quality in the regional aquifer

Nitrate concentrations from samples collected from the local network of monitoring wells along the transect were compared to nitrate concentrations in regional areal networks to evaluate whether concentrations observed along the monitoring well transect near Fresno were reflected in regional areal networks in the eastern San Joaquin Valley. Concentrations along the transect were compared to networks of domestic and monitoring wells sampled as part of the NAWQA program (Burow et al. 1998a,b) that represent shallow groundwater conditions throughout the aquifer underlying the eastern San Joaquin Valley, an approximately 16,000 km^2 area. Concentrations along the transect were also compared to concentrations in nearby public-supply wells sampled for regulatory compliance monitoring (Wright et al. 2004). The public-supply wells are typically deep and have long screened intervals.

Nitrate concentrations from wells in the regional areal networks sampled in 2001–2002 were grouped by well type and well depth below the water table to characterize nitrate concentrations in the different parts of the used resource and to extrapolate concentrations areally to other parts of the regional aquifer. In the regional aquifer, domestic wells are generally screened in the shallow part of the aquifer, whereas public-supply wells tend to be screened in the deeper part of the aquifer. Monitoring wells included in the analysis from the regional areal networks are screened near the water table. Similar to conditions observed along the transect, groundwater in the areal networks is typically oxic (Burow et al. 1998a,b). Nitrate is expected to be persistent in the aquifer and assumed to be transported conservatively through groundwater.

Nitrate concentrations are the highest and most variable in the shallow monitoring wells in the areal networks; variability and concentration decrease with depth (Fig. 7). Highly variable concentrations of nitrate at the water table are expected, even with relatively constant fertilizer applications, because of the heterogeneous distribution of sediments and the high variability of nitrate in the moderately thick vadose zone (Harter et al. 1998). The observed decrease in concentration with depth could be due to dispersion and mixing as nitrate moves farther from the source of nitrate in recharge; however, the decrease in

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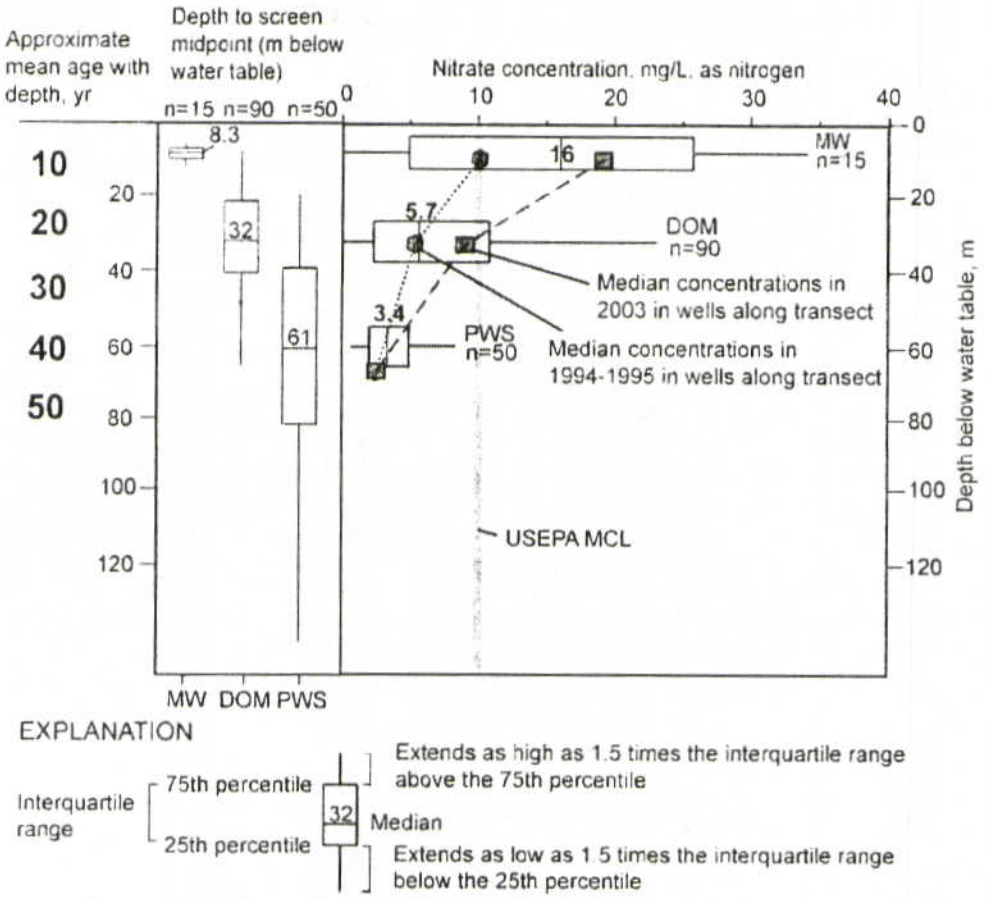


Fig. 7 Relation among nitrate concentration, well type, well screen depth below water table, and groundwater age in the eastern San Joaquin Valley, California. Concentrations in samples from wells along monitoring well transect are grouped by well type. *Boxplots* are concentrations of nitrate sampled in the 2000s from monitoring and domestic well networks (Burow et al. 1998a). Boxplot of concentrations in public-supply wells from Wright et al. (2004). *MW*, monitoring well; *DOM*, domestic well; *PWS*, public-supply well; *n* number of samples; *USEPA*, US Environmental Protection Agency; *MCL*, maximum contaminant level

concentrations with depth is also consistent with an increase in nitrogen fertilizer applications over time (Fig. 6). In the shallow and intermediate depths in the aquifer, concentrations increased between 1994–1995 and 2003 to concentrations similar to those observed at the water table in 1994–1995, indicating that the elevated concentrations at the water table did not attenuate significantly as groundwater moved deeper in the system.

CFC-based mean groundwater age in the monitoring wells along the transect were used to estimate the mean age of groundwater at the depths of the domestic wells; the groundwater in the domestic wells was estimated to be about 20–30 years old. However, mean groundwater age of about 6 years was determined from 18 domestic wells sampled for CFC concentrations in eastern Fresno and Tulare Counties (Spurlock et al. 2000). Despite the apparent differences in groundwater ages, nitrate concentrations observed in the local network of monitoring wells along the transect are within the range of observed concentrations in the areal networks at the same depths. The estimated age of groundwater in domestic wells could be younger than monitoring wells screened at the same depths because of pumping.

Using a similar analysis as described above, CFC-based mean groundwater age at the depths of the public-supply wells are about 30–50 years old. To the extent that the areal networks reflect processes observed in the local network of monitoring wells along the transect and based on chemical data indicating that the aquifer is generally oxic, high nitrate concentrations at the water table in the regional aquifer will likely move deeper in the system without significant attenuation of concentrations over time. However, the proportion of water older than the age-dating tracers increases with depth. The simulated age distributions in the deepest monitoring wells along the transect indicate that groundwater at the depth of the public-supply wells contains from 0 to 40% young water and mean ages are 100 years or more (Weissmann et al. 2002b). Although some young water containing elevated concentrations of nitrate concentrations may reach the deeper wells relatively rapidly along preferential flow paths, the distribution of ages of the old fraction of water reaching the well will control the length of time for concentrations of nitrate to reach levels of concern (MCLs) in the public-supply wells.

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Although DBCP was applied less consistently throughout the eastern San Joaquin Valley, causing detection frequencies to vary more, a similar analysis was done using wells from areal networks representing the almond and vineyard land-use settings (Burow et al. 1998a). DBCP was used most commonly on permanent crops such as orchards and vineyards. In contrast to nitrate concentrations, water along the monitoring well transect having the highest median DBCP concentrations of 0.17 μg/L was in the intermediate depth zone, at a depth comparable to that of the areal domestic well networks (Fig. 8). DBCP was detected in 49% of the domestic wells in the areal network; 33% exceeded the USEPA MCL of 0.2 μg/L. DBCP was detected in less than 50% of the areal domestic network wells, and, therefore, detection frequencies instead of concentrations were used for comparison to concentrations along the monitoring well transect. The median DBCP concentration in the shallow wells along the monitoring well transect, 0.12 μg/L, was lower than the concentration in the intermediate depth zone. Similarly, detection frequencies for the areal networks were lower for the shallow depth wells than the intermediate depth wells. DBCP was detected in 30% of the areal monitoring well networks at shallow depths; 10% exceeded the USEPA MCL. Because overall detection frequencies and concentrations at the water table appear to be about one-half of those at the depth of the domestic wells, and concentrations of DBCP in the shallow monitoring wells along the transect decreased between 1994–1995 and 2003, DBCP concentrations in domestic wells likely will not increase in the future. DBCP was not detected in public-supply wells in Fresno above the detection limit of 0.5 μg/L (Wright et al. 2004); however, small increases in concentration along the monitoring well transect suggest that DBCP detections and concentrations may increase at the depths of the public-supply wells in the future.

Because of the dominantly vertical-downward flow paths in the aquifer system and the lack of significant attenuation mechanisms, high concentrations of DBCP and nitrate are expected to move downward over time, which would result in increasing concentrations in the deeper domestic and public-supply wells in the future. The length of time to reach concentrations of concern will depend on the age mixtures in water in the wells. Further

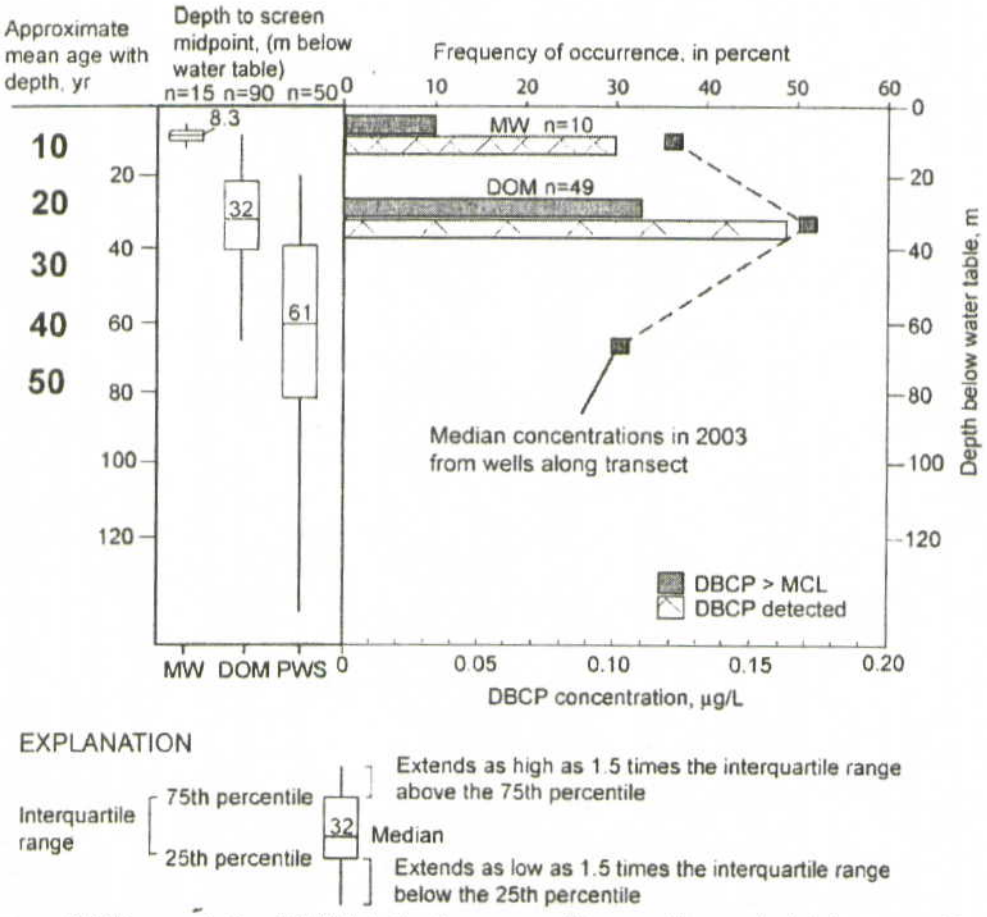


Fig. 8 Relation among DBCP concentration, DBCP detection frequency, well type, well screen depth below water table, and groundwater age in the eastern San Joaquin Valley, California. Concentrations in samples from wells along monitoring well transect are grouped by depth category. *Bar charts* correspond to frequency of detection of DBCP in wells sampled in the 2000s from monitoring and domestic well networks (Burow et al. 1998a) in the eastern San Joaquin Valley. *MW*, monitoring well; *DOM*, domestic well; *PWS*, public-supply well; *n* number of samples; > greater than

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characterization of ages of the older fraction of water in the regional aquifer is needed to better predict future impacts on the aquifer resource.

Conclusions

Mean groundwater ages determined from CFC concentrations along a monitoring well transect in the eastern San Joaquin Valley, California indicate that groundwater less than about 10 m below the water table is generally less than 15 years old, whereas mean ages of water at depths of more than 60 m below the water table are generally more than 45 years old. DBCP concentrations in groundwater persist at concentrations above the USEPA MCL more than 25 years after its use was banned, although high concentrations of DBCP in the shallow and intermediate depths of the aquifer have been replaced by recharge consisting of water with low DBCP concentrations. DBCP concentrations increased in samples from deep wells along the transect as DBCP moved deeper in the aquifer.

Using the changes in concentration of DBCP and the difference in mean groundwater age between samples collected in 1994–1995 and 2003, an estimated half-life of 2–6 years with a median of 4 years was determined. This half-life is in the range of earlier analysis and contaminant transport modeling results indicating a half-life of about 6 years (Burow et al. 1999). Initial concentrations of DBCP calculated assuming first-order decay and using groundwater recharge dates estimated from CFC concentrations and a half-life of 6 years were consistent with historical data on observed maximum concentrations in the aquifer. Calculations of initial concentrations of DBCP using simulated mean groundwater ages at the study site (Weissmann et al. 2002b) were inconsistent with observed concentrations because the simulated mean age accounts for ages of groundwater that are older than the age-dating tracers. Although the full age distributions are needed to interpret overall travel times in the aquifer and predict future impacts, the mean age of the young fraction of water determined using CFC concentrations better reflects the age of the water containing DBCP than the simulated mean age in this analysis of temporal changes in DBCP concentrations.

Nitrate concentrations ranged from about 2 mg/L in the deepest monitoring wells to 30 to 40 mg/L in the shallow wells, with concentrations above the USEPA MCL reaching depths of more than 20 m below the water table. Nitrate concentrations increased from 8 to 23 mg/L in the shallow part of the aquifer between 1994–1995 and 2003. Estimated initial concentrations of nitrate in recharge indicate an overall increase in nitrate concentrations during the last 50 years, which is generally consistent with increases in nitrogen fertilizer applications. Transport simulation results were used to correct estimates of nitrogen fertilizer loads to account for the full groundwater age distribution reaching the well screens (Weissmann et al. 2002b). Elevated nitrate concentrations resulting from pumping groundwater with high nitrate concentrations and reapplying it as irrigation water may explain elevated concentrations in later years.

DBCP and nitrate concentrations along the monitoring well transect were compared to concentrations in areal monitoring networks. Overall, concentrations along the monitoring well transect were similar to concentrations in the areal networks, suggesting that the dominant processes affecting nitrate concentrations may be similar at both local and regional scales. Nitrate concentrations were the highest and most variable in the shallow monitoring wells in the regional areal monitoring networks; the variability in nitrate concentrations and median values decreased with depth. Because of intensive pumping and irrigation recharge, the dominant groundwater flow paths in the aquifer system are vertically downward. High concentrations in the shallow part of the aquifer could be expected to move downward over time, which would result in increasing concentrations in the deeper domestic and public-supply wells in the future as water with high nitrate concentrations moves deeper in the groundwater system. Therefore, to the extent that the areal networks reflect processes observed in the monitoring wells along the transect and based on chemical data supporting that the regional aquifer is generally oxic, it is likely that high nitrate concentrations at the water table in the regional aquifer will move deeper in the system without significant attenuation of concentrations over time, affecting both domestic and public-supply wells in the regional aquifer. In contrast to nitrate concentrations, the highest DBCP concentrations were in intermediate depths in the aquifer. DBCP concentrations in shallow and intermediate depths in the regional aquifer represented by domestic wells will likely not increase in the future; however, increasing detection of low concentrations of DBCP may occur in public-supply wells open to the deepest parts of the aquifer as DBCP moves deeper in the system.

The analysis of spatial and temporal data on agricultural constituents such as DBCP and nitrate and indicators of mean groundwater age, are a useful approach to understanding the movement and fate of agricultural chemicals in the aquifer and in predicting future impacts on the resource. The data indicate that anthropogenically impacted water containing DBCP and nitrate has reached the deepest wells along the transect, at depths that corresponding to the depths of typical public-supply wells open to the regional aquifer. Mean ages determined from CFC concentrations correlate with the age of the anthropogenically impacted water; however, the CFC-based ages did not characterize the distribution of pre-tracer-aged groundwater. The simulated groundwater age distributions in the monitoring wells (Weissmann et al. 2002b) indicate that these wells contain a large fraction of old water, resulting in mean ages of 100 years or more. Assuming that DBCP and nitrate will continue to move deeper in the system, the length of time for concentrations of DBCP and nitrate to reach levels of concern in the public-supply wells in the regional aquifer will depend on the distribution of ages in water from those wells. Further characterization of the distribution of ages in the regional aquifer is

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needed to better predict future impacts of anthropogenic chemicals on the regional aquifer.

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Assessing the Vulnerability of Public-Supply Wells to Contamination from Urban, Agricultural, and Natural Sources

By Sandra M. Eberts, Martha L. Erwin, and Pixie A. Hamilton

What are the most important factors controlling contamination of public-supply wells, and how can we do a better job of predicting their vulnerability to contamination?

In 2001, the U.S. Geological Survey's National Water-Quality Assessment (NAWQA) Program began an intensive study to assess the vulnerability of public-supply wells to contamination from a variety of compounds.

The study builds on previous NAWQA studies from 1991 to 2001 that found low levels of mixtures of contaminants in ground water near the water table in urban areas across the Nation (in about 90 percent of monitoring wells) and, less frequently, in deeper ground water typically developed for public supply (Hamilton and others, 2004). Data from more than 1,000 public-supply wells within major water-supply aquifers are being evaluated in this study, and data from more aquifers and wells are scheduled to be added in 2009 (see map, p. 4).

This NAWQA study is focusing on the transport and chemical breakdown of selected anthropogenic contaminants from urban and agricultural sources, as well as contaminants from natural sources, within that part of the ground-water system contributing water to public-supply wells. Scientists are investigating how the linkage between contaminant sources and public-supply wells is affected by processes that occur below land surface—whereby contaminants are mobilized, dispersed, diluted, volatilized, adsorbed, and (or) degraded. Scientists are also investigating how the operation of public-supply wells can affect their vulnerability to contamination.

Because subsurface processes and management practices differ among aquifers and public-water systems, public-supply wells in different parts of the Nation are not equally vulnerable to contamination, even where similar contaminant sources exist. The study is identifying these important differences, as well as similarities, in a complementary set of aquifer systems, urban settings, and public-water systems.

A national priority, a scientific challenge

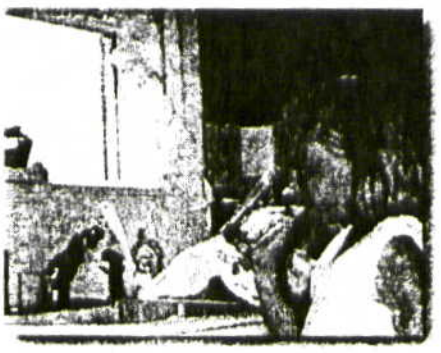
About one-third of the U.S. population gets drinking water from public-supply wells. The occurrence of contaminants in these wells is highly variable (U.S. Environmental Protection Agency, 1999). To safeguard public health, we need a better understanding of how these wells can become contaminated.

Understanding public-supply well contamination is also an economic issue because cleaning up contaminated ground water is expensive and difficult. Drinking water from public-supply wells must meet U.S. Environmental Protection Agency (USEPA) and (or) State water-quality standards. Vulnerability assessments based on sound science will help decision-makers *predict* which wells are vulnerable to contamination and design strategies to *prevent* future contamination, thereby sustaining the water supply.

Vulnerability assessments, however, are inherently uncertain. Scientists do not fully understand contaminant behavior in the subsurface, and there are limitations in the databases and models used to perform the assessments (National Research Council, 1993). An additional challenge is the need to strike a balance between complex, costly assessments and those that are oversimplified (Focazio and others, 2002). As a result, groundwater vulnerability has been assessed using many different methods (Nolan, 1998); most of the previous assess-

Contaminants assessed in this study

- Anthropogenic contaminants, including nitrate, pesticides and their breakdown products (such as atrazine and deethylatrazine), compounds found in wastewater; and volatile organic compounds (such as MTBE and disinfection by-products)
- Naturally occurring contaminants, including arsenic, uranium, radon, and radium
- Fecal contamination, using indicators such as *E. coli* and total coliform (bacteria) and coliphage (a group of viruses)

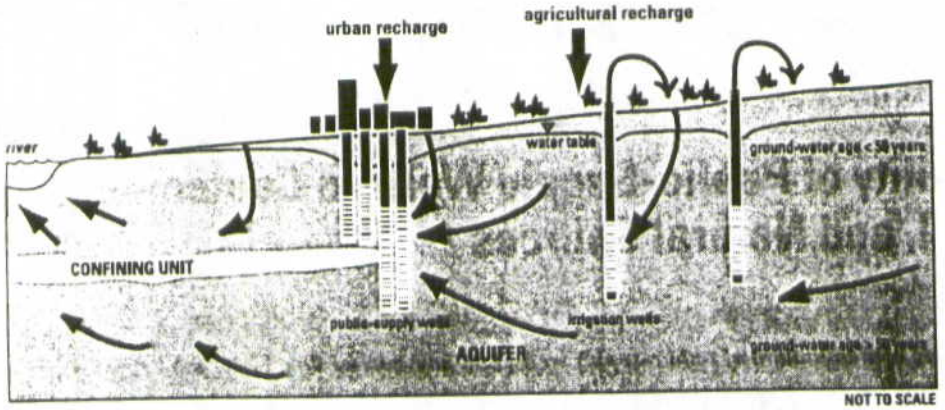


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An aquifer system and public-water system in an urban setting. The water entering the well screens of the public-supply wells is of different ages and from different areas because of their long screened intervals, which commonly make public-supply wells vulnerable to contamination from multiple sources. In this example, sources of contaminants may include those associated with urban and agricultural land-use activities. Aquifer materials may also serve as sources of natural contaminants such as arsenic.

Ground-water vulnerability—the likelihood that contaminants will reach a specified reference location in a ground-water system (the water table, deep within the aquifer, a public-supply well, the interface between ground and surface water) (National Research Council, 1993).

Area contributing recharge—the surface area at the water table or a surface-water body from which water entering the ground-water system eventually flows to the well. Estimates of areas contributing recharge to public-supply wells are made in order to target ground-water protection practices (Franke and others, 1998).

Ground-water age—the time elapsed (ranging from days to millennia) since water reached the water table during recharge. Young ground water tends to be more susceptible to contamination from current sources at the land surface than older ground water (Focazio and others, 2002). Water discharging from a well is usually a mixture of waters of different ages.

Ground-water sustainability—the development and use of ground-water resources in a manner that can be maintained indefinitely without unacceptable consequences (Alley and Leake, 2004). Water quality and water quantity are equally critical for the long-term sustainability of the Nation's water supply (U.S. Geological Survey, 2002).

ments have focused on the transport of contaminants to the water table rather than to public-supply wells.

In the current study, we address the challenges of vulnerability assessments by collecting and analyzing similar data within a variety of settings, including unique data collected using new tools. We are developing a library of site-specific models to help sort out the most important factors to include in vulnerability assessments in different settings at both regional and local scales.

Study results will provide a foundation for assessing the vulnerability of the Nation's public-supply wells to a variety of contaminants, and will help those involved in well siting and water-quality protection anticipate the response of different systems to changes in management practices. The results also will be useful to those involved in planning and implementing State source-water assessment and protection programs, as guided by the USEPA (U.S. Environmental Protection Agency, 1997).

General objectives of the study

- Identify the dominant contaminants and sources of those contaminants in public-supply wells in representative water-supply aquifers across the Nation
- Assess the effects of natural processes (such as degradation) and human activities (such as irrigation) on the occurrence of contaminants in public-supply wells in representative aquifers
- Identify the factors that are most important to incorporate into public-supply well vulnerability assessments in different settings and at different spatial scales
- Develop simple methods and models for screening public-supply wells for vulnerability to contamination in unstudied areas and from newly emerging contaminants
- Increase understanding of the potential effects of water-resource development and management decisions on the quality of water from public-supply wells

Unique characteristics of the study

Sampling at different depths

The screened or open intervals of public-supply wells are commonly from tens to hundreds of feet in length; therefore, water from these wells is generally a mixture of waters of different ages that enter the well at different depths and are associated with different potential sources of contamination. The graphic on this page illustrates a situation where recharge to public-supply wells reflects urban and agricultural land-use activities. Specifically, water recharges the aquifer in the urban area containing urban-related contaminants, such as volatile organic compounds, and enters the well screens above water that has traveled from the more distant agricultural area where recharge water may contain contaminants such as agricultural pesticides.

Using a USGS-developed sampler (Izbicki, 2004), we are collecting samples at multiple depths in pumping public-supply wells to ascertain where and how contaminants from different

sources enter the wells. For example, samples collected from public-supply wellheads and analyzed for concentrations of multiple contaminants are being "dated" to determine groundwater age and compared to samples and ages of water entering the wells at various depths (see graph below). This analysis is helping to evaluate the usefulness of ground-water age samples from wellheads for predicting the risk of contamination.

Evaluating multiple settings and scales

Consistent methods are being used to collect and analyze data, and investigations are being conducted at both regional (tens to thousands of square miles) and local scales (less than 10 square miles). We can therefore compare and contrast results and identify the most important processes to include in vulnerability assessments applied at different scales and in a variety of water-supply aquifers. For example, nitrate is detected in ground water in most participating study areas. The distribution and concentration of nitrate between the water table and public-supply wells are controlled predominantly by dilution in some areas and by dispersion or degradation in others. Using models developed for each study area, we are exploring how these differences in subsurface processes affect the response of different aquifer systems to common management practices.

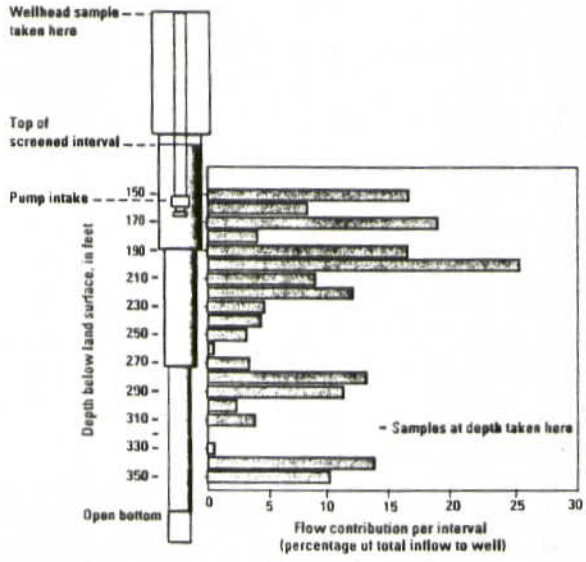
Exploring the consequences of uncertainty

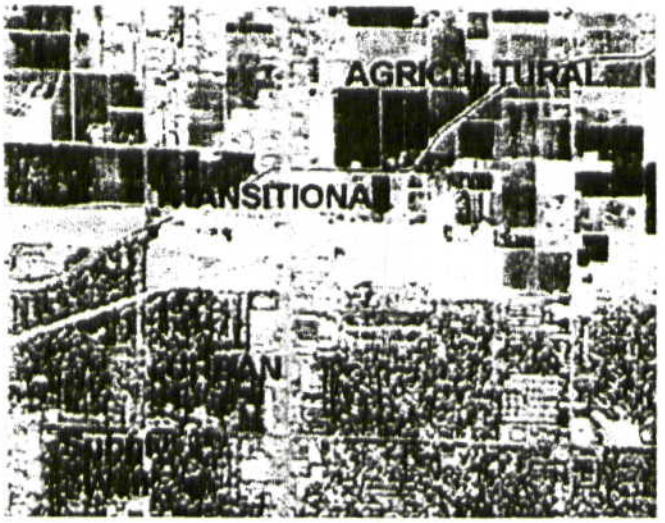
To make informed decisions about activities at a particular location, decision-makers need to know whether the location is contributing recharge to public-supply wells. They also need information about traveltimes between potential contaminant sources and public-supply wells. Because this information cannot be measured directly, decision-makers must rely on estimates that are inherently uncertain (due to limitations in the methods). We are exploring the consequences of this uncertainty, and helping decision-makers understand these consequences, by comparing estimates from traditional and probabilistic modeling approaches with actual water-quality data from public-supply wells.

How this information can be used

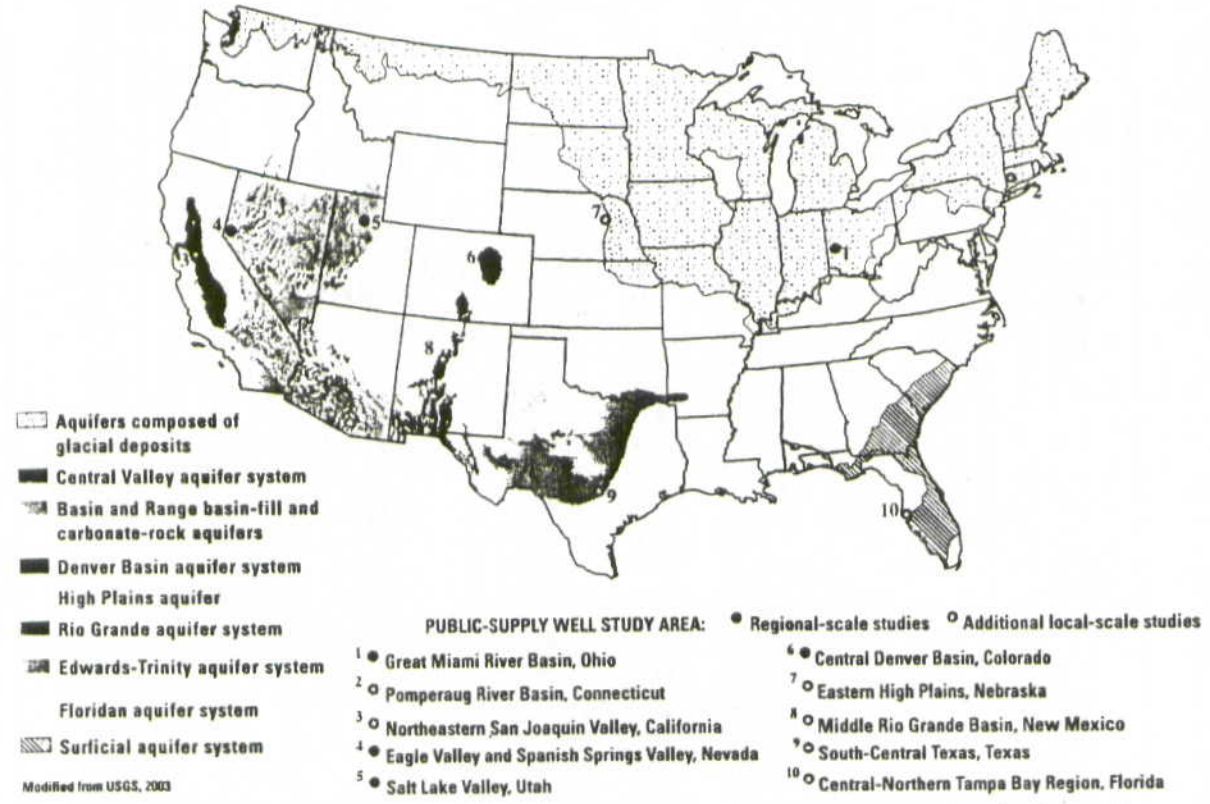
Study results, models, and other decision-support tools will apply to broad classes of contaminants, including newly identified, emerging contaminants, and will help water managers and scientists:

- Better understand how and why contamination of public-supply wells occurs
- Improve assessments of the vulnerability of ground water and public-supply wells to contamination, even in unmonitored areas
- Choose new sites for water supply and develop and prioritize monitoring programs
- Evaluate various resource-development and management scenarios.





Inflow at different depths within a public-supply well. The aerial photo shows an approximately 63-square-mile area near the well. Water entering the well screen is associated with different potential sources of contaminants because of the different land-use activities in the areas contributing recharge to various intervals along the well screen, as well as the different aquifer materials through which water flows between the recharge areas and the well. The amount of contamination that might be contributed by any given interval is related to the volume of water that flows into the well along the interval and the concentration of any associated contaminants. Depth-dependent samples are a composite of all intervals beneath the sampling point; these samples are being analyzed for chemical quality and ground-water age and then compared to samples collected from the wellhead.



Locations of regional-scale studies of public-supply well vulnerability to contamination from urban, agricultural, and natural sources. Studies began in 2001 in eight States, in Texas and New Mexico in 2005, and are scheduled for Illinois and New Jersey or New York in 2009.

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The NAWQA Program

The study of public-supply well vulnerability is one of five national priority topics being addressed by the NAWQA Program in its second decade, which began in 2001. Other topics include effects of urbanization on stream ecosystems; ecological effects of nutrient enrichment; mercury in stream ecosystems; and sources, transport, and fate of agricultural chemicals. In addition, anthropogenic organic contaminants in source waters for many of the Nation's largest community water systems are being assessed; concentrations in source waters are being compared to concentrations in finished waters. During the Program's first decade, NAWQA scientists assessed surface- and ground-water chemistry, stream hydrology, habitat, and biological communities in 51 major river basins ("Study Units"; see map at *http://water.usgs.gov/nawqa*). Baseline assessments of pesticides, nutrients, VOCs, trace elements, dissolved solids, and radon, and of the condition of aquatic habitats and fish, insect, and algal communities are described in hundreds of reports, available at the Web site above. Reassessments planned in 42 of the Study Units in the Program's second decade will determine trends at many of the streams and ground-water sites; fill critical gaps in the characterization of water quality; and build upon findings that show how natural features and human activities affect water quality and aquatic ecosystems.

Summary of Constituents Above Drinking Water Standards
GAMA Voluntary Domestic Well Assessment Project - Tulare County

Number of Wells Above MCL*	Constituent	Number of Wells Sampled	Range of values	Primary MCL	Secondary MCL	DHS Notification Level
BACTERIA INDICATORS						
60**	Total Coliform	181	Present	Present		
INORGANICS						
2	Aluminum	181	275 - 450 µg/L	1000 µg/L	200 µg/L	
3	Arsenic		10.4 - 14 µg/L	10 µg/L		
1	Beryllium		113 µg/L	4 µg/L		
1 ***	Boron		48.4 mg/L			1 mg/L
2	Chromium		76.7 - 91.9 µg/L	50 µg/L		
2	Iron		608 - 650 µg/L		300 µg/L	
2	Manganese		96.5 - 172 µg/L		50 µg/L	500 µg/L
5	Nickel		100 - 213 µg/L	100 µg/L		
75	Nitrate (as Nitrogen)		10 - 54 mg/L	10 mg/L		
5	Nitrite (as Nitrogen)		1.7 - 13.4 mg/L	1 mg/L		
4	Specific Conductance		1820 –2060 µmhos/cm		1600 µmhos/cm	
6	Thallium		2.1 - 7.32 µg/L	2 µg/L		
4	Total Dissolved Solids		1002 - 1014 mg/L		1000 mg/L	
14 ***	Vanadium		50 - 92.9 µg/L			50 µg/L
1	Zinc		17,300 µg/L		5000 µg/L	
ORGANICS						
8	Dibromochloropropane (DBCP)	181	0.283 - 1.3 µg/L	0.2 µg/L		
1	1,2 Dichloroethane (DCA)		0.78 µg/L	0.5 µg/L		
1 ***	1,2,3 Trichloropropane		0.8 µg/L			0.005 µg/L
PERCHLORATE						
2 ***	Perchlorate	40	7.9 - 13 µg/L			6 µg/L
RADIONUCLIDES						
1	Uranium	13	228 pCi/L	20 pCi/L		
1	Radium 226+228		5.1 pCi/L	5 pCi/L		
3	Gross Alpha		15.1 - 602 pCi/L	15 pCi/L		

* MCL – Maximum Contaminant Level for public drinking water supplies established by Calif. Dept of Health Services
** Fifteen of those wells testing positive for total coliform also tested positive for fecal coliform
*** MCLs have not been established for these constituents

mg/L – milligrams per liter

µg/L – micrograms per liter

µmhos/cm – micromhos per centimeter

12/12/06

Project Testing Results Summary

County Focus Area (Year)	Number of Wells Sampled	*Compound*	
		Nitrate	Total Coliform
Yuba (2002)	126*	2%	8%
El Dorado (2003-04)	398	2%	26%
Tehama (2005)	223	1%	25%
Tulare (2006)	181	41%	33%
Cumulative Project Total	928	9%	27%

Number of Wells at or Above CDPH Primary and Secondary Maximum Contaminant Levels (MCL/SMCL) and/or Notification Level (NL). MCLs and NLs are used for comparison since domestic wells are not regulated

** Includes nine wells from 2002 Pilot Study*

Tulare County Feasibility Study for Regional Solutions for Disadvantaged Community Water Needs

Applicant: Tulare County

Problem Description:

Tulare County has many public water systems with unsafe drinking water. Approximately 20% of the small public drinking water systems are unable to meet a Maximum Contaminant Level (MCL) on a regular basis, and another 20% are over half the MCL in at least one contaminant. The small communities served by these water systems are almost entirely disadvantaged communities. These systems continue to rely on increasingly contaminated, over-drafted, groundwater aquifers. With decreasing surface water deliveries to the area, groundwater water quality and quantity will continue to decline.

Nitrates, arsenic, DBCP and uranium are some of the leading contaminants. Unfortunately, treatment cost and by-product disposal are costly solutions for small, poor communities. Options for these small disadvantaged communities in Tulare County include locating and utilizing safe groundwater sources if they are still available, blending groundwater with other sources, connecting to larger systems, and/or participating in regional solutions.

Communities with drinking water systems and irrigation water users recognize the need to develop regional solutions to increase the reliability and quality of our water supplies. There is a need for the development of regional strategies that are long-term sustainable solutions for exchanging water and meeting the drinking water needs and water supply reliability Tulare County communities.

Project Description:

A technical regional evaluation is needed to identify ways by which small communities can achieve clean and reliable water supplies, and implement those plans. This feasibility study would examine how to improve the regional planning, plumbing and water management that would provide increased water reliability and drinking water quality. Such a study would include mapping the existing needs and assets, and subsequently making the recommendations of the feasible ways to improve the planning, plumbing and water management decisions that will maximize these assets and meet more of the water needs of the region. The feasibility study would evaluate the use of some of the following infrastructure alternatives:

- ✓ Community-to-water district and community-to-community **inter-ties**
- ✓ Connections to cross valley and inter-valley **pipelines** and/or **canals**
- ✓ Regional **drinking water treatment facilities**
- ✓ Regional **wastewater treatment facilities**
- ✓ **Conjunctive**-use sites and groundwater recharge improvement
- ✓ Improved and new wastewater collection and drinking water **distribution infrastructure**

The feasibility study would also evaluate regional and joint cost-sharing and management structures for projects to ensure that small, disadvantaged communities are able to keep operational costs at affordable levels.

Projected Project Costs: $500,000

BOS Agenda 7/17/07
enclosure (A)

Applicant: Tulare County

Problem Description:

Tulare County has many public water systems with nitrate levels over the Maximum Contaminant Level (MCL) of 45 ppm. Approximately 20% of Tulare County's small public drinking water systems are unable to meet the nitrate MCL on a regular basis, and another 20% are over half the nitrate MCL. The number of systems affected and the levels continue to increase. Additionally, the State Water Resources Control Board's (SWRCBs) Groundwater Ambient Monitoring Assessment Program (GAMA) recently found that 40% of the private domestic wells tested in the County had nitrate levels over the MCL.

Most of the areas of high nitrate are located in particular regions of the County, especially along the east side of the valley floor. In order to begin to look at source water protection and decrease inputs of nitrate into drinking water aquifers, we must identify the types of sources. Potential sources include fertilizers, animal waste, food processing facilities, septic systems, and public wastewater treatment systems. Without a study to identify sources, the County and individual water systems have no guidance as to how to reduce current and prevent future nitrate contamination.

Project Description:

The County would work with consultants to design and implement a sampling program to identify the sources of nitrate and age of the water in which the nitrate is found, for a number of representative regions of the County where groundwater utilized for drinking water has nitrate levels over the MCL. The results would be utilized to map areas of nitrate contamination and make recommendations on actions that can be taken to prevent/reduce future nitrate contamination of aquifers.

Total Amount Requested: $500,000

Tulare County Feasibility Study to Evaluate Ground Water Quality Information

Applicant: Tulare County

Problem Description:

Tulare County is dependant on ground water for almost all of its drinking water. The County has extensive groundwater quality issues primarily related to the contaminants nitrate, arsenic, DBCP and uranium. It is estimated that contamination issues will be exacerbated by land use practices and from overdraft, drought, and the loss of Friant-Kern water due to the San Joaquin River settlement. Approximately 20% of our small public water systems are over the Maximum Contaminant Level for nitrates and another 20% are over half the MCL. The trend has been for a continual increase in the number of systems affected and the levels seen. There are nearly 20,000 private wells within the county and there is very little information on the water quality of these wells. The SWRCB's GAMA Program recently found that 40 percent of the 180 private domestic wells tested in the County had nitrate levels over the MCL.

The small communities served by public water systems are almost entirely disadvantaged communities and continue to rely on increasingly contaminated, over-drafted, groundwater aquifers. With decreasing surface water deliveries to the area, groundwater water quality and quantity will continue to decline.

Though nitrates, arsenic, DBCP and uranium are the leading contaminants, there is no thorough knowledge of the magnitude of the problem in Tulare County.

Since agriculture is the driving force of the economy the effect of diminished water for irrigation due to the Friant–Kern - San Joaquin River decision will have an impact on ground water levels and quality due to increased pumping to make up for the deficit.

Project Description:

An evaluative study over an 18 month period of the county's water quality is needed to formulate policies and make recommendations of projects that can prevent additional contamination of aquifers used as a source of drinking water. To this end it is necessary to know what the situation is so that solutions can be determined. The study would include:

Compiling of current and historic data on ground water contamination
Testing and research to fill in the data gaps
GIS mapping of information
Evaluating data in relationship to depth of wells, precipitation, importation of surface water, groundwater pumping and other factors

Maps and other information generated would be produced in a format that would be usable to County planners and water agencies for policy decisions and project recommendations.

Projected Project Cost: $500,000

C#	Date	T	Source	Location	Overview of Changes Requested/Made	Staff Recommendation	Status
	31			Measure 22)		Policy WR-3.9, Establish Critical Water Supply Areas should be the reference policy, not Policy WR-3.10, Diversion of Surface Water.	
					WR (General Comments)		
1	FEB 22	L	Susan Shaw, Tulare County HHSA	WR (General Comments)	Ag and dairies have an impact on the quality of our water but are essential for our economy. We are not reaching a crisis of quantity and quality with regard to our water. It is important that we take a regional approach with such a comprehensive issues as water which touches son many agencies, entities and interests. Solutions need to look at the macro view instead of band aiding as has been done in the past.	Agree. See Implementation 3.	No change needed
2	FEB 22	L	Susan Shaw, Tulare County HHSA	WR (General Comments)	The valley is experiencing ever increasing levels of salts and in particular, nitrates. Much of the county is in overdraft which will increase as we will no longer will be receiving the amount of water from we once had from the Friant-Kern Canal. This will put an increased demand on ground water and increased pumping will also serve to pull the contamination vertically into the deeper aquifers. The water table is lowering in certain areas and the stress will be particularly felt in draught years. Finding good water is increasingly becoming a challenge and in certain areas a doubtful risk. Our situation demands cooperation in finding and implementing solutions. The Salinas Valley in Monterey established a working relationship with the agricultural community to address their nitrate situation. Education and best management practices are an important part of this effort and getting buy-in from the source of pollution. They found that farmers at first reluctant to have interference in how they conduct their livelihood later became the very ones demanding stronger regulations on their peers.	Comment noted.	No change needed

typo. Should be "now" vice "not" according to source at phone (559) 733-6441, extension 2810, Tulare County Environmental Health

enclosure (20)

C#	Date	T	Source	Location	Overview of Changes Requested/Made	Staff Recommendation	Status
3	FEB 22	L	Susan Shaw, Tulare County HHSA	WR (General Comments)	More than 95% of county residents use groundwater for their drinking supply. There are 420 public water systems within the county and over 20,000 private wells. Tulare county ranks about 5th in the state for the number of people on private wells. **Breakdown of public water systems:** County Environmental Health oversees: 290 systems (15-199 connections) 74 state smalls (5-14 connections) State oversees: 56 systems (200+ connections and National Park systems)	Comment noted.	No change needed
4	FEB 22	L	Susan Shaw, Tulare County HHSA	WR (General Comments)	Nitrate is the most prevalent contaminant effect over a third of the 290 systems that the county oversees. There are 56 of these 290 systems over the maximum contaminant level (MCL) and 60 over half the MCL. Four of the 56 larger systems which the state oversees are over the MCl and 2 are over half the MCl. Systems such as Porterville, Exeter, Lindsay, Cutler and Orosi have limited excess water supply and have trouble finding new supply which does not require treatment. The number of systems with high nitrates levels continue to rise. Nitrates have numerous sources such as fertilizers, animal waste (confined animal operations), human waste (sewage and septic) and naturally occurring. Some of the other contaminants present in our public water systems are dibromochloropropane (DBCP), arsenic, uranium and carbon tetrachloride. DBCP is a fumigant used for nematodes in vineyards and orchards which was banned in 1977. Arsenic is naturally occurring and is found primarily in the mountains and in the deep alluvium in the southwestern part of the county. Uranium is also naturally occurring in the mountain, foothills and valley. The county began a program of testing new private domestic wells in 2005 and this has revealed areas of concern, in particular a pocket of high uranium which has initiated further study. Recently a state program (GAMA – Groundwater Ambient Monitoring and Assessment) did an evaluation of about 181 random private wells and the results showed 75 over	Comment noted.	No change needed

C#	Date	T	Source	Location	Overview of Changes Requested/Made	Staff Recommendation	Status
					the MCl for nitrate. Currently most of our data comes from where there is a public water system so there are numerous areas where we have little or no knowledge of the water quality.		
5	FEB 22	L	Susan Shaw, Tulare County HHSA	WR (General Comments)	What can be done about the water issues facing the County? Do the Research: Determine what is our solution – how do we become self sustaining. - How much growth we can sustain - Water quality - Water quantity - Geology/soils/topography - Causes of contamination - Prevention measures: BMP, destroy abandoned wells - Options - Feasibility - Cost	This task is ongoing.	No change needed
					1) Re-write the well ordinance and septic regulations to reflect what we are seeing.	See Implementation 14C, which will be amended to change "known bacteriological contamination" to "known contaminants".	Policy Report revised 07/13/07
					2) Gather more data in areas where we have little or no info to get a better understanding of our situation. Currently most of our data is from public water systems. Due to the number of people on private wells we need to get more water quality information on these wells. It would be good to expand the testing of private wells by requiring water testing on the sale of a property for the few know contaminants.	See new Implementation Measure 7A.	No change needed
					3) Develop a good education program to inform citizens about what they can do; care of wells, aquifer protection, septic care, health effects of contaminants.	See Implementation Measure 19.	No change needed
					4) Stress the importance of destroying abandoned wells.	This is a continuing and ongoing program.	No change needed

C#	Date	T	Source	Location	Overview of Changes Requested/Made	Staff Recommendation	Status
					5) Set spatial and number limitations on septic systems and encourage community systems and regional waste water treatment plants.	This is done in Chapter 5, Land Use, Table 5-1, Land Use designations, which sets minimum parcels sizes for septic and well, and in Chapter 13, Public Facilities and Services, Policy PFS-3.3, New Development Requirements and Policy PFS-3.4, Alternative Rural Wastewater Systems. We should add the words, "such as annexation to city systems and regional wastewater treatment systems" to the last bullet in PFS-1.8, Funding for Service Providers.	Policy Report revised 07/13/07
					6) Build in the concept of a retention pond in new communities which can serve as a park.	See PFS-4.5, Detention/Retention Basins. The 2nd word "detention" will be removed.	Policy Report revised 07/13/07
					7) Trade nitrate contaminated groundwater from disadvantaged communities for Friant-Kern Canal water creating large regional surface water treatment plants.	This is probably not feasible as it will put contaminated water into a canal that will be used eventually for drinking water.	No change needed
					8) Encourage with incentives consolidation between cities and smaller contaminated systems located close-by. Until this time this has met with much resistance and roadblocks. We are particularly looking at Porterville and Exeter. The worry of losing their Charter City status has been a problem and several attempts have been made in the legal arena to address this issue but nothing as yet has been resolved.	This is addressed in part in Chapter 13, Public Facilities and Services, PFS-1.8, Funding for Services Providers	No change needed
					9) Engage a cooperative participation with the agricultural community to work with nitrate management and to find solutions.	See Chapter 11, Water Resources, Policy WR-2.7, Industrial and Agricultural Production. This title will be changed to "Industrial and Agricultural Sources" to more accurately reflect the policy	Policy Report revised 07/13/07

C#	Date	T	Source	Location	Overview of Changes Requested/Made	Staff Recommendation	Status
						contents.	
					10) Create a County-wide GIS program to share the data so we could do a drill down on a particular parcel and see everything that is known or what is planned for that parcel.	This is an existing program.	No change needed
					11) See that Tulare County receives its share of funding monies available. Tulare County is the poorest in the state yet it doesn't get the grants according to its needs. We need to take a consolidated approach to get the funding.	In order to receive a fair share of grant funding an Integrated Regional Water Management Plan is required. See next comment.	Policy Report revised 07/05/07
					12) The county should take the lead in coordinating regional efforts to put together an Integrated Regional Water Management Plan.	Policy WR-3.2, Develop an Integrated Regional Water Master Plan and Implementation Measure 14B have been added to address this issue.	
					We are at a point where it would be irresponsible to continue on our current course to where our water is no longer drinkable without expensive treatment. The county should take the lead in pulling the regional efforts together.	Policy WR-3.2, will be changed to indicate that the "County will take the lead with other agencies..."	
6	FEB 9	L	Paul Boyer, Self Help Enterprises	WR (General Comments)	SHE supports the Water Resources Element's draft goals. We believe that water quality as well as water quantity are necessary aspects of securing the current and long-range needs of Tulare County. The adequate supply of potable water and the availability of sanitary sewage disposal facilities to County residents are crucial. The affordability of these basic services should also be a factor. The target rate for water and sewer services should not be more than 1% each of the median household income of the area served.	Comment noted. Any target rates must be based on the cost of the services provided; otherwise it is considered a tax under Prop. 218.	No change needed
7	JAN 16	L	Laurel Firestone, Community Water Center	WR (General Comments)	Overall the Water Resources Element's Draft Goals are good. We think it is important that the General Plan recognize that both water quality and water supply are necessary aspects of securing the current and long-range needs of the County. The current draft also recognizes that the groundwater in the valley floor is high in nitrates and salts, an important first step to addressing these severe problems in the County.	Comment noted.	No change needed

TULARE COUNTY WATER COMMISSION

SUBCOMMITTEE ON NITRATES
NITRATE INVESTIGATION WORKSHOP
9:00 am - 4:00 pm on Thursday, January 17, 2008
Tulare County Water Commission Contact: Jeff Forbes, staff (559) 733-6271

WORKFORCE INVESTMENT DEPARTMENT
4025 W. NOBLE AVE., SUITE A
VISALIA, CA 93277

AGENDA

Objective: Develop a study design and methods that will address the following questions, and provide reasonable expectations of a timeframe with the available funds and resources.

Study Design & Method Questions:

1. **Characterization of the problem (9:00 am - 10:45am)**
    a. **What is the extent of nitrate contamination?**
        i. **What existing data can we use?**
            1. **Public drinking water wells**
            2. **Private wells**
        ii. **How can we fill in the gaps?**
            1. **Consistency in data**
            2. **Site selection / getting volunteers**
            3. **Design of monitoring wells**
        iii. **What are the health consequences of nitrate?**
        iv. **Should we include other contaminants / variables?**
            1. **DBCP, TDS, coliform, etc.**

2. **What are the sources of nitrate contamination? (11:00am – 12:00 pm)**
    a. **How can we determine sources of nitrate?**
        i. **Different water ages**
        ii. **Different depth**
        iii. **Different areas of the county**

3. **Developing Solutions (1:00pm – 2:00pm)**
    a. **How can we use this data to address the problem?**
        i. **What are potential management practices?**
        ii. **Are there ways to reduce contamination in the groundwater?**
            1. **Bioremediation**
            2. **Recharge/pumping**
    b. **How can we monitor progress on solutions?**

4. **Moving Forward (2:00 pm– 3:15pm)**
    a. **Funding**
        i. **What do we already have funding for and what can we do given that amount of funding?**
        ii. **What additional funding is necessary and where can we get it?**
    b. **Timing**
        i. **How long will this study reasonably take?**
        ii. **When can we get started?**

5. **Next steps (3:15 pm – 4:00pm)**

enclosure (21)

enclosure (21)

Comments by J. Peter Clum, 45638 South Fork Drive, Three Rivers, CA on the Tulare County General Plan Update 2030 and Draft Environmental Impact Report (DEIR) Made to the Tulare County Planning Commission April 23, 2008

The General Plan Update 2030 and the DEIR are a road map for urban sprawl. The General Plan Update will not accomplish the guiding principles or objectives set forth on page ES 7 of the DEIR. Quite the opposite.

- It will not protect agricultural land
- It will not protect our economy
- It will not protect our air quality, water supply or water quality

The General Plan Update and DEIR are an abdication of the county's responsibility to protect our health and welfare, our physical environment, and to comply with the California Environmental Quality Act. They are a blank check for unimpeded market forces development.

I urge you to read the comments submitted to RMA, including those of the Tulare County Farm Bureau; the Council of Cities; Tulare County Citizens for Responsible Growth; the California Attorney General; the comments of Kimball Loeb, who is a local business owner and certified engineering and hydrogeologist; my comments of April 14; and Carole Clum's comments of April 14.

The General Plan Update and DEIR are fundamentally flawed and legally inadequate.

- They lack enforceable policies and implementation measures
- They fail to establish proper baselines
- They repeatedly avoid analyzing feasible mitigation measures
- They improperly defer analysis and mitigation of significant impacts

Instead, without adequate factual basis and discussion, impacts are deemed less than significant or are determined to be significant but unavoidable with recommendations for statements of overriding considerations. We are told the General Plan is a program EIR; the details will come later. However, I would note that CEQA and the courts have stated a program EIR "does not excuse the lead agency from adequately analyzing reasonably foreseeable significant environmental effects of the project and does not justify deferring such analysis to a later... EIR ...".

This General Plan has been in development at least since 2001. See page 10-1 of the Background Report. After all this time and money, we have a General Plan Update and DEIR which I would not be surprised to learn rank as some of the worst. We deserve much better. We must tell the Board of Supervisors this General Plan Update and DEIR are unacceptable.

If you do not already have them, I have copies of Mr. Loeb's comments, the Attorney Generals' and mine. Please take them home and read them.

Attachment 37

February 26, 2008

Written Comments submitted by J. Peter Clum,
45638 South Fork Drive, Three Rivers, CA
on the Tulare County General Plan 2030 Update
Draft Environmental Impact Report (DEIR)

Most people would agree with the objectives of the General Plan Update. Perhaps they need to specifically address air and water quality, but generally there is a basis for consensus. That's the good news. The rest is largely bad news because more often than not the policies and implementation measures are general, vague, weak, unenforceable or nonexistent. We simply will not be able to obtain the Update's objectives with these policies and implementation measures.

Further, the baseline set of environmental conditions are incomplete and confusing. There appears almost to have been a conscious effort to avoid meaningful thresholds of significance, feasible mitigation measures, and a reasonable range of alternatives. Mitigation measures are frequently either absent, unenforceable, or deferred without performance standards or criteria to gauge their accomplishment or timeframe therefor. All to often, the determination of an impact is significant but unavoidable when in fact there are existing mitigation measures to lessen the significant impacts. For example, see the public comments contained in the Public Comment Matrix, Tulare County General Plan.

Compounding the problem is that the DEIR fails to provide

Attachment 38

a reasonable range of alternatives which offer substantial environmental advantages to the General Plan Update. The purpose of alternatives is to reduce or avoid significant environmental harm while achieving all or most of the objectives. Other than the no project alternative, the alternatives have been preordained to offer little essential or pratical difference.

Let me give you a few examples of what I am talking about:

(1) Page ES-43 to 44 of the DEIR sets forth new policy AQ-4.6, PM-10 and PM 2.5 Reduction Measures for Dairy and Feedlot Operations. The second to last paragraph provides manure water shall either be injected subsurface or placed on the surface in thin layers. The last time I heard, we had significant groundwater contamination issues. How will this new policy help water quality? What is the mitigation measure for this potentially significant impact on water quality? There is none and that's because the DEIR's assessment of the General Plan Update on water quality is less than significant. Pages ES-72 to 74, DEIR. Which is interesting in that the Yokohl Ranch NOP specifically identifies water quality as a potentially significant impact, pages 32 to 34. I note that page 8-5, DEIR, states "[a]s part of the analysis, the following General Plan Amendments (GPAs) and General Plan Initiatives (GPIs) are taken into consideration for the cumulative impacts discussion and analysis." Yokohl Ranch is a specified GPI.

Should have been on page 47 of 48 ES-44, 45

(2) Urban and wildland fire hazards are judged to be less than significant, page ES-64, DEIR, despite the fact the General Plan Update would allow substantial development in the area of greatest concern - the urban wildland interface. Didn't we learn anything from the terrible 2007 California fires? In any case, the Yokohl Ranch NOP, page 1, recognizes this impact as potentially significant.

(3) The DEIR judges hydrology issues other than flooding due to increase in impervious surfaces as less than significant. For example, impact PFS-4 and 5 on pages ES-80 to 82 are judged as less than significant. Quite the opposite conclusion is reached in the Yokohl Ranch NOP, pages 32 to 34.

File Copy

TYPED VERSION OF HANDWRITTEN 2008 COMMENTS

April 14, 2008

From: Carole Clum
45638 South Fork Drive
Three Rivers, CA 93271

To: David Bryant, Project Planner
Tulare County Resources Management Agency (RMA)
5961 South Mooney Boulevard
Visalia, CA 93277

Subject: Comments on the Tulare County General Plan 2030 Update Draft Environment Impact Report (DEIR)

Encl:
1. Hydrogeologic Characterization of the Foothill Fractured Terrain for Assessing Water Supply Reliability
2. County of Tulare Impending Water Crisis Legislative Letter
3. Carole Clum's public comment to the Board of Supervisors concerning the Planned Community Zoning Amendment on September 25, 2007
4. California Department of Water Resources SWP Delivery Reliability Report of February 8, 2008
5. General Plan Background Report Table 10-4. Irrigation Districts in Tulare County, page 10-15
6. "California Salmon Population Collapses" from the Fresno Bee, January 30, 2008
7. "Delta Smelt's Numbers Decline" from the Fresno Bee, January 30, 2008
8. General Plan Background Report Table 10-1. California Water Supplies with Existing Facilities and Programs Thousands Acre Feet (taf), page 10-6

Attachment 39

9. Table 4-4. General Plan Population Estimates by Unincorporated Community and Table 4-5 Summary of Domestic Water Supply Conditions for Unincorporated Communities in Tulare County, from Draft EIR
10. Carole Clums Factchecking on Tables 4-4 and 4-5 in Draft EIR
11. California Income Inequality Grew in California Over the Past Two Decades
12. Public Policy Institute of California, California Counts, Population Trends and Profiles, "How Many Californians? A Review of Population Projections for the State, October 1999

My comments address population projections, income inequality, General Plan Framework Value Statements, air quality and water resources. My comments run to 72 pages plus the twelve enclosures.

_____

Carole A. Clum

9. Table 4-4. General Plan Population Estimates by Unincorporated Community and Table 4-5 Summary of Domestic Water Supply Conditions for Unincorporated Communities in Tulare County, from Draft EIR
10. Carole Clums Factchecking on Tables 4-4 and 4-5 in Draft EIR
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My comments address population projections, income inequality, General Plan Framework Value Statements, air quality and water resources. My comments run to 72 pages plus the twelve enclosures.

_____

Carole A. Clum

It is clear that the policies and implementation measures of Tulare County's General Plan Update jeopardize the health and welfare of the residents of Tulare County, the air quality, the water quality and supply, crop yield, agriculture's viability, open space, the existence of natural habitats, native species, and the Tulare Lake hydrologic region.

Tulare County does not exist in a vacuum. It is one of eight counties in the San Joaquin Valley. The air pollution we generate does not stop at our borders. Our depleted and contaminated aquifers extend into neighboring counties. Our failures affect the economy of the entire state of California. The greenhouse gases we generate imperil the earth.

The lack of impact fees on new development places a burden on our poor county to create infrastructure for new development when our existing roads, schools, police coverage, fire coverage, libraries, and social services are underfunded and inadequate. This creates a greater disparity between the rich and the poor and is fundamentally unfair. Unless development impact fees cover all the costs of new infrastructure, the existing residents are penalized.

To ease the growing disparity between low income and upper middle income residents, the County needs to encourage (with monetary incentives and/or lower impact fees) low income housing in the places where low income people work or provide clean convenient, inexpensive transit between places of work and residence for the poor and open libraries five or six days a week for these people so they can access books and computers. They would learn more and they would get better paying jobs. For more information on growing income inequality see the California statistics in the Report by the Economic Policy Institute and the Center on Budget and Policy Priorities, published April 8, 2008. See Enclosure 11.

The residents of Tulare County have the lowest per capita income in California. Three of General Plan Framework Value Statements, if applied, would help the poor residents of Tulare County:

- The beauty of the County and the health and safety of its residents will be protected and enhanced.
- The County will create and facilitate opportunities to improve the lives of all County residents.
- Every community will have the opportunity to prosper from economic growth.

I challenge the use of California Department of Finance (DOF) population projections to determine how many people will live in Tulare County in 2030 for the following reasons:

(1) The 20 year projections of population growth made in 1970 overstated growth by 6 million people over the next 20 year period.
(2) Different agencies predict widely varying numbers of people over 30 to 40 year time periods. Most predict fewer Californians than DOF projections. See Enclosure 12.
(3) Current agencies' predictions don't take into consideration that behavior will change significantly over decades, despite much historical evidence showing as immigrant women become better educated, they choose to have smaller families. The economic climate can change dramatically in unexpected ways, impacting migration patterns and rates and places of growth. Many variables are difficult if not impossible to assess.
(4) Metropolitan Water District of Southern California (MWD) has concluded that population projections are accurate for only about 10 years out.
(5) Developed countries in Europe and Japan have shrinking populations.
(6) "Interest is increasing in slowing or preventing growth in many ports of the state. Ballot measures in every election, somewhere in the state, are designed to control or manage growth. Recognition is also increasing that resources are finite and that growth should somehow be tied to resource availability." (from Managing Water: Avoiding Crisis in California by Dorothy Green, 2007). SB610 and SB221 of 2001 require large development show a reliable water supply for the next 20 years and that water supplies be in EIR's and urban management plans.

There is significant variation in population projections by the Census Bureau (CB), California Department of Finance (DOF), United States Bureau of Economic Analysis (BEA), UCLA Anderson Forecast (UCLA), and the Center for Continuing Study of the California Economy (CCSCE). Tulare County decision makers need to consider the level of plausible variation in population projections. See Enclosure 12. Planning and building infrastructure for the wrong population can be costly. The lowest population projections are for a 29% increase from the state's 1999 population for the year 2025 and the highest population projections are for a 64% increase from the state's 1999 population for the year 2025. Why is Tulare County projecting a 72% population increase for the year 2030?

According to the Public Policy Institute of California in October, 1999, "growth rates will be lower than in the past." Now that California is in a recession, there will be less domestic and international migration to California because of fewer job opportunities. And, with the crackdown on illegal immigration at the border with Mexico and at the workplaces that employ illegal aliens, fewer Mexicans and Central Americans will migrate here for fear of spending time in jail and deportation.

To the Board of Supervisors and Planning Commission at Joint Hearing on February 26, 2008, Addressing General Plan Update Omissions

There are serious omissions in the Value Statements listed on page ES-6 of the Draft Environmental Impact Report of the Tulare County General Plan Update.

Clean air, clean water and sustainable water were top priorities of the citizens of Tulare County during all the public workshops and the Blueprint Process.

I have carefully read the Air Quality and Water Resources elements of the Goals and Policies Report of the Tulare County General Plan. The policies and implementation measures for air quality, water supply and water quality are weak, vague, and unenforceable.

We need clean air. This General Plan Update makes air quality worse. You know that.

A sixth value statement must be added to specifically, directly address air quality, water quality and water supply. And the policies and implementation measures must be made mandatory. Every mitigation must be mandatory and sufficient to offset the adverse impact.

Carole Clum

Air Quality Element

The Air Quality Analysis in Appendix D of the Draft Environmental Impact Report consists of two pages of Mobile Emissions, On-Road Emissions for year 2007 and an estimate for year 2030 which predicts an increase of 7% for VMT of on-road mobile emissions. Where are the emissions numbers for off-road mobile vehicles like construction, industrial, commercial, recreational, residential and agriculture vehicles and power generation? There are no emission estimates for stationary sources of air pollution such as (1) industrial emissions, (2) residential emissions, (3) agricultural emissions from diesel engines, cows, pigs, (4) landfills, (5) power plants, and (6) oil and gas production. This is inadequate; There is not enough information to inform decision makers of the environmental consequences of this General Plan Update. There must be a complete, current inventory of all greenhouse gas sources, a total of all GHG emissions in 2008, and a realistic estimate of GHG emissions in 2030 if this General Plan Update is implemented to buildout. The County has failed to meet the requirements of Assembly Bill 32 and Executive Order 5-3-05.

AQ Key Terms Throughout the Air Quality element Implementation Measures must require Best Available Control Technology (BACT) and Best Available Retrofit Control Technology (BARCT).

AQ Existing Conditions Overviews Add to the end of this sentence "in spite of these improvements the San Joaquin Valley is still identified as having some of the worst air quality in the nation "and it will get worse because the County predicts in its Air Quality Analysis that VMT by mobile emissions of on-road vehicles will increase by 71% by 2030 because of new land use policies.

AQ Existing Conditions Overview The largest contributors to ROG are dairies, farming operations, managed burning and disposal. Be sure to mention this in your overview.

AQ Key Terms Global Warming Contrary to your implication, global warming is not just a natural cyclical cycle, it has man made causes. The earth's surface has warmed 1.5% F in the last century and is predicted to speed up. Scientists agree the future is grim due to global warming.

Greenhouse Gases

Greenhouse gases GHG) contribute to global warming. Humans create more and more greenhouse gases every year. We must by law reduce greenhouse gases to 1990 levels by 2020. Attorney General Jerry Brown has stated that the General Plan EIR must adequately analyze the adverse effects of implementation of the General Plan Update on air quality and climate change and adopt feasible mitigation measures to minimize the adverse effects of implementation of the General Plan Update on climate change and air quality.

AQ Existing Conditions Overview

According to a recent report "Health in the Heartland: The Crisis Continues", the age-adjusted rate for avoidable hospitalizations in Tulare County was about 20% higher than the statewide average of California. Diagnoses related to hospitalizations included: asthma, chronic obstructive pulmonary disease, and congestive heart failure. Poor air quality causes and exacerbates all of these diseases. Poor air quality contributes to cancer and early deaths. It poses one of the greatest threats to public health and is particularly burdensome to children, the elderly, and those with lower incomes. Tulare County has the lowest per capita income in California. Environmental impacts of air pollutants include climate change, smog, acid rain, and ozone depletion.

Insert on page 9.4 after long paragraph on global climate change due to greenhouse gases, just after list of attainment status:

The County has failed to adopt a Greenhouse Gas Emissions Reduction Plan as required by the California Global Warming Solutions Act (AB 32). This plan must include:

- An inventory of all known, or reasonably discoverable, sources of GHG that currently exist in the County
- A baseline inventory of the GHG currently being emitted by the County from all source categories in the inventory
- An inventory of the GHG emitted in the County in 1990 from all source categories in the inventory
- A projected inventory of GHG that can reasonably be expected to be emitted in the year 2020 due to the County's discretionary land use decisions pursuant to the General Plan Update, as well as new GHG emitted by the County's internal government operations
- A target for the reduction of those sources of emissions reasonably attributable to the County's discretionary land use decisions and the County's internal government operations, and feasible GHG emission reduction measures whose purpose shall be to meet this reduction target by regulating those sources of GHG emissions attributable to the County's discretionary land use decisions and the County's internal government operations.

The following GHG targets have been established by Executive Order S-3-05 by California Governor Arnold Schwarzenegger on June 2005:

by 2010, reduce GHG emissions to 2000 levels
by 2020, reduce GHG emissions to 1990 levels
by 2050, reduce GHG emissions to 20% below 1990 levels

Global Climate Change effects include:

sea level rise
extreme heat waves
less precipitation
earlier snowmelt
increased flooding in Spring
average temperature increases
reduced air quality
extreme meteorological events (flooding, hurricanes, high winds) and sea level rises can displace people, exacerbate wildfires, damage property and agriculture, cause stress on levees, storm wave run up, saltwater intrusion into groundwater and coastal erosion
crop reductions due to heat and larger population of pests
heat induced stress and health related problems (e.g. heat rash, heat stroke, asthma, malaria, dengue fever, yellow fever and encephalitis)
increased demand for water by humans and agriculture due to higher evaporation rate and heat stress
decreased potable water supply

Attorney General Jerry Brown has said, "We cannot allow one more molecule of greenhouse gas to be produced in California." Tulare County is required to reduce its greenhouse gases substantially.

The San Joaquin Valley Air Pollution Control District (SJVAPCD) of which Tulare County is a part, is currently designated as extreme non-attainment for federal and state ozone standards and serious non-attainment for PM10 standards at the federal level and non-attainment at the state level. As a result, a series of resolutions have been developed for the SJVAPCD to achieve attainment.

Resolution 2002-0157 requires Tulare County to commit to implementing the Reasonably Available Control Measures (RACMs):

- Increasing transit service to the unincorporated communities of Woodville, Poplar and Cotton Center
- Purchase of three new buses and installation of additional bicycle racks on buses
- Public outreach
- Providing preferential parking for carpools and van pools
- Removing on-street parking and providing bus pull outs in curbs to improve traffic flow
- Supporting purchase of hybrid vehicles for the County fleet
- Programming $13, 264,000 of highway widening projects
- and most importantly, mandating that the General Plan Update implement land use policies supporting public transit and vehicle trip reduction.

This means no New Towns in remote regions of Tulare County. 95% of all new development must be inside existing city, town, and hamlet development boundaries.

Resolution 2004-067, adopted by the Tulare County Board of Supervisors in 2004, contains additional RACMs as summarized below:

- The development and implementation of recommended procedures, thresholds, and policies related to land use projects to help achieve air quality goals;
- Encouraging land use patterns which support public transit and alternate modes of transportation;
- Exploring concepts of Livable Communities as they address housing incentives and transportation;
- Consideration of incentives to encourage development in unincorporated communities that are sensitive to air quality concerns; and
- Exploring ways to enhance van/carpool incentives, alternate work schedules, and other Transportation Demand Management strategies.

There has been no evaluation of the current efficacy of these RACM programs which have been in place since 2002 and 2004. These programs have not worked. Make them mandatory. "Exploring," "considering," "supporting' and 'encouraging' do not work.

Resolution 2002-0812, adopted by the Board of Supervisors in 2002, contains Best Available Control Measures (BACMs) to be implemented in order to reduce PM10 emissions in the County by:

- Paving or stabilizing of unpaved roads and alleys;
- Paving, vegetating, chemically stabilizing unpaved access points onto paved roads;
- Curbing, paving, or stabilizing shoulders of paved roads;
- Frequent routine sweeping or cleaning of paved roads;
- Intensive street cleaning requirements for industrial paved roads and streets providing access to industrial/construction sites; and
- Debris removal after wind and rain run off when blocking roadways

There is not one mention of all the dust raised on unpaved roads on dairy operations or farms. Why not?

The EPA announced tougher air standards for ozone (75 parts per million, 8 hours ozone) in March 2008.

Here are my recommendations for modification:

On page 9-4, left column, last paragraph, after first sentence add the following:
"The County will provide training for contractors, architects, building professionals and building owners. The County will provide free technical assistance. The County will evaluate the feasibility of carbon neutrality in all new construction."

On page 9-4, right column, after urban development boundaries or corridors, mandate smart growth and healthy community principles, require energy efficiency . . . construction and renovation, and mandate efficiency in transportation.

On page 9-4, give a new title to State Perspective for 9.1

"Statewide Greenhouse Gas Reduction Plan"

The County shall reduce GHG as required by Assembly Bill 32 and adopt all feasible mitigation measures. The County shall reduce all other air pollutants by all feasible mitigation measures. Targets will be set and met.

AQ – 1.3 Cumulative Air Quality Impacts	The County shall require developments to be located, designed, and constructed almost entirely (95%) within urban and hamlet development boundaries in order to reduce cumulative air quality impacts. Developers shall be required to build to LEED-silver standards in order to reduce air emissions and enhance rather than harm the environment. The County must follow CEC energy efficiency standards that apply to newly constructed buildings and additions to and alterations to existing buildings, better than Title 24 standards, if feasible.
AQ – 1.5 CEQA Compliance	Developers shall be required to completely mitigate air pollution including GHG, associated with the project. Implementation Measure. Developers can pay a mitigation fee to their air district to be used to fund off-site emission reduction projects.
AQ – 1.6 Purchase of Low Emission/ Alternative Vehicles	The County shall MANDATE all departments to replace existing vehicles with low emission/alternative fuel vehicles when the old vehicles wear out.
AQ – 1.7 Support Statewide Global Warming Solutions	The County shall monitor and support the efforts of the CARB, under AB32, to formulate all mitigation strategies, that may be implemented by local government, and further require the County to ultimately mandate any such strategies once they become available. This policy must have an Implementation Measure.

AQ – 1.8 Water Use Efficiency

The County shall require the Best Available Technology for increasing water efficiency of water transport and reduction of water use in all new development and redevelopment which would reduce GHG. Approximately 19% of all electricity, 30% of all natural gas, and 88 million gallons of diesel fuel are used to convey, treat, distribute, and use water and wastewater.

Implementation Measure

Use both potable and non-potable water to the maximum extent possible; low flow appliances (i.e., toilets, dishwashers, showerheads, washing machines, etc.), automatic shutoff valves for sinks in restrooms, drought resistant landscaping; "Save Water" signs near faucets.

The County should mandate no new water demand and provide incentives for water neutral development.

AQ-2.2 Indirect Source Review

The County shall require all development projects to mitigate air quality impacts associated with the project. The County shall work with SJVAPCD to determine mitigations . . . Include the following mitigation measures:

- provide walkable shopping into development plans
- provide a bus stop
- provide park and ride location.

A good Implementation Measure would be:

Developers must pay into a mitigation fund to offset the cumulative air quality impacts of their development.

AQ-2.3 Transportation and Air Quality

When developing the regional transportation system, the County shall work with TCAG to comprehensively study and act on methods of transportation which will contribute to a reduction in air pollution and greenhouse gases in Tulare County. Add to possibilities: "Provide many paved, convenient, and spacious park and ride locations." There are only two park and ride locations in Tulare County. "Light rail between cities in County."

AQ-2.4 Transportation Management Associations

The County shall require commercial, retail, and residential developments to participate in . . .

AQ-2.5 Ridesharing

The County shall continue to encourage ridesharing programs, such as employer-based rideshare by offering incentives.

Implementation Measure

The County shall provide rebates, lower taxes and a fine if they don't participate

AQ-3 Land Use/ Design

To improve air quality and minimize impacts to human health . . . Where are the policies to improve air quality and minimize impacts to human health? Policies that include wording "shall encourage', "shall identify", "shall promote" do NOT ensure air quality or minimize impacts to human health. This is shamefully inadequate and does NOT fulfill CEQA's requirement that local government protect the environment.

AQ-3.1 Location of Support Services

In order to make this policy work the County needs an Implementation Measure that allows it to happen - providing a grant, a tax break, a free location, or a low interest loan for a small business.

AQ-3.2 Infill Near Employment

Smart Land Use strategies encourage jobs/housing proximity, promote transit-oriented development, encourage high density residential/commercial development along transit corridors. These strategies reduce vehicle trips and improve air quality.

Implementation Measure

Lower impact fees shall be levied on infill development with the lowest fees going to mixed use buildings.

AQ-3.3 Street Design

The County shall require street design that provides an environment which encourages transit use, biking and walking, specifically, a small block grid street system.

AQ-3.4 Lanscap

The County shall require the use of ecologically based design principles . . . landscaped medians, planting many California native shade trees, and landscaping within the development with California native plants, mulch, and drip irrigation.

AQ-3.5 Alternative Energy Design

The County shall require all new development . . . green building practices to LEED-silver standards . . . water systems, and the highest R-value insulation. Requiring green building has a positive effect on air quality and greatly reduces energy consumption which reduces greenhouse gases and global warming.

AQ-4.1 Air Pollution Control Technology

. . . These measures shall be applied to all new development approval and permit modifications.

AQ-4.2 Dust Suppression Measures

. . . Techniques shall but are not limited to, the following:

-
-
-
- Suspension of grading activities during wind periods greater than 15 miles per hour
- Paved roads in all new projects
- Dust suppression shall be required in agriculture and dairy operations

AQ-4.5 Appliance Energy Efficiency Standards

New buildings shall contain the most energy efficient appliances (i.e. washers, dryers, refrigerators, stoves, water heaters, heating systems). The Implementation Measure shall provide incentives for old construction to convert to the most energy efficient appliances.

AQ-4.7 Cement Manufacturing Reduction of Energy Use and Emissions

The County shall require cost effective reductions to reduce energy consumption and to lower carbon dioxide emissions in the cement industry.

The Implementation Measure shall set a target emission reduction percentage and levy a fine for non-compliance.

AQ-4.8 Enteric Fermentation Reduction

Cattle emit methane from digestive processes. Manure emits methane. Reduce methane emissions, a potent greenhouse gas.

Implementation Measures.

- Change cattle feed
- Capture methane from manure lagoons

AQ-4.9 Solar Iniatiative

The County shall require 100% of new development to install hot water heaters to meet LEED-silver building standards to offset increasing demand for natural gas, propane, and electricity by 2010.

Implementation Measure.

Provide incentives like lower impact fees or rebates.

AQ-4.10 Methane Capture

The County shall require landfills, wastewater treatment plants, and confined animal facilities to capture methane and, if possible, use it as an energy source to clean nitrate contaminated groundwater or just to generate electricity.

AQ-4.11 Urban and Suburban Forestry

Trees must be planted to the maximum extent possible around all new development. Trees near structures act as insulators from weather, thereby decreasing energy requirements. Trees also store carbon and reduce GHG.

AQ-4.12 Afforestation/ Reforestation Projects

Reforestation projects focus on restoring native tree cover on lands that were previously forested and are now covered with other vegetative types. Trees store carbon.

Implementation Measure.

Clustering residential development to preserve forest/woodland resources, increasing housing density, preserving and restoring open space, replanting trees.

AQ-4.13 Agriculture and Open Space Protection

The County will limit development to very low density on sensitive lands, while increasing density of infill sites. The County will restrict land divisions in hazard areas (in foothills and mountains where there is wildfire risk and in lowlands where there is flood risk). The County shall

conserve open space and habitats for endangered and threatened species and wildlife corridors like the blue oak woodlands in the foothills. The larger the open space and agricultural land, the greater the carbon sequestration.

AQ-4.14 Energy Audits

The County shall require homeowners and builders provide prospective buyers with an audit scoring of the home's energy efficiency. Homeowners selling their older homes must supply the previous 12 months utility bills to prospective buyers. The energystar.gov site estimates sealing air leaks and adding insulation, for instance, can reduce a home's energy costs by 10%. Less energy used means less air pollution and less GHG.

AQ-4.15 Tiered Impact Fees

Impact fees for new homes and businesses must be tiered according to the distance from large cities (Visalia, Porterville, Tulare) with public transit, services, jobs, shopping, and entertainment. The lowest impact fee should be for development which is infill. The highest impact fee should be levied for the most distant development (sprawl) which creates greater Vehicle Miles Travelled (VMT) during construction and occupation.

Impact fees should also be based on the size of the home. Larger homes require more energy to heat and air condition, longer to build (creating more VMTs), have more electric gadgets which lead to larger carbon dioxide emissions which are the main culprits in global warming. For instance, a 2000 square foot house should have a much lower impact fee than a 4000 square foot house which consumed more construction materials which were manufactured and delivered and took longer to build, generating more VMTs and using more energy in the manufacturing process.

AQ-4.16 Transportation Refrigeration Units (TRU), Off Road Electrification

The County will mandate strategies to reduce emissions from TRUs, increase off road electrification.

Implementation Measure

In projects where TRUs access the site, the County shall implement measures to reduce emissions, such as, install electrification in applicable projects (i.e., truck stops, warehouses, etc.)

AQ-4.17 Green Building Initiative

The County shall implement the Green Building Executive Order, S-20-04 (CA 2004) which sets a goal of reducing energy use in public and private buildings by 20 percent by the year 2015, as compared to 2003 levels.

Implementation Measure

A project could increase its energy efficiency percent beyond Title 24 requirements. In addition, the project could implement other green building design (i.e., natural daylighting and on site renewable electricity generation.)

AQ-4.18 Greenhouse Gas Emissions Reduction Plan

The County shall develop a Greenhouse Gas Emissions Reduction Plan that identifies greenhouse gas emissions within the County as well as ways to reduce those emissions.

Implementation Measure

- Inventory all known or reasonably discoverable sources of GHG in the County;
- Inventory the GHG level in 1990, the current level, and that projected for the year 2020; and
- Set a target for the reduction of emissions attributable to the County's discretionary land use decisions, water use and efficiency, transportation plans, and its own internal government operations.

Air Quality

9.6 Implementation Measures

Implementation 1. . . . The County shall build a sufficient number of park and ride lots.

Implementation 3. The County shall provide financial or other incentives to cities and communities in the County . . .

Implementation 4. . . . and require the preparation of an EIR for all development because development produces GHG and other air pollution.

Implementation 5. . . . SJVAPCD shall develop standard mandatory methods for determining and mitigating project, zoning changes, and transportation planning air quality impacts.

Implementation 10. The County shall provide benefits that employers can offer to employees to commute to work by other methods than one person per car.

Implementation 12. The County shall require infill development first and reward it with financial incentives like lower impact fees.

Implementation 13. The County shall mandate LEED-silver and LEED-ND certification in all new construction.

Implementation 14. The County shall work with TCAG in refining and maintaining a current set of RACM and BACM that shall be mandated in reviewing and conditioning all projects. All projects produce GHG and air pollution.

Water Resources General Comments

In Appendix C of the Background Report, the Keller-Wegley report, "Water Resources Update General Plan County of Tulare" (overview of our County's water supply and quality), lays out widespread groundwater overdrafting in all four watersheds, serious groundwater contamination in many areas (salts, nitrates, arsenic, radon, DBCP, dry cleaning solvents, hydrogen sulfide, methane, natural gas, herbicides, pesticides, and fertilizers), the great expense of removing these contaminants, and lastly, the likely direct and indirect loss of a substantial portion of Friant/Kern canal water in the near future due to the judicial decision to restore the habitat of the San Joaquin River for the Chinook salmon. (Since the delta smelt and Chinook salmon populations both crashed in the fall of 2007, further reductions of water can be expected from the Sacramento Delta and the Friant/Kern canal.)

The Keller-Wegley report does not support a 72% population growth by 2030. The conclusions of the Keller-Wegley report "a major document" commissioned by the County, were not heeded by the Tulare County Board of Supervisors.

Keller and Wegley concluded that in the Deer Creek/White River watershed there is an uncertainty of the availability of water supply, heavy reliance on imported water from the Central Valley Project (CVP) which is absolutely necessary for agriculture; all aquifers exceed arsenic parameters; continued research is needed to determine if an affordable method can be developed to reduce arsenic in water; there is a lack of capability of groundwater recharge on a district wide basis which will not sustain agriculture or community water systems; and the results of litigation are unknown.

Another problem is no state bond money was made available to Tulare County Integrated Regional Water Management Plan. "The absence of any infusion of state bond money related to water resources in the county will significantly curtail both planning and implementation efforts as the County strives to deal with the demands imposed by increasing population on the available water resources."

Another hurdle is water quality. Standards are being raised on water quality in agriculture, industry, and municipal water supplies. The 20 year agricultural waiver for the Central Valley has been terminated and replaced with a short term waiver. Individuals with both agricultural discharges and stormwater discharges from

agricultural lands and confined animal facilities may have trouble surviving the significant modifications proposed to the waiver program. "Water quality sampling, testing and reporting are now all required at identified points on waterways within the County. Current participation levels do not include all potential dischargers and the question remains whether or not the waiver format will survive into the future." There are compliance pitfalls and expensive testing and reporting requirements. There is a trend in California law toward increased testing and reporting.

Legislative and regulatory requirements are also tending to dictate decreasing quantities of allowable contaminants and increased testing and reporting requirements in municipal and industrial water. "Compliance brings increased costs related to construction of [contaminant] removal facilities, operation of these facilities, and for compensation for trained and licensed operators qualified to oversee the operations of such removal facilities." This applies to arsenic and DBCP removal. Who will pay for this? The General Plan Update does not say. Dennis Keller's warning: "The planning efforts of the County should recognize the water quality implications related to the parameters noted above [arsenic and DBCP] and the nitrate parameter in planning for the maintenance of an expansion of cities and unincorporated communities which are the topic of this General Plan." In other words, more people and more industry means lower water quality while tightening standards for water quality means greater expense in cleaning drinking water. This will be the result of the General Plan.

As to water quantity requirements, local planning agencies are required to obtain proof of availability of an adequate water supply for any subdivisions which are proposed in excess of 500 homes (SB 221). Keller and Wegley gently suggest all levels of development should pass the water proof of adequate availability test.

In the San Joaquin River restoration case, *NRDC v. Rodgers* (concerning endangered species Chinook salmon), water deliveries from the Friant/Kern canal to Tulare County will most likely be reduced. A settlement has been reached but a federal law must be passed. Water deliveries will be reduced in all but above-normal years of rainfall. "Impacts on lands within the County will still be experienced, even in above normal years, as the allocations to the San Joaquin River will result in the reduction in surplus water deliveries to those entities located in the County who traditionally contract for and take delivery of such surplus supplies."

This information should be used to inform decision makers when they make land use planning decisions. From a planning perspective, the Board of Supervisors should understand that "a judgment bringing rise to release of water down the San Joaquin River for anadromous fisheries restoration purpose could bring about a reduction in an average of 450,000 acre feet, plus the elimination of surplus water deliveries to temporary contractors located in the County." This "could move further in an adverse direction with respect to impact over time, if the decision is made by the court to include adaptive management provisions in the restoration program. Such action could eventually require more water to be released for restoration purposes than the initial" decision. This is the worst scenario. Nevertheless, it could reasonably happen and must be planned for. There was an "unprecedented collapse of Chinook salmon" last fall (2007). See Enclosure 6.

The exact outcome of *NRDC v. Rodgers* is not known. "The potential for the decision to impact development within given population concentration (community) and potentially to completely undermine the existing basis for Tulare County population, allocations and disposal, "individual communities most at risk if an adverse ruling prevails are those communities that use the most Friant/Kern canal water. "It is not possible at the current time to determine the ripple effect which such an adverse opinion may have on communities not directly impacted by an adverse decision."

Nowhere in the General Plan Update Goals and Policies Report Water Resources Element, Background Report or DEIR is there mention of the threatened species delta smelt and the judicial decision *NRDC v. Kempthorne* which has resulted in a ruling in 2007 which imposed tighter pumping limits in the Sacramento Delta in order to leave more water in the delta for protection of the delta smelt and the whole degraded ecosystem. Judge Wanger's decision could cut irrigation deliveries south of the delta by between 20-39% annually. To see which irrigation districts will be affected see Enclosure 5. Last year 2007 there was a "precipitous decline in the delta smelt." See Enclosure 1 which will most likely lead to further reductions in irrigation deliveries to Tulare County.

Nowhere in the Water Resources Element, Background Report or DEIR is there mention of the reasonably foreseeable adverse impacts of Global Climate Change on water supply, water quality, and ground water recharge. Less precipation means less surface water to recharge groundwater. Less surface water means less water

for drinking, for crop irrigation and for blending with contaminated groundwater to achieve safe drinking water standards. We are already seriously overdrafting groundwater. Rising temperatures mean more evaporation. If our population stayed at the current level, by 2030 we would have to practice stringent water conservation, water efficiency, water reuse, water recycling, and rain water harvesting to support our current population.

Because of Global Climate Change water managers will no longer be able to rely on deep snowpack in the Sierras or late snowmelt. We must capture rain where it falls. Trees capture rainwater, filter and clean huge quantities of rainwater through their massive root systems, and recharge the groundwater system. There is no plan to reforest our cities and hamlets and cleared land.

Nowhere in the Water Resources Element, Background Report, or DEIR is there mention of the low 2007 snow pack level in the Sierra Nevadas or that if we have another dry winter in 2008, MWD would have to reduce supplies of water to local communities.

The California Global Warming Solutions Act of 2006 and California Executive Order S-3-05 of 2005 require all cities and counties in California to reduce greenhouse gas emissions substantially. The Water Resources element does not acknowledge or respond to these laws in its goals, policies, or implementation measures.

The Attorney General of California has issued a list of Global Warming Mitigation Measures. There are mandatory, not discretionary. See the next page.

Water Conservation and Efficiency

- Design and implement a comprehensive water conservation strategy. The strategy may include many of the specific items that follow, plus other innovative measures that are appropriate for the location.
- Require water efficient landscapes.[29] Adopt a strong landscape ordinance with water budgets to assure efficient landscape design, installation, and maintenance in new construction.
- Encourage the use of reclaimed water for landscape irrigation in new developments and on public property. Provide necessary infrastructure to deliver and use reclaimed water.
- Require water efficient design for buildings. This may include strengthening local building codes for new construction and implementing a program to renovate existing buildings to require a higher level of water efficiency.
- Adopt a retrofit ordinance that will require installation of water-efficient fixtures upon the sale of homes.[30]
- Adopt and enforce restrictions on watering methods (*e.g.*, prohibiting systems that apply water to non-vegetated surfaces) and controls on runoff.
- Require water efficiency training and certification for irrigation designers, installers and managers.
- Provide individualized water audits for large water users to identify conservation opportunities. Offer financial incentives for adoption of identified efficiency measures.
- Provide water audits for large landscape accounts. Offer financial incentives for efficient irrigation controls and other efficiency measures.
- Fund incentives and technical assistance for water efficiency.
- Adopt standards that prescribe the maximum allowable effective impervious area for all new development and redevelopment projects. Require preservation of the existing hydrologic character of developed sites to manage storm water and protect the environment. (Retaining storm water runoff onsite can drastically reduce the need for energy-intensive imported water at the site.)
- Adopt conservation pricing to encourage efficient water use.[31]

The Board of Supervisors seems to have forgotten the letter of "impending water crisis" sent to Assemblyman Bill Maze on September 25, 2007. See Enclosure (2). The 20th century was the wettest century in the last 1000 years, according to tree rings that go back over 2000 years. We can't assume we'll get lucky again this century. We need to prepare for a drought, possibly a disastrously long drought. Instead, this General Plan Update assumes an increased supply of water from the Central Valley Project, State Water Project, groundwater, and from unnamed recycling facilities currently under construction. See Enclosure 5, (Background Report Table 10-1.) This is a "blue sky" prediction, essentially imbecilic. These predictions do not coincide with realities on the ground.

In March 2008 scientists announced they had found high concentrations of DDT in two High Sierra lakes in Sequoia National Park, despite the fact that DDT was banned from use in agriculture in the U.S. 36 years ago. Widespread contamination of lakes is suspected.

Dr. Karl Longley of Fresno State and founding member of the "Drinking Water Group," conducted a GAMA study of domestic well water quality in Tulare County in 2006. 181 samples of well water were drawn from valley and foothill wells. 41% of the wells were contaminated with unsafe levels of nitrates, 33% with total coliform bacteria, 8% with fecal coliform, and 13% of the wells were contaminated with both nitrates and total coliform bacteria. This is not a healthy climate for growth. Tulare County must concentrate on cleaning contaminated water for its vulnerable residents and stopping the contamination of groundwater by septic systems, agriculture, dairies, and wastewater treatment plants.

Comments by Carole Clum to Board of Supervisors at the Hearing on Draft General Plan Update, Feb. 26, 2008

It is impossible to assess and mitigate the impact of new development on water resources when the decision makers do not have a complete, accurate, current description of the existing environment. It is only against this baseline that intelligent decision making can be made. The DEIR analysis of water supply and water quality is fundamentally flawed because:

- Keller-Wegley Report, a major document used to assess water supply and water quality, is incomplete, missing vital figures and community maps assessing adverse impacts on many unincorporated communities due to loss of water from the Friant-Kern canal. Nevertheless, Dennis Keller, notes the uncertainty of the outcome of the *NRDC v. Rodgers* case concerning the restoration of the San Joaquin River, depending on the successful rebound of the Chinook salmon,

- No consideration of the delta smelt decision to restore the Sacramento delta and limit water exported to Tulare County,

- No consideration of Global Climate Change and scientists' consensus that Tulare County will receive increasingly less precipitation and less snowpack and will experience ever warmer average temperatures which will adversely impact water supply, groundwater overdrafting and groundwater contamination and recharge.

- Absolutely no consideration of serious groundwater overdrafting now in Tulare County,

- Inadequate and inaccurate data in Table 4-5, page 4-107 of the DEIR, which purports to show the ability of 21 unincorporated communities to meet population growth demands of the General Plan Update buildout to 2030, See Enclosures 9 and 10

- Most of the water resources data was collected in 2003 or earlier. This DEIR was published in 2008,

- No consideration of the significant adverse impact on hydrology of Global Climate Change as echoed in the State Water Project Delivery Reliability Report of Jan. 22, 2008,

- No consideration of the expense of improving municipal water supply infrastructure and wastewater treatment facilities to accommodate 72% population growth.

- Page 4-130 of the DEIR states, "The majority of domestic water purveyors in unincorporated areas of the County would continue to be dependent upon groundwater to meet their water needs. Until comprehensive assessments of groundwater and groundwater management efforts occur, it is not possible to conclude that the County's groundwater resources would be capable of meeting future water demands resulting from implementation of the General Plan Update.

- There is widespread contamination of groundwater by nitrates, arsenic, DBCP, radon, etc. Until county-wide, comprehensive groundwater quality monitoring occurs, there is no way to determine if the population can grow by 72%.

- No consideration of the expense of removing contaminants from groundwater and who will pay. Purchasing filtration systems to remove contamination from water is expensive. Maintaining filtration systems is expensive and disposing of the concentrated contaminant (now officially hazardous waste) is extremely expensive. Small municipal water systems cannot afford the expense. This is especially true of disadvantaged communities.

Public Comments by Carole Clum to the Tulare County Water Commission
February 25, 2008

In the past I have commented on water supply. Now I'm addressing water quality.

In the Environmental Impact Report document of the General Plan Update under Air Pollution Control on pages 4-54 through 4-57 are the following paraphrased words: In order to improve air quality by reducing PM-10, PM 2.5 and ROGs (reactive organic gases), the County will require all future dairies and feedlot development projects to adhere to new policies AQ-4.6 and AQ-4.7.

AQ-4.6 allows spreading dry manure on nutrient areas when the wind is less than 10 mph. What are these nutrient areas? On what crops can this dry manure be spread?

AQ-4.7 allows manure water to be either injected subsurface or placed on the surface in thin layers, blending such manure water with irrigation water at a ratio in compliance with a nutrient management plan that shall be required for each dairy and feedlot. In other words, to be determined in the future, on a case by case basis.

Now I ask you, how is injecting manure water into the soil going to be good for groundwater? What is the mitigation for pumping manure water into the ground? How is watering down manure water and spreading it thinly going to halt the evaporation of the liquids and dispersions of solids into the air via the wind and discing?

According to the Environmental Impact Report, the implementation of the above dairy and feedlot policies would ensure that the General Plan Update would not conflict with applicable air qualities plans and that this impact would be less-than-significant.

These dairy and feedlot policies conflict directly with the County's following goals:

- Protecting and enhancing the health and safety of the County's residents, page A-1 General Plan Framework in the Goals and Policies Report
- Protecting the quality of groundwater resources, page 11.3 in the Water Quality section of the Goals and Policies Report.

There are at least 300 dairies in Tulare County and 60-70 feedlots.

Vast quantities of cow manure laden with antibiotic resistant bacteria and nitrates being pumped into and spread on the ground is a huge threat to public health.

In the Water Quality Section on page 11-4 in the Goals and Policies Report there are nine policies under the stated goal "to protect the quality of surface water and groundwater resources".

- All nine policies are new policies.
- Only one policy mentions agriculture. WR-2.7 states the County shall work with agricultural and industrial concerns to ensure that water contaminants and waste products are handled in a manner that protects the long term viability of water resources. This wording is so weak and vague as to be meaningless.
  What are the specific performance standards by which this would be accomplished? What is the time frame in which this would happen? And what measures would be used to ensure it actually happens?
- The wording in three policies is strong.

- The other six policies contain unenforceable wording such as:
  - shall be evaluated
  - if feasible
  - as necessary
  - work with
  - shall continue to promote
  - shall encourage and support the identification of degraded surface and ground water resources—AND THEN WHAT WILL THE COUNTY DO ABOUT IT?!

In policy WR- 2.3 on page 11-5, Best Management Practices and other unnamed mitigation measures shall be continued to be required, <u>if feasible</u>, to protect surface water and groundwater from adverse effects of construction activities and urban runoff in coordination with the Water Quality Control Board. The wording "if feasible" makes this policy very weak. Worse, this policy fails to include other important sources of water contamination such as:

- food processing facilities
- industrial activities
- agricultural activities
- dairies and feedlots
- special uses

It is evident the County doesn't care enough about protecting our water quality to write strong, enforceable policies and implementation measures. Look for yourself in the Goals and Policies Report on pages 11-4 and 11-5.

There is no factual basis for the County's capacity to accommodate the General Plan Update's population growth projections.

In the Water Resources element of the DEIR on page 4-106, Table 4-4 General Plan Population Estimates by Unincorporated Community there are 21 communities listed with their domestic water service provider, existing population, and projected range of General Plan Population Estimates. Take Three Rivers, for example, the existing population estimate of 2300 people is from 2003 which is five years out of date. The projected population increase for 2030 is from 920 to 1397 people. The domestic water service provider is listed as CSD and mutual water companies. According to Randy Pares, general manager of CSD on January 21, 2008, CSD controls 75 water connections in Alta Acres where there are only 5 unbuilt lots. The South Kaweah Mutual Water Company, according to Lew Nelson, manager, on January 25, 2008, services 220 water connections in Cherokee Oaks subdivision. There are only 20 unbuilt lots. There are no plans to extend the system. Deer Meadows Mutual Water Company in Cherokee Oaks subdivision, according to Ken Elias, board member on January 23, 2008, has 41 connections and arsenic in its water. There are a total of 35 small, privately owned, volunteer run water systems/companies in Three Rivers. Except for the three largest water companies, there are no water meters. The large majority charge flat rates. Many water companies serve one hotel, or one RV park, or the elementary school, or four or five homes. Most of the approximately 1900 water wells in Three Rivers are private wells serving one household. The water companies have various problems; old water pipes, only one well, arsenic above Federal drinking water standards, reach capacity at times of peak water use, have insufficient water pressure for fire flow, have a moratorium on developing new lots, need an expensive new water storage tank ($35,000), and have applied for grants and loans.

According to Tom Marshall, a 15 year member of the Sequoia Foothills Chamber of Commerce, on January 23, 2008, there are 321 motel rooms, bed and breakfast rooms, and RV spaces. During the summer and especially during the holiday weekends of Memorial Day, 4th of July, and Labor Day, they are fully occupied, reaching peak water use. The consultant who gathered data on these service providers did not ask about peak demand on water and how close that

came to capacity or the cost of expenditures to drill another well or upgrade infrastructure. Most of the people who live in Three Rivers are outside CSD and all the other mutual water companies. None of the private wells have been evaluated. There has been no study of water quality or quantity in Three Rivers. Drilling a well here is like playing roulette. Some don't produce enough water. Others have unacceptable levels of radon or arsenic. Wells are being drilled deeper of necessity. The only way 900-1400 more people could be accommodated in Three Rivers by 2030 is by a new large development, not on 5 acre ranchettes.

Again, according to Ken Elias, board member of Deer Meadow Estates Water Company in Cherokee Oaks, on January 21, 2008, there is one well that produces 60 gallons a minute and a second inactive well that produces only 3-4 gallons a minute. The water company is considering reactivating this well. There are 27 connections to this water system. The water table for well #1 dropped 30 feet during an earthquake in the 1990's. There is enough water during peak demand. There are expensive repairs upcoming, a sediment ram.

According to Ray Murray, manager of the Sierra King Water Company in Three Rivers on Mineral King Road on January 22, 2008, the water company is a homeowner's association which just deals with water supply. There are 41 connections. Recently they drilled a well which had an unacceptable level of radon. They drilled a third well which has good water but is not on line yet. There is a moratorium on building on the remaining 41 lots. They are not 100% metered. Funding is a real problem. The water system has problems with pressure, not enough for firefighting flow. Because of a pinhole in the storage tank, they need to buy a new one. It will cost $35,000.

And yet, in Table 4-5, Summary of Domestic Water Supply, Conditions for Unincorporated Communities in Tulare County, Three Rivers is listed as having adequate facilities to serve projected General Plan Population Growth with Concerns, meaning Three Rivers either has the capacity to serve projected growth or is likely to solve capacity issues within the time horizon of the General Plan Update. How was this conclusion reached?

The people of Three Rivers believe their road to economic prosperity is attracting more tourism. Businesses in Three Rivers fail at an alarming rate because outsiders visit almost entirely between Memorial Day weekend and Labor Day weekend.

Springville is a more egregious example of "blue sky" analysis. Springville (SPUD) is listed as the domestic service provider in Table 4-4. It gets its water supply from Tule River water rights, not groundwater. According to Nancy Bruce, board member of SPUD on January 22, 2008 during peak demand (four consecutive days of 107° F or above), SPUD reaches its capacity of water rights. There has been a moratorium on sewer connections in SPUD for 28 years. SPUD is in non-compliance for effluent treatment. SPUD is unable to expand its wastewater treatment facility due to a lack of available land. And yet, Table 4-5 lists Springville as "More than Adequate", meaning "facility appears capable of serving growth beyond buildout of the General Plan." That's unwarranted optimism and a prediction not based on fact.

Lemon Cove, a community of allegedly 251 people in 2003, has shrunk to less than 200 people on January 21, 2008. The County projects Lemon Cove to grow to 377 to 433 people despite the the fact that Lemon Cove is landlocked by citrus groves in the Williamson Act; its wastewater treatment plant is at 3/4 capacity; it is bisected by Highway 198; and it is assaulted by the noise, dust, vibration, and fumes of heavy diesel trucks hauling crushed granite from the Lemon Cove Granite Pit through town. It is not your ideal town. The Lemon Cove SD has 41 water connections and 60 sewer connections, according to Bill Pensar, board member of Lemon Cove SD, on January 23, 2008. The County does say Lemon Cove has "Significant Concerns", meaning "the provider lacks capacity to serve projected growth and is likely to experience significant difficulties in expanding the system to meet projected demand." They got that right.

I quote from the DEIR, page 4-129

"Impact Analysis
Implementation of the General Plan Update would result in an increased demand on groundwater supplies for urban and rural uses within the unincorporated areas of the County. Due to the lack of comprehensive information regarding the County's groundwater resources, it is uncertain if groundwater supplies

would be sufficient to meet the future demand of rural private domestic, small municipal and agricultural wells. This uncertainty combined with the current regulatory approach could result in insufficient groundwater supplies in unincorporated areas of the County. Growth associated with the General Plan Update would require additional groundwater pumping for designated urban development areas of the County where surface water is not available. In some of the unincorporated urban development areas, there are concerns that adequate water supplies cannot be achieved through sustainable groundwater management, that is, without creating declining groundwater levels, and adversely affecting existing wells. Such concerns are heightened by the fact that most of these areas are presently dependent upon groundwater supplies."

The above impact analysis was based on inadequate, inaccurate data. So, the true impact is most likely worse, creating greater impact on groundwater and existing wells.

Only one small CSD, PUD, ID or JPA in each community was consulted in 2003 in order to analyze each community's ability to meet projected growth. In the case of Three Rivers, the Three Rivers CSD serves 75 water connections. There are approximately 1900 wells in Three Rivers, predominantly one well serving one household. This inadequate analysis was based on less than 5% of the people served by wells in Three Rivers. For a more accurate analysis see Enclosure 10.

In the Background Report under Public Services and Utilities on page 7-35 under "Can't Serve" Special Districts, there are 15 communities listed as under temporary cease and desist orders for water or sewer hook ups as of April 7, 2007.

According to the Background Report, pages 7-41 through 7-43, some of the unincorporated urban areas within Tulare County lack sanitary sewer infrastructure and are served by individual or community septic systems. These are Allensworth, Alpaugh, Alpine Village-Sequoia Crest, Ducor, East Tulare Villa, Lindcove, Monson, Plainview, Ponderosa, Three Rivers, Waukena, West Goshen and others. Other unincorporated communities within Tulare County have sanitary infrastructure in place, however, in many cases the facilities are several years old and are in need of rehabilitation and/or reconstruction to meet current standards. According to Table 7-2, Summary of Sanitary Service

Providers on page 7-43, eleven communities have primary or advanced primary treatment level. The other 15 have secondary treatment level of wastewater. None treat wastewater to tertiary level.

The DEIR did not disclose the extent of groundwater contamination in Tulare County. This draft EIR ignores the extent of water problems in unincorporated communities and assumes a solution to the problem of water supply will be reached in order to fulfill growth projections within the time horizon of the General Plan. Decision makers must, under the law, be presented with sufficient facts to evaluate the pros and cons of supplying the amount of water that the projected growth will need.

The DEIR does not disclose the cost of remediation or identify any source of funding for remediation measures for many of the water companies needing new wells, pipes, storage tanks or water treatment facilities to eliminate contamination by nitrates, arsenic, oil, DBCP, perchlorate, radon. Almost all the water companies are applying for grants and/or loans. There is not enough state or federal money to meet all the needs. It is extremely expensive to remove some forms of water contamination (arsenic, oil). Many of these unincorporated communities are small and poor. There is a lack of funding for remediation measures. There is great uncertainty that mitigation measures would ever be funded or implemented.

In the DEIR the RMA has abused its discretion by reaching factual conclusions, unsupported by substantial or current evidence.

As a result of projected growth encouraged by the Updated Tulare County General Plan considerably more groundwater would be pumped to serve new housing, retail, dairies, and industry. Since Tulare County is already seriously overdrafting its groundwater, this would result in a significant impact which could be avoided if growth were curbed. 56% of the overdrafting in California occurs in Tulare County.

We need to consider the groundwater impact of every proposed development (new town, slaughterhouse, dairy, ethanol plant, housing development, etc.) Each proposed project must submit realistic estimates for water use, with a firm cap on groundwater use. The impact on existing uses of neighboring properties must be considered. And now that the California Supreme Court

decided on February 1, 2007 in the *Vineyard Area Citizens for Responsible Growth v. The City of Rancho Cordova* that the impact on potential growth for surrounding property owners must be taken into account, we better understand the state of our groundwater. Groundwater depth and contaminant maps should be created and updated every year. There should be a moratorium on building until the groundwater situation is clearly understood.

Tulare County operates several small water systems, called County Service Areas, in Delft Colony, Traver, Yettem, and Wells Tract which rely on groundwater for potable water deliveries. These water systems are currently unmetered, and customers are billed under a flat rate structure. Water furnished without water metering and volumetric pricing causes waste and unreasonable use of water. After installation of water meters and volumetric pricing, water districts have encountered an immediate decrease in water demand by 20-30%. The decrease in water demand leads to a decrease in operating expenses resulting in energy savings and in some cases reduces operation and maintenance costs by extending the useful life of the system equipment. Why hasn't the County invested in meters in its own County Service Areas?

We need a comprehensive hydrological study of groundwater in Tulare County, especially in the foothills where no monitoring of groundwater has been done, before we can accurately project population capacity. We need baseline facts in order to make intelligent decisions.

According to the California Development Department, Tulare County had 10.9% unemployment in December 2007. Tulare County has the lowest per capita income of the 58 counties in California. Where will the money come from to drill new wells, clean contaminated water, improve infrastructure at mutual water companies, pay rent, buy a home? How can our unincorporated communities grow as projected in Tulare County's General Plan Update?

Water Resources
Impacts and Mitigation Measures on page 4-119 through 4-136

Impact WR-3

CEQA guidelines require RMA of Tulare County to include a description of the physical environmental conditions in the County, as they exist at the time the Notice of Preparation, from both a local and a regional perspective. The "baseline" environmental conditions for determining this General Plan's significant effects on the physical environment would normally be described in the DEIR as the "environmental setting". In this case the environmental setting is supposed to be contained in the Background Report, "Domestic Water Infrastructure," page 7.2 Background Report, Section 10.2 Water Resources, Existing Conditions, page 10-5; and Appendix C, Water Resources. Instead of analyzing Tulare County's water resources, the County presents Existing Conditions in the Background Report on page 10-6, Table 10-1, California Water Supplies with Existing Facilities and Programs Thousand Acre Feet of 1998 based on 1995 statistics and projected to 2020, amounts of surface water and groundwater available. This data is outdated and inadequate. It excludes groundwater overdraft. According to this table, annual water delivered from the Central Valley Project is expected to increase. And the State Water Project is projected to increase delivery of water to Tulare County. New water production will result from groundwater." What are the "recycling facilities currently under construction" which will increase our water supply? this "analysis" is fundamentally flawed.

Tulare County is in a "critical overdraft condition", overdrafting 820,000 acre feet of groundwater a year. This is 56% of California's overdraft. Subsidence from overdrafted aquifers has already occurred here. Wouldn't the projected 72% population growth exacerbate an already overdrafted groundwater supply? There has been no County-wide hydrological study of groundwater. See the proposed Fresno County Foothill Hydrological Study in Enclosure 1. Semi-annual monitoring of groundwater in Spring and Fall over time would inform the County of the state of overdraft in general and specific areas of critical overdrafting and groundwater contamination.

In Appendix C of the General Plan Background Report, page C-4, Figure 4-8, Average Groundwater Elevations, City of Visalia, the caption reads: "Of particular concern to local agencies of jurisdiction, as well as to the County, is the condition of groundwater beneath the organized communities and cities. Typical of all communities with groundwater as the principal source of supply, conversion of land from agricultural use to urban use has brought about a change in the sources supply from a conjunctive basis of surface supply and groundwater supply to one which is generated exclusively from groundwater. The impacts of such conversion where not offset by groundwater recharge mitigation measures, results in a decline in the volume of water available in the groundwater reservoir and an increase in the distance from which that groundwater needs to be mined."

A serious analysis of surface water available to Tulare County based on fact, up to date, and considering reasonably foreseeable reductions in water supply due to Global Climate Change and upcoming judicial decisions concerning the Sacramento Delta and San Joaquin River exports is needed.

The baseline condition for water resources is a factual quantitative measure of the existing acre feet of water in our groundwater basin as of April 25, 2006, the date of the NOP. The water resource projection must factor in the Friant/Kern canal subsidence, the Friant/Kern canal judicial decision, and the delta smelt judicial decision which both reduce water export to Tulare County.

On September 25, 2007, the Tulare County Board of Supervisors voted unanimously to send a legislative letter to Assemblyman Bill Maze warning of "an impending water crisis" in Tulare County as a result of Judge Wanger's decision to restore the habitat of the San Joaquin River for Chinook salmon by limiting the export of water. See Enclosure 2. At the same session the Board of Supervisors unanimously approved the Planned Community Zoning (New Town "amendment") allowing new towns anywhere in the unincorporated areas of the County. See Enclosure 3.

Without a complete description of the General Plan's environmental setting, the DEIR may never adequately investigate and discuss the environmental consequences of the proposed projected growth. In a recent case the California Court of Appeal rejected a description of the baseline environmental conditions because the EIR did not quantify the size of the groundwater

aquifer beneath a proposed project. There must be sufficient baseline information for intelligent decision making.

There is clear precedent for a rigorous global warming baseline analysis. For example, when considering a proposed general plan's use of water, the baseline conditions must be based on actual water currently used.

In determining whether a project's impacts may significantly affect the environment, there must be a "baseline" set of environmental conditions to use as comparison to the anticipated project impacts. One California Court of Appeals decision acknowledged the "baseline determination is the first rather than the last step in the environmental review process". Several judicial opinions have held the impacts of the project must be measured against "real conditions on the ground". In other words, when considering a proposed project's use of water, the baseline conditions must be based on actual water currently used.

Direct environmental impacts, the immediate, perceptible effects of a project, count as environmental impacts under CEQA (more overdrafting of groundwater and consequent lowering of groundwater in neighboring wells. So do indirect impacts, impacts that are one or more steps removed from the project, as long as they are reasonably foreseeable (for instance, greater use of energy to convey and treat water and to treat wastewater, causing higher emissions of CO_2 from power plants and the foreseeable indirect impact of a new residential subdivision far from existing public services, jobs, commercial uses, and public transit, increasing Vehicle Miles Travelled by the future residents, tourists, and workers to this outlying residential community, leading to increased combustion of fossil fuels, which contribute to global warming.)

We need to consider the impact on groundwater and surface water of every proposed development - ethanol plant, slaughterhouse, dairy, new town, etc. - in Tulare County. Each proposed project must be required to submit realistic estimates from County-approved experts for water use throughout the life of the development, including a firm cap on the maximum amount of water that will be used. Additionally, the impact of uses on neighboring properties now and in the future must be considered.

The California Supreme Court decision on February 1, 2007 (in the *Vineyard Area Citizens for Responsible Growth vs. the City of Rancho Cordova*) that the Impact of potential growth for surrounding property owners must be taken into account makes it even more urgent that we gain a thorough understanding of the state of our groundwater in Tulare County.

For example, water in the foothills is transient, moving through to the valley floor, where it replenishes the groundwater supply. But construction of a big housing development in the foothills will disrupt the flow of this water to the valley.

Estimates of water consumption of any proposed development must come from qualified, independent, reliable experts. If the estimates aren't accurate, the consequences can be widespread and irremediable. As a case in point: the developers of the corn ethanol plant in Goshen assured County planners and supervisors that there was sufficient CAL Water to operate their proposed facility. But when the plant began operating, not enough CAL Water was available. So the owners (Bio Phoenix Industries) asked the Board of Supervisors for permission to dig deep wells. The County approved the request (BOS Resolution 8147), the deep wells were drilled, and now the wells on the neighboring properties are going dry.

The Yokohl Ranch developers claim they have enough surface water for their proposed 20-year project. are these only paper water rights, or is this guaranteed, sufficient, long-term water in wet years and in drought? If enough surface water does not materialize, or disappears in dry years, you can bet that Boswell will be applying for permission to dig deep wells, and there will be another Board of Supervisors resolution and consequent betrayal of the neighbors' water rights.

Given the prospect of projected massive growth in Tulare County, it is obvious that a County-wide groundwater evaluation and management plan must be in place before we approve any new development.

A significant effect on the existing environment is defined by the CEQA Guidelines as a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, in this case water resources in the County. The DEIR must identify and focus on the

possible significant adverse environmental impacts of a proposed project, in this case, groundwater overdrafting caused by projected population growth in a County already suffering from severe groundwater overdrafting.

The California Legislature has determined that certain specified changes to the environment are significantly adverse by definition. These are often called mandatory findings of significance. As a result of the legislature's determination, RMA must conclude that a proposed project (updated General Plan) may have a significant effect on the environment if the project does any of the following:

1) Has the potential to degrade substantially the quality of the environment;
2) Has potential environment effects that are individually insignificant but cumulatively considerable;
3) Has the potential to cause substantial adverse direct and indirect impacts on human beings;
4) Has the potential to reduce substantially the habitat of a fish or wildlife species;
5) Has the potential to cause a fish or wildlife population to drop below self-sustaining levels;
6) Has the potential to threaten or eliminate a plant or animal community or;
7) Has the potential to substantially reduce the number or restrict the range of an endangered, rare, or threatened species.

Using more and more groundwater and surface water for future projected growth would cause all of the above significant effects on the environment.

The cumulative impacts analysis is one of the most essential elements of the DEIR; it assesses the cumulative damage as a whole greater than the sum of its parts. Cumulative impacts are "two or more individual effects when considered together, are considerable or which compound or increase other environmental impacts." These cumulative impacts can result from individually minor but collectively significant projects taking place over time, as in several small developments requiring groundwater over time. The cumulative impacts are considered significant when considered with the effects of past, current, and foreseeable future projects, thus the project's effects are considered "cumulatively

considerable". There is no analysis of cumulative effects in the General Plan or DEIR.

The EIR should include verification of sufficient water supplies for the future including the following:

- Will groundwater be sufficient in the long term for the projected growth?
- What effect will this increased groundwater pumping have on groundwater levels and on water quality?
- How will potential lowering of groundwater levels affect nearby agricultural wells? domestic wells?
- What are the long term competing uses for this groundwater?
- What are the environmental impacts associated with securing and delivering this water?

Recommendations for Changes in Water Resources Element
in Goals and Policies Report

11. Water Resources Page 11-1

Remove sentences "The policies in this element . . . is a complicated system . . ." Replace with <u>The County is the land use authority and has regulatory control over land use activities that directly impact water management. And, the County operates a number of water and wastewater systems, which manage water. In the systems the users must have water meters and be charged volumetrically.</u>

Existing Conditions Overview page 11-2 (at the end of fourth paragraph) and other factors <u>which include overdevelopment, waste of water by agriculture and residents and Global Climate Change.</u>

(at end of the 5th paragraph) add:
<u>Overdrafting of groundwater occurs in each of these 19 entities.</u>

(at end of the 7th paragraph) add:

In Three Rivers all the mutual water systems are privately owned and run by volunteers.

In foothills water exists only in rock fractures. Drilling a well is like playing roulette. Many drilled wells come up dry, yield little water or are contaminated by radon or arsenic. There is not much groundwater in the foothills and little capability to develop. The foothills are near the of our watershed where our water originates.

Our surface waters, small creeks and streams, and ultimately rivers and lakes, are polluted with run-off from non-point sources, contaminants that flow from developed land, roads, and agricultural fields.

Chemically assisted agriculture is the County's largest source of polluted run-off. Nitrogen from fertizers and VOCs from pesticides, particularly soil fumigants contaminate run-off.

The second largest, and fastest growing, source of run-off is sprawl. Impervious surfaces such as buildings, parking lots, driveways and roads cover our soil, speed run-off, and warm the water, washing the contaminants into small streams. Development is covering our vital watersheds keeping rainwater from being captured, filtered, and recharged into our groundwater.

Comprehensive land use reform is essential to protecting our County's water resources. When agriculture or development alters the shape, the soils and the vegetation of a watershed, the impact on nearby rivers and streams is profound. Automobile exhaust from sprawl (from increased Vehicle Miles Travelled) is a primary source of air borne nitrogen, one of the most damaging aquatic pollutants. The damage to water quality will grow dramatically unless sprawl is brought under control.

Growth must be focused in compact, dense towns with minimal impervious surfaces. Watersheds must be protected. Practically, this means identifying our watersheds that are undeveloped evaluating their biological, recreational, and other public values and maintaining the most important watersheds in an undeveloped state.

Designing compact smart communities that offer a broad array of transportation and housing choices, that integrate work and shopping with housing and have inspiring civic spaces consume less land and dramatically reduce the number and length of automobile trips. This means less airborne nitrogen, less gas and oil runoff, and less heavy metals from brakes and tires, all of which benefit water and air quality.

Conservation of rural landscapes help shape regional growth patterns. This means no more loss of agricultural land and open space. When more than 10% of the acreage of a watershed is covered in roads, parking lots, roof tops and other impervious surfaces, the rivers and streams within those watersheds become degraded. By virtually every measure of ecosystem health, the streams, creeks, marshes, and rivers that are surrounded by hardened watersheds are less diverse, less stable, and less productive. The most obvious change caused by development is that rainwater flows faster across the ground and more of it reaches, creeks, rivers, and estuaries in the form of runoff. A one acre parking lot produces 16 times the volume of runoff that comes from a one acre meadow.

Water temperature rises as runoff flows across paved areas. Because warm water contains less dissolved oxygen than cold water, the fish that are sensitive to oxygen levels, like trout and salmon, decline and disappear. Large undisturbed setbacks are necessary for all streams and rivers. When impervious coverage in the watershed reaches 10%, water quality suffers. Urban runoff transports a vast assemblage of pollutants into the aquatic environment. These include nitrogen, phosphorus, organic carbon, pesticides, petroleum hydrocarbons, and trace metals such as copper, zinc, and lead. The County must minimize impervious ground cover and incorporate small water retention swales into parking lots, curbside, and residential yards in all new development.

More driving and more developed land means more damage to our rivers, streams, and groundwater. Sprawl is at the root of the problem. No new towns shall be allowed. All growth shall be directed into our existing cities' and communities' development boundaries.

WR-1.1 Groundwater Withdrawal (add the following)

. . . No development shall be allowed in areas where groundwater does not meet SDWA standards or is in serious overdraft unless sufficiently mitigated so it will not contribute to groundwater overdraft, and will not result in an injury to the reasonable and beneficial uses of overlying groundwater users.

WR-1.2 Groundwater Monitoring

The County shall require the collection . . . groundwater pollution and overdrafting as part . . . development which would add to the County's available water data which is needed to make informed water and land use policy decisions.

WR-1.3 Water Export Outside the County

. . . The County shall require a "no net loss" . . . To allow any net loss of water to Tulare County contradicts the WR-1 goal to protect the quantity of surface and groundwater resources.

WR-1.4 Conversion of Agricultural Water Resources

The County shall prohibit the transfer of water used for agricultural purposes (within the prior ten years) for domestic consumption under any circumstances in order to ensure adequate supplies are maintained for existing development and to ensure our County remains agricultural.

WR-1.5 Expand Use of Reclaimed Wastewater

. . . The County shall use opportunities . . . recharge efforts like landscape irrigation in new development and on County property. The County shall require new wastewater treatment plants to have tertiary treatment, like a series of ponds that empty into streams or recharge basins.

WR-1.7 Collection of Additional Groundwater Information

The County shall financially support . . . basins. The County will develop comprehensive data for all regions of the County on water quality and supply in order to make informed land use decisions, particularly in the foothills where there is almost no data. This information must be developed before making further significant land use decisions that may further impact groundwater quality and supply.

WR-1.8 Groundwater Basin Management

. . . by surveying our entire four watersheds and identifying all streams, intermittent streams, vernal pools and water retention basins in order to protect them from development and damage of any kind, by setting maximum buffers and by minimizing, to the maximum extent possible, impervious ground cover.

WR-1.9 Collection of Additional Surface Water Information

The County shall require the collection of comprehensive water . . .
The County shall monitor older development to ensure only reasonable and beneficial extraction of water from rivers and streams occur. The County shall forcefully request California Department of Fish and Game monitor and enforce water withdrawals by ditch owners.

WR-1.10 Channel Modification

Channel Modification shall be prohibited . . . Mandatory fines shall be levied for channel modification which adversely impacts groundwater recharge, flooding, erosion, rate of sediment transport, aquatic life and riparian habitat. The channel shall be restored at the developer or landowner's expense.

WR-2 . . . for the protection of the quality of surface water and groundwater resources. Where are the strong policies to protect water quality? Policies that include the words "shall be evaluated", "shall confer . . . as necessary", "shall continue to require the use of feasible . . . mitigation measures", "shall continue to promote", "shall encourage and support", "shall work with" do NOT ensure water quality. This is woefully inadequate and does not fulfill CEQA's requirement that local government protect the environment. So far, Tulare County's policies have failed to protect groundwater since it has become increasingly contaminated with nitrates, etc. Also, the County has ignored the adverse impacts of dairies and agriculture on groundwater.

WR-2.1 Protect Water Quality

All land use and development . . . Remove "as necessary". It is always necessary. Add to the end: The County shall minimize, to the maximum extent possible, impervious groundcover in new development. The County shall stop sprawl. The County shall mandate very large undeveloped buffers around creeks, streams, rivers, vernal pools, and natural water retention basins. The County shall require large and small water retention basins in all new development to capture runoff.

WR-2.3 Best Management Practices

The County shall require the use . . . construction activities, dairies, industrial activities, food processing facilities, agricultural activities, special use and urban runoff. This policy shall incorporate whatever BMP may be developed by the County as part of the Water Commission's Nitrate Subcommittee.

How can this be a new policy and the County is "continuing" to do it?

WR-2.4 Construction Site Sediment Control

. . . from construction sites and shall require site sediment control on agricultural operations and on dairies.

WR-2.5 Major Drainage Management

The County shall protect each individual drainage basin . . .

WR-2.6 Degraded Water Resources

The County shall identify and restore degraded surface water and groundwater resources including interim mitigation options. The persons or companies responsible for the degradation shall pay for the restoration. Restoration and mitigation efforts shall be implemented in cooperation with the Regional Water Quality Control Board and the Department of Public Health, as well as other appropriate state and regional agencies.

WR-2.7 Industrial and Agricultural Sources

The County shall require agricultural . . .

WR-2.8 Point Source Control

The County shall cooperate fully with . . . and penalize for repeated pollution.

WR-2.8A Establish Critical Water Quality Areas

The County shall designate Critical Water Quality Areas county wide to guide in land use decisions. Specifically, the County needs to identify vulnerable aquifers used for drinking water and then set strict guidelines for land uses, development, and Best Management Practices in those areas to protect water quality.

WR-2.9 Private Wells

. . . The County shall require testing of private wells for known contaminants and require those results be submitted to the County and kept in a continually updated database. The County shall fine owners/developers for wells abandoned or driven by unlicensed companies. Anyone who sells a parcel of land with a well on it must disclose the water quality analysis to the prospective buyer before escrow. Implementation Measure. Fines shall be levied for wells driven by unlicensed companies and wells not properly abandoned.

WR-2.10 Educational Programs

Public education is needed on water quality. Issues such as well head protection, proper fertilizer application and septic maintenance can be extremely helpful in protecting our County's water supplies and ensuring clean water in the future. The County shall create educational programs for domestic, agricultural, dairy, urban, and rural users.

WR-3 Water Supply

To provide a sustainable long term supply of water resources . . . Where are the policies that require water conservation, water efficiency, water recycling, water reuse in all new construction and provide incentives for older construction to convert to water saving measures? How does the new policy of allowing extraction and export of groundwater from Tulare County of any amount less than what will substantially increase the groundwater overdraft of Tulare County provide a sustainable water supply? Define "substantial." Implementation Measure 1 does not fulfill CEQA's requirement that local government protect the environment.

. . . recreational needs and to require that new development provide proof of a long term water supply.

WR-3.1 Develop Additional Water Sources

The County shall identify and develop additional water sources . . . groundwater banking, groundwater recharge and infiltration basins, rainwater harvesting and required water conservation programs. The County shall inform and encourage the public to harvest rainwater from roofs into barrels, underground cisterns or basement cisterns for use in irrigation or sewers or toilets. This will take the strain off municipal water systems.

WR-3.2 Develop an Integrated Regional Water Master Plan

. . . The County will establish a County wide well monitoring water conservation, water efficiency-focused integrated regional water master plan for the entire County. Of primary importance is a system for monitoring water quality and water quantity on a yearly basis.

WR-3.3 Adequate Water Availability

The County shall review new development proposals to require . . . Projects must provide evidence of safe drinking water and longterm sustainable water availability or . . . The County must ensure the project will not negatively impact water quality or quantity of present or future use of adjoining properties.

WR-3.4A Comprehensive Water Conservation

The County will design and implement a comprehensive water conservation strategy as recommended by the Attorney General to reduce Global Warming, which will include the following strategies:

- Design and implement a comprehensive water conservation strategy. The strategy may include many of the specific items that follow, plus other innovative measures that are appropriate for the location.
- Require water efficient landscapes.[29] Adopt a strong landscape ordinance with water budgets to assure efficient landscape design, installation, and maintenance in new construction.

- Encourage the use of reclaimed water for landscape irrigation in new developments and on public property. Provide necessary infrastructure to deliver and use reclaimed water.
- Require water efficient design for buildings. This may include strengthening local building codes for new construction and implementing a program to renovate existing buildings to require a higher level of water efficiency.
- Adopt a retrofit ordinance that will require installation of water-efficient fixtures upon the sale of homes.[30]
- Adopt and enforce restrictions on watering methods (*e.g.*, prohibiting systems that apply water to non-vegetated surfaces) and controls on runoff.
- Require water efficiency training and certification for irrigation designers, installers and managers.
- Provide individualized water audits for large water users to identify conservation opportunities. Offer financial incentives for adoption of identified efficiency measures.
- Provide water audits for large landscape accounts. Offer financial incentives for efficient irrigation controls and other efficiency measures.
- Fund incentives and technical assistance for water efficiency.
- Adopt standards that prescribe the maximum allowable efficient impervious area for all new development and redevelopment projects. Require preservation of the existing hydrologic character of developed sites to manage storm water and protect the environment. (Retaining storm water runoff onsite can drastically reduce the need for energy-intensive imported water at the site.)
- Adopt conservation pricing to encourage efficient water use.[31]

WR-3.5 Use of Native and Drought Tolerant Landscaping

The County shall require the use . . . and mandate water . . .

WR-3.6 Agriculture Irrigation Efficiency

The County shall create educational . . . There needs to be an Implementation Measure. This is very important. A lot of water waste occurs in agriculture because the water is so cheap.

WR-3.6A Urban Water Use Efficiency

The County shall increase urban water use efficiency by rewarding and requiring the use of water meters and volumetric pricing of water and other BMP conservation practices in existing communities, by obtaining grants and providing incentives.

WR-3.7 Emergency Water Conservation Plan

The implementation measure for this policy is extremely poor and inadequate. What is the use of simply making a list of priorities?

WR-3.8 Education Programs

The County shall develop educational programs in cooperation with other water purveyors . . .

WR-3.9 Establish Critical Water Supply Areas

. . . and prohibit development in those critical water supply areas until water supply is adequate for development.

WR-3.10 Diversion of Surface Water

. . . and where diversion is not reasonable and beneficial or is to the detriment of aquatic or riparian habitat. CEQA prohibits damage to natural resources.

WR-3.12 Joint Water Projects with Neighboring Counties

. . . and improve availability of clean water, requiring water conservation measures.

WR-3.13 Coordination of Watershed Management on Public Land

This policy has no implementation measure. Implementation Measures 3, 4, and 18 could all reference this policy.

WR-3.14 Coordination of Watershed Management in Unincorporated Areas of County

Watersheds shall be protected and restored, by protecting streams from erosion and by improving groundwater retention and especially by protecting natural water retention basins.

Implementation Measures

Implementation Measure 1

first bullet	. . . will not increase the overdraft
third bullet	incomprehensible, make clear
sixth bullet	Find that the applicant has provided complete mitigation
seventh bullet	There will be no net export of water from the County
eighth bullet	The County shall include a time limit on groundwater exports so they can be reviewed periodically

Implementation Measure 3

. . . balance between urban, rural, ecological, environmental and agricultural demands

Implementation Measure 4

Remove the words "Where feasible"

Implementation Measure 5

The County shall require active participation by local stake holders and take a lead in developing a program of groundwater monitoring . . . developers as a permit requirement for projects identified as potentially impacting groundwater or surface water.

Implementation Measure 6

The County shall prohibit . . .

The County shall establish large buffers around streams and rivers and restore stream banks and meandering nature of streams to enhance flood control and increase groundwater recharge.

Implementation Measure 7

The County shall work with federal, state, regional and local agencies such as local Irrigation Districts to improve . . .

Implementation Measure 9

Replace with, the County will develop a new ordinance requiring testing of all new wells, both agricultural and domestic. All new wells shall be tested for priority contaminants as determined by Environmental Health before permit approval. The homeowner/seller shall provide water testing results to potential buyers before escrow.

Implementation Measure 10

. . . The County shall provide incentives and apply for grants to increase urban water efficiency.

Implementation Measure 11

The County shall identify, evaluate and cause to cease and desist conditions . . .

The point source shall provide mandatory mitigation or be fined by the County for the cost of cleaning up the pollution.

Implementation Measure 12.

. . . constructed to reduce soil erosion and silt transport to the absolute minimum, using all feasible methods, and to maximize runoff retention.

Implementation Measure 13.

. . . shall involve the least disturbance possible to banks . . .

Implementation Measure 15.

> . . . lining waterways shall be prohibited and shall allow very wide (300' from high water level) riparian area free of grading and development of any sort. Meandering streams with water retention basins nearby will capture heavy stormwater flows and infiltrate water into aquifer.

Implementation Measure 16.

> The County shall expand the role of the . . . industrial interests and wastewater treatment plants.

Implementation Measure 16A.

> The County shall identify vulnerable aquifers and then restrict land uses and development in those areas, require Best Management Practices in agriculture, dairies, and industry and provide large buffers, particularly when communities rely on that aquifer for drinking water.

Implementation Measure 17.

> . . . The County shall identify and require proper abandonment of unused or "dry" wells. These are known vectors of groundwater contamination.

Implementation Measure 18.

> The County will help prepare and maintain Integrated Regional Water Management Plans and abide by their decisions.

Implementation Measure 19.

> . . . to provide assured evidence . . . supply capabilities and water quality that meets State Drinking Water Act standards. If groundwater is seriously overdrafted in the area, no new wells will be permitted. Water used for agriculture (in the prior ten years) will not be considered an available water supply. No development will receive approval for more than 10 years after which there will be a review for water availability.

Implementation Measure 20.

The County shall strengthen the Tulare County Water Commission so it can oversee all or some . . .

Implementation Measure 21.

The County shall strengthen and implement . . . consistent with or better than . . . Ordinance for new development and provide incentives for older development to meet the same standards.

Implementation Measure 22.

This is an inadequate mitigation. What exactly are you going to do?

Here are some suggestions:

The County shall place caps on water consumption per household and per business. When a certain number of gallons per month is reached, water to that house or business will be shut off. As the water emergency worsens, caps will be lowered. No watering of landscaping will be allowed.

Implementation Measure 23. add the following

. . . Educational topics should include how to harvest rainwater, how to irrigate agriculture more efficiently. These programs should include outreach and communications in English and Spanish and other languages where appropriate.

Implementation Measure 24.

. . . degrading water quality or adversely affecting groundwater supply. In critical groundwater recharge areas, development should be prohibited.

Implementation Measure 25. add to end

. . . and protect groundwater from contamination.

Implementation Measure 26.

. . . placing strict limitation on the amount . . . zoning techniques with the goal of protecting groundwater quality and quantity.

Implementation Measure 27.

. . . The County will also identify critical groundwater quality areas and maintain a continually updated data base.
This must be done now. 2010-2015 is too late.

Implementation Measure 28.

The County will work with the Department of Fish and Game and the State Water Resources Control Board to monitor stream diversions and enforce regulations in order to restore and maintain healthy aquatic ecosystems.

7/01/07

Draft Proposal

Hydrogeologic Characterization of the Foothill Fractured Terrain for Assessing Water Supply Reliability

Scientific Investigators:
California Water Institute, California State University, Fresno[1]
Lawrence Berkeley National Laboratory, University of California

Collaborators:
County of Fresno
Sierra and Foothill Citizens Alliance
Sierra Foothill Conservancy

SUMMARY

California Water Institute (CWI) of California State University, Fresno will team up with Lawrence Berkeley National Laboratory (LBNL) to provide an accurate assessment of hydrogeologic data to address water supply and sustainable development issues in the Sierra Foothills, eastern Fresno County. To facilitate field work and the data gathering process, and to maximize the benefits to the local community, our project partners include the County of Fresno, Sierra and Foothill Citizens Alliance, and the CalFed funded Millerton Area Watershed Program of the Sierra Foothill Conservancy. Our approach's emphasis is on the utilization of cutting-edge technology and the most advanced and up-to-date scientific knowledge in fracture hydrology, which has been developed with years of research experience gained from the multimillion-dollar federally funded Yucca Mountain Project. We propose a comprehensive multidisciplinary field, laboratory, and numerical modeling approach, including hydrogeology, geophysics, isotope hydrology, and computer model analysis. We will integrate the data using robust spatial analysis techniques to provide the much-needed information for assessing water supply reliability, formulating water policy, and managing water resources in fractured rock terrains.

INTRODUCTION

The foothill area of eastern Fresno County poses an unparalleled technical challenge in terms of its water supply policy and sustainable development. Due

[1] For more information, please contact Professor John Suen at the California Water Institute of Fresno State University. (E-mail address: john_suen@csufresno.edu)

Enclosure 1

to the unique combination of its population growth, economic development potential and local geology, the area is facing extremely complex technical and scientific issues that cannot be found anywhere in the country. Fortunately, due to the recent advances in hydrological science, in particular, in the area of fracture hydrology, many of these issues can now be investigated with high tech equipment, state-of-the-art computer models, and innovative field-tested approaches.

Fractured Crystalline Rocks versus Porous Sedimentary Aquifers

Ground water is the sole source of water supply for the foothill area of eastern Fresno County where ground water occurs in a uniquely different geologic environment than in the Valley below. In the Central Valley, ground water mainly resides in the intergranular porous space within the sedimentary aquifers. In contrast, ground water occurs only in fractures (i.e. cracks and fissures) of the crystalline granitic rocks in the foothill and mountain areas where the geology and the hydrologic properties of the granitic rocks dictate the amount of ground water that is available or can be produced. Since the average storage space in the fractures in a given volume of the rock is typically much less compared to the intergranular space in the same volume of sedimentary aquifers, the amount of ground water available from fractured rocks is significantly less than the amount available from the valley floor. The problem is further complicated by the fact that the spatial distribution of fractures in the foothill terrains is strongly uneven, thus making the assessment of water availability highly difficult and uncertain. Conventional well testing methods which were developed primarily for sedimentary porous aquifers may not be valid for analyzing fractured crystalline rocks. Furthermore, the occurrence or density of fractures decreases rapidly with depth. Therefore, drilling deeper wells would not be a solution.

Implication of the Recent Stable Isotope Study

A recent study on the Big Sandy Creek watershed in the Prather-Auberry area of Eastern Fresno County, conducted by the California Water Institute using advanced scientific equipment and techniques ('fingerprinting" by means of stable isotopes), has confirmed that most of the production water from domestic wells is in fact closely related to fresh precipitation and surface runoffs. The results indicate that the water originates from recent rainfall and snowmelt rather than ancient water deposited by glaciers of the last ice age more than 10,000 years ago. The good news is that the current water usage does not seem to have upset the natural balance of the water cycle. However, it also implies that any periods of drought or climate change scenarios may be likely to have a serious impact on the water supply. Compounded by the rate of development in the area, the good news may not last too long.

Necessary Science and Scientific Data

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To ensure sustainable development, our policy must be based on a strong scientific basis using accurate and reproducible field generated data that are specific to the region and its geology. Because of the fact that conventional hydrogeological methods and models were not developed for fractured terrain, they have limited application for the Sierra foothills. This poses a tremendous challenge because it requires the development of innovative and expensive technology as well as new hydrologic theories and models. No single local community could afford such costly developments, and therefore, the necessary hydrologic data of fractured rocks remained mostly in the uncharted territories of science and technology.

Since about 15 years ago when the U.S. Congress identified Yucca Mountain, near the Nevada Test Site, as the only candidate for our nation's first civilian nuclear disposal site, hundreds of million dollars were appropriated and spent for fracture hydrology development, because fractured rocks underlie Yucca Mountain, the proposed location for the nuclear waste repository. As a result, the U.S. Department of Energy has assembled a large contingent of outstanding scientists and engineers in the national laboratories (D.O.E. labs) who focus their research specifically on the development of sciences and technologies. Among the various national laboratories, the scientists at Lawrence Berkeley National Laboratory (LBNL) of the University of California have amassed a wealth of experience and knowledge about hydrology in fracture rocks. Consequently, LBNL has become the world's leader in fracture hydrology research. Its current annual budget for Yucca Mountain studies amounts to tens of millions.

To answer some critical questions regarding the sustainability of the groundwater resource in the Sierra Foothills area, California Water Institute (CWI) of Fresno State is teaming up with LBNL to apply the valuable knowledge and technical experience obtained from the federally funded Yucca Mountain studies. This proposed study will be an excellent example of technology transfer by which civilian communities can now make use of knowledge derived from federally funded cutting-edge scientific research.

Examples of questions that can be answered by this collaborative project are:

- What is the density of fractures at the surface, and at different depths? At what depth do the fractures disappear?
- How wide are the fractures? What are their lengths? Do they intersect each other?
- What are the dominant orientation (i.e. directions and inclinations)?
- What percentage of the fractures is connected with others forming a network? How many percent is isolated and water cannot flow through?
- Where do they concentrate? Where are the zones of fractures?
- How fast water can flow through fracture networks in the rocks along different directions?
- What is the volume of water contained in the rocks or fracture porosity ?

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- Can we "x-ray" the rocks below the surface to "see" the fracture network and distribution?
- If we can, then can we use a computer model to predict the behavior of the system?

PROJECT GOALS

CWI and LBNL will conduct a fracture hydrology investigation in the eastern Fresno County area with the collaboration of Fresno County, Sierra and Foothill Citizens Alliance and the Sierra Foothill Conservancy. The local community will be benefited by this scientific study project, the outcome of which will:

- Help improve the fundamental understanding of the local watershed hydrogeology,

- Provide a strong scientific basis for policy makers and regional planners to make sound and informed decisions on watershed management.

- Provide the much needed information for assessing water supply reliability by offering critical hydrogeologic data, and advanced technical tools (for example, ground penetrating radar, coupled surface water-ground water model) as well as cutting-edge technology (borehole pneumatic testing, stable isotope hydrology) for the County Planning Department and other regulatory or non-regulatory agencies, including DWR, the Regional Water Board, and other agencies.

- Enhance watershed stewardship and improve management practices.

- Improve watershed education through our public seminars and presentations; raise the level of public awareness and understanding, and improve reliability and efficient water use.

PROJECT DESCRIPTION

Our study approach emphasizes the utilization of cutting-edge technology and applying the most up-to-date advanced scientific knowledge in fracture hydrology, an area in hydrological science that was overlooked and not developed until about 15 years ago. With a wide range of expertise accessible to us, we propose a comprehensive multidisciplinary field, laboratory, and numerical modeling study, based on hydrogeology, geophysics, isotope hydrology, and computer simulation analysis. We will integrate the data using robust numerical analysis techniques to elucidate one of the most complex problems in hydrological science. Before drilling new wells, we will first make extensive use of existing data that are already available from Fresno County, through the

Enclosure 1

Department of Water Resources, and collected by the Millerton Area Watershed Coalition Program (MAWC). We will avoid any possible duplication and ensure maximum efficiency of research effort. With the help of Fresno County and the Sierra and Foothill Citizens Alliance, we will be able to identify study sites that are representative of the hydrogeological conditions of the Sierra foothills. We will select one or two sites for focused studies, depending on a number of factors, such as the availability of existing data, site access, number of available wells, site geology, etc. Based on what we learn about the site(s), we plan to do the following investigations (Tasks):

1) Perform a thorough review of existing hydrogeological data, including pump tests, water usage, well information, water chemistry, ecological data, etc. Much of these data are available from Fresno County and the San Joaquin Valley District office of the Department of Water Resources and through various consultants' reports submitted to public agencies.

2) To ensure the ease of future access, we plan to enter the data in a Geographic Information System (GIS) and create a database that can be used for water resource management and future reference.

3) Examine aerial photos to determine regional fracture characteristics (e.g., trends and orientations). Fracture zones, geologic faults, and structural lineaments can be identified. These geological features ly and large control the availability of ground water. Based on these datat, we will conduct reconnaissance outcrop mapping to determine important fracture parameters, including length, aperture, roughness, density, orientation, and connectivity. We will identify fracture sets and obtain a statistical description for later use in data and numerical analyses.

4) In addition to surface geological mapping, we plan to use borehole cameras to obtain statistical parameters of fracture density and fracture orientation in relation to depth. The new 360° horizontal looking color TV camera can give a complete view of the subsurface, which can provide accurate information on density and orientation in depth.

5) Carry out a field experiment to test the use of Ground Penetrating Radar (GPR) and high resolution cross-borehole seismic tomography surveys to study fractures in crystalline rocks. GPR is the latest geophysical technology and has the potential to "x-ray" subsurface structures. However, due to the strong attenuation of energy, its applicability may be limited to shallow depths or small intervals between wells. Nevertheless, GPR has not been applied extensively to fractured granite, and it has a high potential to yield great benefits in this case.

6) Collect water samples for isotope analyses and water chemistry study. Water samples will include surface water, ground water and precipitation.

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The new stable isotope analytical facility at CWI is specially set up to measure isotope ratios (delta O-18, and delta H-2) of water. These isotopic ratios have the potential to distinguish old fossil (ice-age) water from new meteoric water. The age of the water (fossil water vs. recent rainwater) carries a very significant implication of sustainability of the ground water supply. We plan to obtain major minerals concentration data for the samples as well. Together with major minerals data of the water samples, isotopic data can be interpreted and used as environmental tracers. We will be able to trace the path of the meteoric water through the hydrologic cycle and determine the portions of contribution from different possible sources. Based on these data, we can also make estimates regarding infiltration, evapotranspiration, net recharge and discharge rates in the fractured terrain.

7) Since much pump test data are already available, we do not plan to duplicate the effort. Instead, we plan to analyze available pumping test data using powerful numerical models that were specially developed by LBNL scientists for fractured rocks. These models are highly specialized and are generally not available to and cannot be proficiently applied by typical ground water consultants. These analyses can provide important information on connectivity and storage capacity of the fractured aquifer. Nevertheless, if opportunities arise, we will also be able to design and perform tests meeting our own specifications. For example, when there are new wells drilled, landowners may agree to let our research team perform tests on the wells, since pump tests are already required by Fresno County. If possible, *in-situ* tracer tests at selected sites are also performed to identify flow paths and fracture-matrix interaction.

8) In addition to pump test analysis, we plan to carry out pneumatic testing to characterize fracture connectivity and fracture hydraulic properties in the vadose zone. This innovative method of fracture analysis is a proven technique, which is based on the variation of formation air pressure in response to the change in atmosphere pressure using numerical inversion technique developed by LBNL.

9) Develop submodels for the selected test sites. The usefulness of these models and their capability for prediction will be evaluated by comparing modeling results with selected observations. The evaluation will provide basis for developing large-scale groundwater flow models (Task 11).

10) Develop approaches for estimating water recharge (net infiltration) based on eco-hydrology methods. Eco-hydrology is a relatively new branch of hydrology and focuses on interactions between plants, climate and soil. Especially, study will focuses on how the plant type and its spatial patterns affect recharge and its distribution.

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11) Develop a 3-D regional ground water model by incorporating geological and hydrologic data collected, including fracture parameters, water table, recharge and discharge, and pumpage data. First the model is calibrated to match observed data, such as water table data. Then the model is used for predictive studies under different water usage, recharge or climate scenarios. The primary objective of the ground water model is to provide a quantitative tool for local communities, governments and agency in water resource management and planning.

12) Preliminary results will be reported and made available annually through CWI's website in PDF format. In addition, throughout the project, CWI and LBNL scientists will educate citizens and landowners by offering talks and presentations designed for general public understanding arranged by Sierra and Foothill Citizens Alliance. At the end of the project, we will integrate the findings from all technical areas (geology, geophysics, hydrology, and numerical analysis) and draw overall conclusions regarding the storage capacity and sustainability of the ground water supply. Based on our conclusions and the scientific data obtained from this project, we will be able to make recommendations pertaining to water management practices and development policy in our final report. All data, models, and results will be made available for technical use for public benefit by agencies and watershed management groups in easily accessible digital formats – Adobe, Excel, Access, and ArcInfo/ArcView formats.

The lessons and experience learned from this local study project can be applied state-wide to other areas along the foothills of the Sierra Nevada in California. We plan to extend our study area to other communities and counties in California.

PROJECT DURATION AND BUDGET

The estimated duration of this project is between 3 to 5 years depending on the availability of funds.

A preliminary estimate of the budget required for this study is at about $1,000,000 annually. We expect that the total amount would be from different funding sources, including local, state, and federal funds.

Work Scope and Budget Plan for one five-year Project

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RESO. # 07-469

BEFORE THE BOARD OF SUPERVISORS
OF THE COUNTY OF FRESNO
STATE OF CALIFORNIA

IN THE MATTER OF FRESNO COUNTY)
DECLARING SUPPORT OF THE)
FOOTHILL/MOUNTAIN WATER CAPACITY STUDY) RESOLUTION

WHEREAS, increased water demand resulting from population growth and the fractured rock geology of the groundwater supply in the foothill/mountain area of eastern Fresno County pose extremely complex technical and scientific issues pertaining to water management; and

WHEREAS, recent advances in hydrological science utilize high-tech equipment, state-of-the-art computer models, and innovative field-tested approaches to investigate fracture hydrology; and

WHEREAS, the Sierra and Foothill Citizens Alliance and the Millerton Area Watershed Coalition Program (CalFed funded) have partnered with the California State University, Fresno (CSUF), Lawrence Berkeley National Laboratory, and the University of California, Merced to provide an assessment of hydrogeologic data in the foothill area of eastern Fresno County; and

WHEREAS; The Foothill/Mountain Water Capacity Study project will be a state-of-the-art scientific investigation to characterize the geology and assess water supply reliability to address the areas critical water supply and sustainable development issues; and

WHEREAS, the outcome of the study will provide the hard scientific data to enable Fresno County to create policies to reasonably assure sustainable landuse and a viable quality of life for those currently living and those desiring to live in the foothills of the Sierra; and

WHEREAS, Fresno County has a vital interest in creating prudent water and land use policies in the foothill/mountain area of eastern Fresno County; and

WHEREAS, the Fresno County Board of Supervisors has in conjunction with the Foothill Water Study expressed support for a data acquisition program to provide information for monitoring of water demands, refinement of water balance amounts and to evaluate long-term sustainability of water supplies in the area.

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NOW, THEREFORE BE IT RESOLVED, that the County of Fresno Board of Supervisors acknowledges the value of an advanced scientific investigation to address critical water supply and sustainable development issues in the foothill/mountain areas and does hereby support the Foothill/Mountain Water Capacity Study project.

THE FOREGOING RESOLUTION was passed and adopted by the following vote of the Board of Supervisors of the County of Fresno this 28th day of August, 2007, to-wit:

AYES: Supervisors Larson, Case, Anderson, Perea, Waterston

NOES: None

ABSENT: None

CHAIRMAN, Board of Supervisors

ATTEST:

BERNICE E. SEIDEL

Clerk, Board of Supervisors

By

Deputy

AGENDA #: 33

RESOLUTION NO. 07- 469

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CERTIFICATE OF DELIVERY OF DOCUMENT

I am employed by the County of Fresno as a Deputy Clerk of the Board of Supervisors. On **August 28, 2007** I delivered a copy of **Resolution No. 07-469 (Item no. 33)** to the Chairman of the Fresno County Board of Supervisors.

Sherrie Evans
Deputy Clerk

Enclosure 1

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Agenda Item

DATE: August 28, 2007

TO: Board of Supervisors

FROM: Alan Weaver, Director
Department of Public Works and Planning

SUBJECT: Support for the Foothill/Mountain Water Capacity Study

RECOMMENDED ACTION:

Adopt resolution in support of the Foothill/Mountain Water Capacity Study.

Approval of the recommended action will formalize County support of the Study and assist the project partners in their efforts to obtain funding for the project.

FISCAL IMPACT:

There is no County cost associated with the recommended action.

IMPACTS ON JOB CREATION:

The recommended action has no impact on the goals of the Regional Jobs Initiative.

DISCUSSION:

In an effort to assist Fresno County in creating prudent water and land use policies in the foothill/mountain area of eastern Fresno County, the Sierra and Foothill Citizens Alliance and the Millerton Area Watershed Coalition Program (CalFed funded) have partnered with the California State University, Fresno (CSUF), Lawrence Berkeley National Laboratory, and the University of California, Merced (project partners) to provide an assessment of hydrogeologic data in the foothill area of eastern Fresno County.

The foothill area of eastern Fresno County poses a technical challenge in terms of its water supply policy and sustainable development. The increased water demand resulting from development and the fractured rock geology of the groundwater supply pose complex technical and scientific issues pertaining to water management. Recent advances in hydrological science utilize high-tech equipment, computer models, and innovative field-tested approaches to investigate fracture hydrology.

ADMINISTRATIVE OFFICE REVIEW Brandi Orth Page 1 of 2

BOARD ACTION: DATE August 28, 2007 APPROVED AS RECOMMENDED X OTHER

Official Action of Board of Supervisors

UNANIMOUS X ANDERSON ____ CASE ____ LARSON ____ PEREA ____ WATERSTON ____

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The Foothill/Mountain Water Capacity Study project will be a scientific investigation to characterize the geology and assess water supply reliability to address the areas critical water supply and sustainable development issues.

The project will emphasize the utilization of advanced technology and scientific knowledge in fracture hydrology, which has been developed with years of research experience gained from the multimillion-dollar federally (U.S. Department of Energy) funded Yucca Mountain Nuclear Waste Storage Project in Nevada. In addition, CSUF has also completed a CalFed funded combined field and laboratory study to prove the advanced concept of applying isotope hydrology to study the fractured terrain of the Big Sandy Watershed in eastern Fresno County. Based on the past successes, the scientists propose a comprehensive multidisciplinary field, laboratory, and numerical approach, including hydrogeology, geophysics, isotope hydrology, and computer modeling analysis. They will integrate the data using robust spatial analysis techniques to provide the much needed information for assessing water supply reliability and formulating water policy in fractured rock terrains.

Through the various available tools, expertise and techniques, the outcome of the study will provide the hard scientific data to enable Fresno County to create policies to reasonably assure sustainable land use and a viable quality of life for those currently living and those desiring to live in the foothills of the Sierra. The outcome of this unique investigation will also provide important and invaluable information for other counties, along the western slope of the Sierra, to develop prudent and sustainable water and land use policies. This effort can ultimately be of great benefit to the citizens of the State of California.

The project partners are seeking support and funding to provide an assessment of hydrogeologic data in the foothill area of eastern Fresno County. At this time, they are asking for County support of the Foothill/Mountain Water Capacity Study as they move forward in their efforts to obtain funding for the project.

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PRESIDENT'S REPORT for August 06, 2007

SIERRA and FOOTHILL CITIZENS ALLIANCE is currently involved in the following activities:

- SAFCA has co-sponsored, along with Sierra Resource Conservation District, a study of groundwater quantity and quality conducted by the Millerton Area Watershed Coalition and the California Water Institute through funding provided by grants from CAL-FED. **Study recently completed.**

- The County's Regional Foothill Ground Water Study was published in late March and presented to the Supervisors on April 18, 2006. The Supervisor's voted to accept the recommendations presented in the report. The Report and the recommendations are available on the Fresno County website. The County also anticipates moving into phase two of the study which will require long term well monitoring to establish more finite trends in well water sustainability. SAFCA played a significant role in getting the County to conduct this important Study. **When the Phase II program is initiated we will be asking for people to volunteer their wells for this long term study.**

- Actively promoting the long overdue update of the Fresno County Sierra North Regional Plan (adopted 1983), particularly in light of potential development land use impacts. **On going effort - part of GP2000 review (see below)**.

- Invited by the Supervisors to participant in the formalized review process of the County General Plan 2000. We are actively participating in this process. **Process currently underway**.

- Invited by the Supervisors to participate in the "Fresno County Water Management Group" meetings in order to represent the foothill/mountain areas in future regional water policies. We are actively participating in this process and SAFCA has just recently signed a Memorandum of Understanding (MOU) that establishes guidelines for member participation. **On going effort.**

- A participant in the San Joaquin Valley Blueprint Regional Planning Effort - This effort is sponsored by the Great Valley Center. SAFCA has participated in recent meetings. **On going effort.**

- SAFCA supports and is an active participant in the County Task Force for Open Space Buffers between Cities and Farm Land Preservation. The Board of Supervisors approved proceeding with the task force at their April 25, 2006 meeting. This is a major milestone and opportunity for enlightened future planning policy in Fresno County. **On going effort**

- We are currently working closely with the County of Fresno Planning Department, California Water Institute, the Lawrence/Berkeley National Laboratory and the CSU Merced to promote a first of its kind fractured rock aquifer water capacity study in the eastern foothill/mountain area of Fresno County. This could prove to be a very important and rigorous scientific study to determine and implement prudent land use policies up and down the Sierra. Board of Supervisors to vote on Resolution in support of this study on 28th of August. **Fund raising stage.**

- A recent participant in negotiations between the County and developers regarding the proposed Friant/Millerton Regional Plan. County must do RP in order to satisfy Federal Fish and Wildlife requirement for a regional habitat plan in order for F & W to recommend to B of R the allotment of water to Fresno Co. County will require developers to pay for RP process. Encompasses area from Friant to Auberry Rd and from Little Dry Creek to Millerton Rd. **On going**

continued

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- SAFCA invited by Supervisor Waterston to participate in Fresno County Strategic Planning Effort. We are participants and attended the meeting the end of June. Some what similar to the SJV Blueprint effort. **On going**

- SAFCA has developed a positive, on going, working relationship with the Fresno County Bd. Of Supervisors, the Public Works and Planning Department Staff, State and other political representatives. This is important in order to allow SAFCA to creditably voice concerns and promote change regarding water and land use issues that more and more confront our foothill and mountain communities.

Those interested in any of the above activities are highly encouraged to volunteer your time and effort toward producing positive outcomes. Please contact Gary Temple at 855-5653 or Jim Macy at 855-5797.

EDUCATION REPRESENTATION WATER RESOURCES LAND USE

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County of Tulare

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Administration Bldg.
2800 West Burrel
Visalia, CA 93291

TEL: (559) 733-6271
FAX: (559) 733-6898

September 25, 2007

Assemblyman Bill Maze
5959 S. Mooney Blvd.
Visalia, CA 93277

Dear Assemblyman Maze:

There is an impending water crisis facing Tulare County and all of California. This is an ongoing problem, and the situation will only worsen in the coming years.

In September of 2006, the Friant Water Users Authority reached an agreement that will restore water flows down the San Joaquin River to help sustain a salmon fishery. This will force a reduction in water to Friant users at an average of 19% and a maximum of 23%. Friant contractors include the City of Lindsay, the City of Orange Cove, and the community of Strathmore, among others. The City of Fresno receives 40% of its water from the Friant system.

In August 2007, Judge Oliver Wanger reached a decision to reduce pumping in the Sacramento-San Joaquin Delta to save an endangered fish; the Delta Smelt. As a result, water supplies to Northern, Central, and Southern California will be reduced by 14-35%. An estimated 25 million people statewide use water from the Delta. The Central Valley, the Bay Area and Los Angeles will be affected by this ruling.

The decreased supply of surface water will lead to more pumping from the underground aquifers. We are currently in an overdraft situation, and the two recent lawsuits will further exacerbate this problem. Pumping additional water can lead to higher levels of contaminants in our residents' drinking water.

As you can see, the current water situation in Tulare County is in dire need of assistance. Losing water will affect agriculture and people. Our citizens will be left with a minimal supply of drinking water, and our farmers will not be able to irrigate their crops. Something must be done about this dangerous situation.

Enclosure 2

We urge you to support the Governor's plans for additional water storage and to impress upon your urban colleagues the need to endorse his plan. It is time to take action on this issue of great importance.

Sincerely,

Allen Ishida, Chairman
Tulare County Board of Supervisors

Connie Conway, Vice-Chairman
Tulare County Board of Supervisors

Phil Cox, District Three
Tulare County Board of Supervisors

J. Steven Worthley, District Four
Tulare County Board of Supervisors

Mike Ennis, District Five
Tulare County Board of Supervisors

CC: Tulare County Legislative Delegation

Public Comment to Board of Supervisors
concerning Planned Community Zoning Amendment

I see on today's agenda that the Board of Supervisors plans to approve a legislative letter regarding an impending water crisis facing Tulare County. If that is what the Water Commission and the Board of Supervisors believe, why are you considering a new town amendment permitting large scale development anywhere in the unincorporated areas of Tulare County? Shouldn't the Water Commission or a watershed council be surveying the watershed to identify its boundaries its groundwater supply, the extent of contamination of its wells and its natural areas that absorb runoff and filter pollutants FIRST?

The Ahwahnee Water Principles advise local government to perform a water supply and demand analysis when preparing a general plan update. This has not been done yet. We cannot sustain vibrant, livable communities if we cannot sustain clean and reliable water supplies. Water supply agencies like the Integrated Regional Water Management Commission created only two months ago in Tulare County should be consulted early in land use decisions like permitting future large planned community zones.

Delay consideration of this amendment until the General Plan update is completed.

Carole Clum
45638 South Fork Drive
Three Rivers, CA 93271
member of Tulare County Citizens
for Responsible Growth

Enclosure 3

Enclosure 4



DWR Home

BDO Home

Organization

Administration & Program Control

Delta Conveyance

Modeling Support

South Delta



Bay-Delta Office
Department of Water Resources

1416 9th Street,
Sacramento, Ca 95814

Mailing Address:
P. O. Box 942836,
Sacramento, Ca
94236-0001

DEPARTMENT OF WATER RESOURCES
BAY-DELTA

Search

DWR My CA

SWP Delivery Reliability Report

The *Draft State Water Project Delivery Reliability Report 2007* is available for public review. This report updates estimates of the current (2007) and future (2027) State Water Project delivery reliability and incorporates the recent federal court ruling for Delta pumping and potential impacts of future climate change.

The entire report can be accessed by clicking here (pdf download, 1.64 mb)
A summary of the report can be accessed by clicking here (pdf download, 78kb)

Comments to the report should be sent to:
California Department of Water Resources
SWP Delivery Reliability Report- Attn: Cynthia Pierson
P.O. Box 942836
Sacramento, CA 94236-0001

Or emailed to:
comments-on-2007drr@water.ca.gov

The deadline for comments is **March 13, 2008**.

Katherine Kelly, Chief
Bay-Delta Office
California Department of Water Resources
1416, 9th Street, Room 215-37
Sacramento, CA 95814

e-mail: kkelly@water.ca.gov
Telephone: (916) 653-1099
FAX: (916) 653-6077

Main Links

- 2007 Draft Report
- 2005 Final Report
- 2002 Final Report
- Comment Letters and DWR responses
- CALSIM II Follow-up Studies & peer Review
- Background

Related Links

- Bulletin 160
- Modeling Studies
- Historical Simulation Report
- Available SWP/CVP Operation Studies
- CALSIM Access

Quick Hits

- News

California Department of Water Resources
Bay-Delta Office
January 22, 2008

Summary:
Draft State Water Project Delivery Reliability Report, 2007

The *Draft State Water Project Delivery Reliability Report 2007* updates DWR's estimate of current (2007) and future (2027) SWP delivery reliability and expands the conditions under which reliability is quantified. The report is produce every two years as part of a settlement agreement signed in 2003.

The report shows that future SWP deliveries will be impacted by two significant factors. The first is climate change, which is altering hydrologic conditions in the State. The second is significant restrictions on SWP and Central Valley Project (CVP) pumping in accordance with a December 2007 federal court imposed interim rules to protect delta smelt. The 2007 report incorporates future impacts on water deliveries to communities due to these factors.

This report represents the state of water affairs if no actions for improvement are taken. It shows a continued eroding of SWP water delivery reliability under the current method of moving water through the Delta.

The analysis shows that annual SWP deliveries (Table A and Article 21 amounts) would decrease virtually every year in the future (93% of future years). These reductions would be amount to a 20% reduction from current levels about one-fourth of the time, and greater than 30% in one-sixth of future years.

The report discusses areas of significant uncertainty to SWP delivery reliability:

- the recent and significant decline in pelagic organisms in the Delta (open-water fish such as delta smelt and striped bass);
- climate change and sea level rise; and
- the vulnerability of Delta levees' to failure due to floods and earthquakes.

As in previous reports, estimates of SWP deliveries are based upon operation simulations with DWR's CalSim II model using an extended record of runoff patterns. These patterns have been adjusted to reflect the levels of development in the source areas and, for future conditions, possible impact due to climate change. Potential deliveries under current conditions are estimated at the 2007 level and assume current methods of conveyance across the Delta and the interim operating rules defined by the recent court order to protect delta smelt. Potential deliveries under future conditions are estimated at the 2027 level and are also based on the assumption that no changes will be made in either the way water is conveyed across the Delta or in the interim operating rules to protect delta smelt. The analysis of future conditions incorporates climate change scenarios which correspond to the scenarios contained in DWR's 2006 report, *Progress on Incorporating Climate Change into Management of California's Water Resources*.

Under current conditions, annual SWP Table A deliveries from the Delta average 63% of the maximum Table A amount of 4,133 thousand acre-feet (taf) per year. Over the 82-year simulation period, annual SWP Table A deliveries range from a minimum of 6% to 90% of the maximum amount. Over multiple-year dry periods, average annual Table A deliveries are 34 or 35% of the maximum Table A amount, while average annual Table A deliveries over multiple-year wet periods range from 66 to 73% of the maximum Table A amount. Twenty-five percent of annual SWP Table A deliveries exceed 3,218 taf, 50 percent of deliveries exceed 2,976 taf and 75 percent exceed 2,168 taf.

Under current conditions, annual SWP Article 21 deliveries average 90 taf, ranging from 0 to 590 taf over the 82-year simulation period. Over the multiple-year wet period of 1978-1987, SWP Article 21 deliveries average 170 taf and range from 0 to 490 taf.

Due to the uncertainty of impacts by climate change on the availability of source water, SWP Table A and Article 21 deliveries under future conditions are expressed as a range in values. Under future conditions, annual SWP Table A deliveries from the Delta average from 66 to 69% of the maximum Table A amount. Although the estimated average annual amount of future SWP Table A deliveries increase when compared to current conditions, the amount of Article 21 deliveries decrease. Also, the amount of SWP Table A deliveries during multiple-dry periods in the future tend to decrease compared to current conditions. This decrease can be significant, depending upon the climate change scenario. This difference in future deliveries is reflected in lower SWP Table A delivery amounts associated with a 75% exceedence level (1,860 to 2,077 taf per year) than is for current conditions (2,168 taf per year).

Under future conditions, annual SWP Article 21 deliveries average 30 taf, ranging from 0 to 420 taf over the 82-year simulation period. Over the multiple-year wet period of 1978-1987, SWP article 21 deliveries average approximately 95 taf per year and range from 0 to 420 taf, depending upon the year and the climate change scenario.

The updated estimates of both current and future total annual SWP deliveries in *The Draft State Water Project Delivery Reliability Report, 2007* report are generally less than were estimated in the 2005 report, at times substantially so. As shown in the figure below, the current total annual SWP deliveries (Table A and Article 21 amounts) decrease in 93% of the years based on the historical data used in the analysis, when compared to the estimates in the 2005 report. Updated estimates for the current level of reliability show the total annual deliveries decrease over 20% in over one-quarter (28%) of the years analyzed and greater than 30% in one-sixth (16%) of the years, when compared to the estimates in the 2005 report. Water deliveries estimated for 20 years into the future show even greater decreases in a majority of years when compared to the estimates in the 2005 report.

The *Draft State Water Project Delivery Reliability Report, 2007* is available for public review via the DWR Home Page, http://www.water.ca.gov . The report is an update to the *State Water Project Delivery Reliability Report, 2005* issued as final in 2006. At least 30 days will be given for public review and comment.

Comments can be sent to:
California Department of Water Resources
SWP Delivery Reliability Report- Attn: Cynthia Pierson
P.O. Box 942836
Sacramento, CA 94236-0001

or emailed to:
comments-on-2007drr@water.ca.gov

Enclosure 4

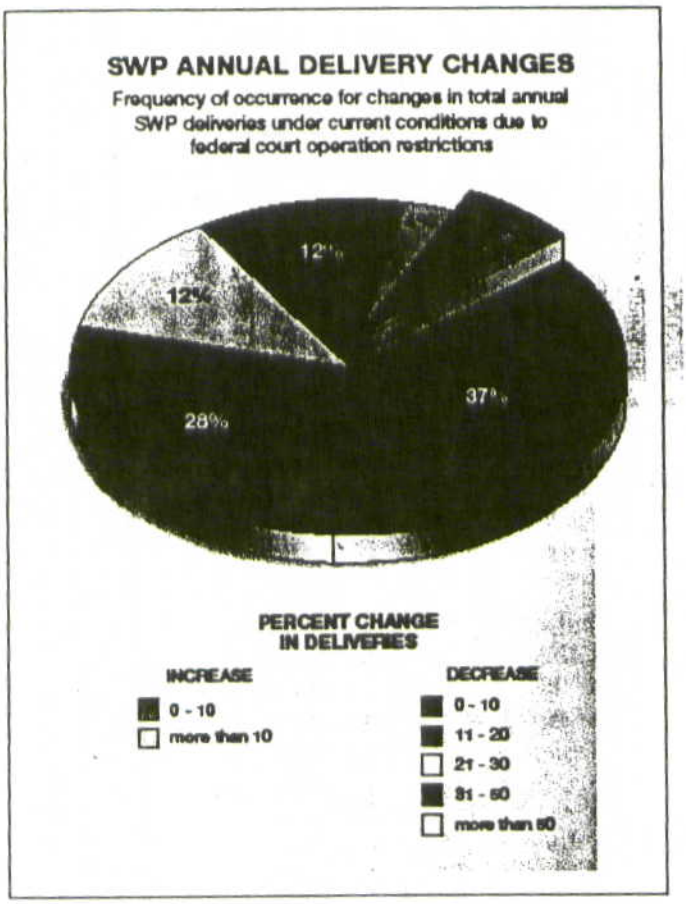

SWP ANNUAL DELIVERY CHANGES
Frequency of occurrence for changes in total annual SWP deliveries under current conditions due to federal court operation restrictions
12%
12%
37%
28%
PERCENT CHANGE IN DELIVERIES
INCREASE
0 - 10
more than 10
DECREASE
0 - 10
11 - 20
21 - 30
31 - 50
more than 50

Table 10-4. Irrigation Districts in Tulare County

Entity	Surface Water	Imported Water Source	Groundwater Extraction
Alpaugh Irrigation District	NA	Friant-Kern Canal (1,000af average)	19,000 af
Alta Irrigation District	King River	Friant-Kern Canal (surplus)	230,000 af
Delano-Earlimart Irrigation District	NA	Friant-Kern Canal (146,050 af average)	8,000 af
Exeter Irrigation District	NA	Friant-Kern Canal (1,000 af average)	14,000 af
Hills Valley Irrigation District	NA	Cross Valley Canal (2,000 af average)	1,000 af
Ivanhoe Irrigation District	Kaweah River	Friant-Kern Canal (11,650 af average)	15,000 af
Kaweah Delta Water Cons. District	Kaweah River	Friant-Kern Canal (24,000 af average)	130,000 af
Kern-Tulare Water District	Kern River	Cross Valley Canal (41,000 af average)	33,000 af
Lindmore Irrigation District	NA	Friant-Kern Canal (44,000 af average)	28,000 af
Lower Tulare River Irrigation Dist.	Tule River	Friant-Kern Canal (180,200 af average) Cross Valley Canal (31,000 af average)	NA
Lindsay-Strathmore Irrigation District	NA	Friant-Kern Canal (24,150 af average)	NA
Orange Cove Irrigation District	NA	Friant-Kern Canal (39,200 af average)	30,000 af
Pioneer Water Irrigation District	Tule River		3,000 af
Pixley Irrigation District	NA	Friant-Kern Canal (1,700 af average) Cross Valley Canal (31,000 af average)	130,000 af
Porterville Irrigation District	Tule River	Friant-Kern Canal (31,000 af average)	15,000 af
Rag Gulch Water District	Kern River	Friant-Kern Canal (3,700 af average) Cross Valley Canal (13,300 af average)	
Saucelito Irrigation District	Tule River	Friant-Kern Canal (37,600 af average)	15,000 af
Stone Corral Irrigation District	NA	Friant-Kern Canal (10,000 af average)	5,000 af
Teapot Dome Irrigation District	NA	Friant-Kern Canal (5,600 af average)	
Terra Bella Irrigation District	NA	Friant-Kern Canal (29,000 af average)	2,000 af
Tulare Irrigation District	Kaweah River	Friant-Kern Canal (100,500 af average)	65,000 af

Source: Bookman-Edmonston Engineering Inc. Water Resources Management in the Southern San Joaquin Valley, Table A-1.

Enclosure 5

California salmon population collapses

By Terence Chea
Associated Press

SAN FRANCISCO — The number of chinook salmon returning to California's Central Valley has reached a near-record low, pointing to an "unprecedented collapse" that could lead to severe restrictions on West Coast salmon fishing this year, according to federal fishery regulators.

INSIDE
Delta smelt numbers decline despite efforts to save fish.
Local & State, B1

The sharp drop in chinook, or "king," salmon returning from the Pacific Ocean to spawn in the Sacramento River and its tributaries last fall is part of a broader decline in wild salmon runs in rivers across the West.

The population dropped more than 88% from its all-time high five years ago, according to an internal memo sent to members of the Pacific Fishery Management Council and obtained by The Associated Press.

Regulators are still trying to understand the reasons for the shrinking number of spawners; some scientists believe it could be related to changes in the ocean linked to global warming.

See **SALMON,** Page A10

Salmon: Juvenile figures are low

Continued from **Page A1**

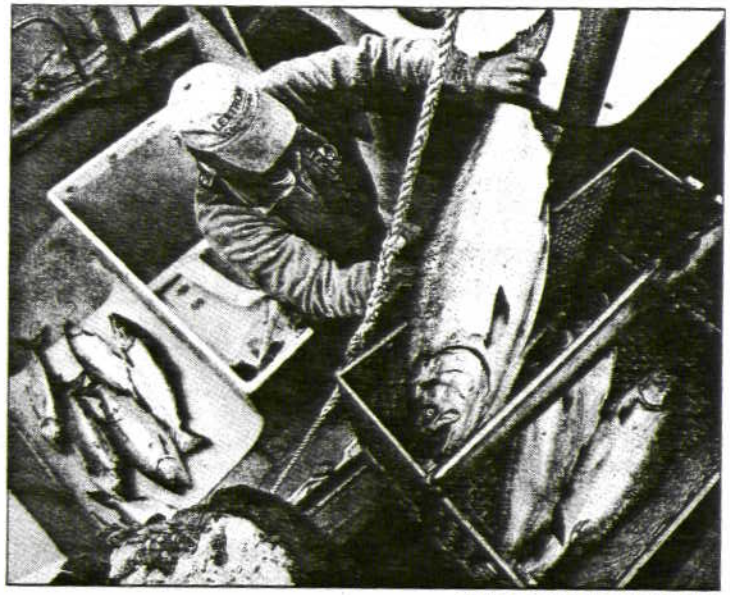
Some fishermen and environmentalists believe the sharp decline is related to increased water exports from the Sacramento-San Joaquin Delta, which supplies drinking water to millions of people in dry Southern California, as well as irrigation for America's most fertile farming region.

"It's time to reduce pumping of delta waters before we destroy the fish and wildlife species we appreciate so much in California," said Mike Sherwood, an attorney for Earthjustice.

Federal lawmakers, meanwhile, are considering how to pay for a plan to restore salmon to the San Joaquin River, which was North America's southernmost salmon run until Friant Dam was completed in 1944 and portions of the river dried up.

Environmentalists filed a federal lawsuit in 1988 and won, prompting Friant-area farmers to reach a settlement in 2006 that would reduce annual irrigation deliveries to free up more water for the river. The settlement also calls for channel improvements and other changes. If all goes as planned, salmon would be reintroduced in the San Joaquin by 2013.

But the federal fishery regulators' memo reports that only about 90,000 returning adult salmon were counted in the Central Valley in 2007, the second-lowest number on record. The population was at 277,000 in 2006 and 804,000 five years ago.



THE PRESS DEMOCRAT FILE

Salmon fisherman Dan Kleinman unloads his catch Aug. 8, 2005, at Tides Wharf in Bodega Bay. The number of chinook salmon returning to the Central Valley is at an all-time low that could lead to severe restrictions on West Coast salmon fishing this year.

In an e-mail to council members, Donald McIsaac, the agency's executive director, said he wanted to give them "an early alert to what at this point appears to be an unprecedented collapse in the abundance of adult California Central Valley ... fall Chinook salmon stocks."

"The magnitude of the low abundance ... is such that the opening of all marine and freshwater fisheries impacting this important salmon stock will be questioned," he said.

It's only the second time in 35 years that the Central Valley has not met the agency's conservation goal of 122,000 to 180,000 returning fish, according to the council, which regulates Pacific coast fisheries.

More worrisome is that only about 2,000 2-year-old juvenile chinooks — used to predict returns of adult spawners in the coming season — returned to the Central Valley last year, by far the lowest number ever counted. On average, about 40,000 juveniles, or "jacks," return each year.

Salmon that spawn in Central Valley rivers form the backbone of the West Coast's commercial and recreational salmon fishery and are caught by fishermen from Southern California to British Columbia.

"Sacramento fish are really what the fishery depends on," said Chuck Tracy, the council's salmon management officer.

Not long ago, salmon restoration efforts in the Sacramento watershed were being touted as a wildlife management success story.

But recent years have seen populations dwindle in many Western rivers, and scientists are trying to understand why.

The council plans to meet in Sacramento in March to discuss possible restrictions, including a complete closure of the salmon season that begins in May. Final decisions will be made in April.

Duncan MacLean, a Half Moon Bay fisherman who is on a team that advises the fishery council, said he is bracing for hard times.

"It's probably going to be worse than anything we've experienced before," said MacLean, 58, who relies on salmon fishing for as much as 70% of his income. "It's going to put a lot of us out of business."

► The Fresno Bee contributed to this report.

Enclosure 6

Delta smelt's numbers decline

Costly effort to save fish appears to be failing.

By Michael Doyle
Bee Washington Bureau

WASHINGTON — Millions of dollars and untold gallons of water have failed to stop a precipitous decline in the population of the endangered delta smelt, officials acknowledged Tuesday.

In a sobering assessment, state and federal officials told a House panel that their big investment in the tiny smelt hasn't paid off yet.

The concession comes as officials contemplate spending an additional $10 billion or more for new water-supply projects and environmental work to address California's long-term water problems.

The 3-inch-long smelt found in the sprawling estuary where the Sacramento and San Joaquin rivers meet is considered an indicator of the delta's health.

Starting in 1993, the smelt has been protected as threatened under the Endangered Species Act.

It has been a major beneficiary, although not the only one, of the 1.5 million acre-feet of Central Valley water set aside annually for environmental protection.

Even so, the smelt's popula-

Water: Valley residents testify in D.C.

Continued from Page B1

tion last year was only about 2.4% of the population noted when it was placed under federal protection in 1993.

"Obviously, we haven't had the success with the delta smelt that we would have wanted," Bureau of Reclamation Commissioner Robert Johnson said.

Johnson said he could not even estimate how much money has been spent on measures to protect the fish, although it's likely in the tens of millions of dollars.

"The [delta] system is still in decline," California Department of Water Resources Director Lester Snow told the House water and power subcommittee.

The House panel convened the hearing Tuesday in part to let San Joaquin Valley residents like Los Banos farmer Jean Sagouspe and Firebaugh City Manager Jose Ramirez vent about their region's water shortfalls.

In part, the hearing could set the stage for federal legislation, although nothing specific has been introduced yet.

The hearing also follows a ruling by Fresno-based U.S. District Judge Oliver Wanger. Last year, Wanger imposed tighter pumping limits in order to leave more water in the delta for protection of the smelt.

Wanger's ruling could cut irrigation deliveries south of the delta by between 20% and 30% annually.

Snow cautioned that "we don't know precisely how much water we will have year to year."

State and federal officials said they didn't know precisely how much of the smelt's population decline has been caused by something other than irrigation pumping.

Repeatedly Tuesday, Rep. Jim Costa, D-Fresno, and other San Joaquin Valley lawmakers insisted that numerous small pumps not part of the state and federal water projects could account for some of the delta's problems.

The political implication is that Valley farmers are shouldering too much of the burden for restoring the smelt's delta habitat.

The hearing also comes as legislators in Sacramento and Washington consider expensive fixes for California's long-term water problems. These proposed solutions cited Tuesday include an estimated $3.5 billion for new reservoirs, between $3 billion and $4.5 billion for a conveyance facility to haul water around the delta, and some $2.4 billion for various delta habitat improvements.

Federal funding, so far, hasn't met the state's anticipated needs, and California lawmakers pressed Bush administration officials Tuesday to provide more money.

"If we're going to make this happen, we have to get all the California folks to say this is a high priority for us," Costa said.

► The reporter can be reached at mdoyle@mcclatchydc.com or (202) 383-0006.

Enclosure 7

salt sinks. The remaining runoff (2 – 3 percent) is available as a renewable water supply for urban, agricultural, and environmental uses.

Table 10-1 shows California's estimated water supply, for average and drought years under 1995 and 2020 levels of development, with existing facilities and programs. This information is excerpted from the *California Water Plan*, prepared by the California Department of Water Resources. The state's 1995-level average year water supply was about 77.9 million acre-feet (maf), including about 31.4 maf of dedicated flows for environmental uses.

Table 10-1. California Water Supplies with Existing Facilities and Programs[a] Thousand Acre Feet (taf)

Supply	1995		2020	
	Average	Drought	Average	Drought
Surface				
CVP	7,004	4,821	7,347	4,889
SWP	3,126	2,060	3,439	2,394
Other Federal Projects	910	694	912	683
Colorado River	5,176	5,227	4,400	4,400
Local Projects	11,054	8,484	11,073	8,739
Required Environmental Flow	31,372	16,643	31,372	16,643
Reapplied	6,441	5,596	6,449	5,575
Groundwater[b]	12,493	15,784	12,678	16,010
Recycled and Desalted	324	333	415	416
Total (rounded)	**77,900**	**59,640**	**78,080**	**59,750**

[a] Bulletin 160-98 presents water supply data as applied water, rather than net water. This distinction is explained in a previous section. Past editions of Bulletin 160 presented water supply data in terms of net supplies.

[b] Excludes groundwater overdraft

Source: Department of Water Resources, California Water Plan.

Enclosure 8

The annual average statewide supply is projected to increase about 0.2 maf by 2020 without implementation of new water supply options. While the expected increase in average year water supplies is due mainly to higher Central Valley Project (CVP) and State Water Project (SWP) deliveries (in response to higher 2020-level demands), new water production will also result from groundwater and from recycling facilities currently under construction.

The state's 1995-level drought year water supply was about 59.6 maf, of which about 16.6 maf is dedicated for environmental uses. Annual drought year supply is expected to increase slightly by 2020 without implementation of new water supply options. The increase is expected to be created through higher CVP and SWP deliveries and new production from surface water, groundwater, and recycling facilities currently under construction.

Surface Water Supplies

Surface water supplies for the Tulare Lake Basin include developed supplies from the CVP, the SWP, rivers, and local projects. Surface water also includes the supplies for required environmental flows. Required environmental flows are comprised of undeveloped supplies designated for wild and scenic rivers, supplies used for instream flow requirements, and supplies used for Bay-Delta water quality and outflow requirements. Finally, surface water includes supplies available for reapplication downstream. Urban wastewater discharges and agricultural return flows, if beneficially used downstream, are examples of reapplied surface water.

Central Valley Project. The Legislature authorized the State Central Valley Project in 1933. Because California was unable to sell the bonds needed to finance the project during the Great Depression, the United States Bureau of Reclamation (USBR) initiated project construction. Initial congressional authorization for the CVP included facilities such as Shasta and Friant Dams, Tracy Pumping Plant, and the Contra Costa, Delta-Mendota, and Friant-Kern Canals.

The USBR's CVP is the largest water storage and delivery system in California, comprising of 29 of the state's 58 counties. The project's features include 18 federal reservoirs and 4 additional reservoirs jointly owned with the State Water Project. The keystone of the CVP is the 4.55 maf Lake Shasta, the largest reservoir in California. CVP reservoirs provide a total storage capacity of over 12 maf, nearly 30 percent of the total surface storage in California, and deliver about 7 maf annually for agricultural (6.2 maf), urban (0.5 maf), and wildlife refuge use (0.3 maf) (Table 10-2).

Enclosure 8

TABLE 4-4
GENERAL PLAN POPULATION ESTIMATES BY UNINCORPORATED COMMUNITY

Community	Domestic Water Service Provider	Existing Population (2003 TCAG Model)	Range of General Plan Population Estimates	Community Plan Last Updated
Alpaugh	Alpaugh JPA	761	849 to 975	None to Date
Cutler	Cuter PUD	4,962	10,245 to 11,763	1988
Orosi	Orosi PUD	8,086	16,694 to 19,169	1988
Ducor	Ducor CSD	504	592 to 680	2004
Earlimart	Earlimart PUD	7,393	13,034 to 14,965	1988
East Orosi	East Orosi CSD	426	N/A	None to Date
Goshen	Cal Water	2,473	4,258 to 4,889	1978
Ivanhoe	Ivanhoe PUD	4,524	6,302 to 7,236	1990
Lemon Cove	Lemon Cove SD	251	377 to 433	None to Date
London	London CSD	1,848	1,927 to 2,213	None to Date
Pixley	Pixley PUD	2,662	5,755 to 6,608	1997
Plainview	Plainview MWC	822	969 to 1,113	None to Date
Poplar-Cotton Center	Poplar CSD	1,789	3,067 to 3,521	1996
Richgrove	Richgrove CSD	2,723	3,315 to 3,806	1986
Springville	Springville PUD	2,755	3,274 to 3,759	1985
Strathmore	Strathmore PUD	2,800	4,166 to 4,783	1989
Terra Bella	Terra Bella ID	3,714	6,506 to 7,471	2004
Three Rivers	Mutual Water Companies/CSD	2,300	3,220 to 3,697	1980
Tipton	Tipton CSD	1,809	1,858 to 2,134	None to Date
Traver	Tito Balling, Inc. (Private Purveyor)	732	1,461 to 1,678	1989
Woodville	Woodville PUD	1,623	1,882 to 2,161	None to Date

Notes:
JPA: Joint Powers Authority
Cal Water: California Water Service Company (Private)
SD: Sanitary District
MWC: Mutual Water Company
N/A: Not Available
Sources: Existing Population obtained from 2000 Census Data; Range of General Plan Population Estimates based upon modeled General Plan Land Use Alternatives; Community Plan Status obtained from Goals & Policies Report (Revised July 8, 2007)

Enclosure 9

Table 4-5

SUMMARY OF DOMESTIC WATER SUPPLY CONDITIONS FOR UNINCORPORATED COMMUNITIES IN TULARE COUNTY

Domestic Water Service Provider	Water Supply Source From	Facilities Adequacy to Serve Projected General Plan Population Growth			
		More than Adequate[1]	Adequate[2]	Adequate w/ Concerns[3]	Significant Concerns[4]
Alpaugh JPA	Groundwater			X	
Cutler PUD	Groundwater			X	
Orosi PUD	Groundwater		X		
Ducor CSD	Groundwater			X	
Earlimart PUD	Groundwater			X	
East Orosi CSD	Groundwater			X	
Cal Water - Goshen	Groundwater			X	
Ivanhoe PUD	Groundwater	X			
Lemon Cove SD	Groundwater				X
London CSD	Groundwater			X	
Pixley PUD	Groundwater				X
Plainview MWC	Groundwater				X
Poplar CSD	Groundwater	X			
Richgrove CSD	Groundwater			X	
Springville PUD	Surface Water	X			
Strathmore PUD	Groundwater/		X		
Terra Bella ID	Groundwater/	X			
Three Rivers CSD	Groundwater/			X	
Tipton CSD	Groundwater			X	
Tito Balling - Traver	Groundwater			X	
Woodville PUD	Groundwater		X		

Notes:

1) "More than Adequate" means that facilities appear capable of serving growth beyond build-out of the General Plan.

2) "Adequate" means (1) apparent capacity to serve build-out growth with little financial, technical or environmental difficulty; and (2) clear capacity to serve projected growth.

3) "Adequate with Concerns" means that the provider either has the capacity to serve projected growth or is likely to solve capacity issues within the time horizon of the General Plan.

4) "Significant Concerns" means that the provider lacks capacity to serve projected growth and is likely to experience significant difficulties in expanding the system to meet projected demand.

5) Source of information is from Municipal Service Reviews Adopted by the Tulare County Local Agency Formation Commission (for applicable Districts) and from discussions with District staff members.

Enclosure 9

Carole Clum's Factchecking on Tables 4-4 and 4-5 in Draft EIR

Table 4-4 General Plan Population Estimates by Unincorporated Communities

Table 4-5 Summary of Domestic Water Supply Conditions for Unincorporated Communities in Tulare County

Compiled on February 26, 2008
Updated in March 2008
Including Comments on Ability of Each Community to Serve Projected Growth of Updated General Plan for 2030 Buildout

Carole Clum
45638 S. Fork Drive
Three Rivers, CA 93271-9610

Carole G. Clum
February 26, 2008

Enclosure 10

person interviewed: Martha Howard
date: Feb 22, 2008
total population: 1000
how many water connections: 325
can you hook up any more homes: can serve 20 more
wells: 2, both have arsenic contamination

infrastructure pipes new
water tanks new

meters: yes. Read but not charging yet by volume flat rate

peak usage: at maximum capacity

water quality high in arsenic, no nitrates

grants: at top of the list for grant to treat arsenic
will use absorbtion method
Boyle Engineering

Sewers: septic only

problems: Alpaughs water system is 70 years old

Comments: This is an impoverished community with arsenic in water supply, old water system at maximum capacity during peak demand
SIGNIFICANT CONCERNS

Cutler PUD 528-3859

person interviewed: Superintendent Junior

date: Jan 31, 2008

total population: 6300 in 2000 census

of PUD water connections: 1200

can you serve any more homes: very few undeveloped lots
will annex more land

wells: 2 wells
lost 2 wells due to nitrate contamination

infrastructure pipes
water tank

meters: only on a few commercial accounts
will slowly install meters on domestic accounts in future

peak usage: at maximum capacity
rationing landscape watering all year, odd and even days

water quality: nitrates

grants: engineers will apply for any grant they qualify for
want to drill another well. Will be blending water
well will cost $500,000

Sewers: at capacity now
moratorium on sewers since 2006

Comments: This is a poor community with nitrate contamination, almost no capacity to serve more connections, at maximum capacity during peak demand, at capacity for wastewater treatment
SIGNIFICANT CONCERNS

Ducor CSD 559 361-0450

person interviewed: Melanie, bookkeeper, and Pete Garza, manager 333-1[illegible]

date: Feb. 22, 2008

total population: 300

CSD water connections: 146

can you serve any more homes: not many $2500 to hook up

wells: 2 wells. (1 well doesn't produce many gallons)
sometimes sulfur smell, sometimes bacteria

infrastructure: pipes - need new pipes
well - need new well

meters: yes. Not read. flat rate charged

peak usage: pumps run longer, costs run higher
in dry years wells pump less water

water quality: okay (except for occasional sulfur smell and bacteria)

grants: applying for grants for well, piping, meters, tank

sewers: no sewage treatment plant. All on septic systems

problems: infrastructure

Comments: This community has only 2 wells (1 doesn't produce much water), sometimes bacteria in wate
little capacity to serve more with water, no sewage treatm
plant, needs new well and new pipes.

SIGNIFICANT CONCERNS

Earlimart PUD 661 849 2663

person interviewed: Rachel Garcia

date: Jan. 31, 2008

total population: 8000

of PUD water connections: 1600

Can you serve any more? at capacity now
annexing 2 parcels 300 houses
each lot will pay $8600 to hook up to water and sewer. (This will pay for infrastructu

wells: 3 wells, well # 4 has cholifform bacteria, not using this well. Will drill 5th well.

infrastructure: pipes
tank only have pressure tank, no storage tank

meters: just started using meters

peak usage: low water pressure on west side in summer

grants: none

sewers: at 100% capacity for sewage
485 sewer connections

comments: Impoverished farm town can not serve more water connections, at 100% sewage treatment, one well out of 4 has coliform bacteria, low water pressure on west side of town during peak demand.

SIGNIFICANT CONCERNS

GOSHEN CSD sewers only 651-0323

water comes from CALWATER 624-165 in Visalia

person interviewed: Maria Garcia

date: Jan 31, 2008

total population: 2394 as of 2002

wastewater treatment: not a lot of capacity

planning to expand — new development of 300 homes will treat its own wastewater

sewer connections: 947 commercial and industrial

760 residential

grants: applying for grant money from state for wastewater treatment enlargement

peak usage: odd and even days for watering landscaping all year

CALWATER supplies Goshen with water, cross connected to entire city of Visalia. As long as Visalia has water, Goshen has water

person interviewed: Jerry Neal 624-1650 operations center

date Jan. 31, 2008

water connections in Goshen entire city from Rd 64 east to Church Street

peak usage no problem. We have over 80 wells. Drill 2 new wells a year, each costing $1 million

potential growth no problem

water quality nitrates We filter it out from well in Patterson tract. MCL - keep lowering levels of contaminants allowable

DBCPs 3 or 4 wells have contamination. We drill wells 320-350' deep, seal upper and middle levels to avoid contamination

meters: charge 50¢ per 100 cubic feet

Comments: Goshen has adequate clean water but almost at capacity for wastewater treatment. ADEQUATE WITH CONCERNS

Ivanhoe PUD 798-0512

person interviewed: Carol Fina

date: Jan. 31, 2008

total population 5000-6000 people within PUD

of water connections to PUD 1112

can you serve any more homes: only 15 undeveloped lots, will not expand PUD

wells: 7 wells, 1 contaminated with nitrates

infrastructure: pipes 50 years old, breaking

meters: since 1989. charge 22¢ a cubic foot

peak usage: when PSI falls below 35, switch on backup well

water quality: good

grants: applying for grant for new well from State Reserve Fun.

sewers: when it rains a lot, ponds start to fill up. To keep them from running over, we switch on the clarjester which digests sludge and makes it dry. Irrigate with remaining water and spread it on pasture.

comments: Can serve projected growth if grant is received to drill new well and sewage ponds are expanded or clarjester is run more often. Also pipes are old and breaking. Money will need to be found to repair water pipes

ADEQUATE WITH CONCERNS

Lemon Cove PUD 597-2504

person interviewed: Bill Pensar, board member

date: January 21, 2008

total population: less than 200

of connections 41

can you serve more? 40

wells: 1 well searching for clean groundwater

3 wells with too much nitrate contamination, dormant or abandoned

infrastructure: new since 1992

meters: yes. read quarterly. Charge by cubic foot
Standby charge

peak usage: lots of water

water quality: nitrates above drinking water standards

grants: apply for many grants

sewers: at 3/4 capacity, 60 connections

comments: Almost all the land surrounding this small town is in the Williamson Act and can't easily be developed. Population has fallen since 2000 census. Nitrates above drinking water standards. Wastewater treatment at 3/4 capacity. This is a modest town.

SIGNIFICANT CONCERNS

London CSD 591-5142 Mon-Fri 10-4 9

person interviewed: Carolyn Thomas

date: Jan 31, 2008

total population: 2100

of water connections 448

wells 3, good

infrastructure: pipes need to be replaced
need new well

meters:

peak usage: water pressure goes down. We encourage people not to waste water.

water quality: good

grants: applying for grant to drill well

Comments: This small modest town has infrastructure problems, including pipes that need to be replaced, a new well to be drilled and low water pressure at peak demand.

SIGNIFICANT CONCERNS

Orosi PUD 528-4262 M-F 8-12 1--

person interviewed: Elaine Vidana, office manager

date: Jan. 31, 2008

total population: 7318 in 2000 census

how many water connections: 1700

can you serve any more homes:

wells: 4 active, drilling 5th well
abandoned wells on north side of town due to nitrate contamination

infrastructure pipes - replacing water mains, have the money
water tank - need another 750,000 gallon tank, have mon

meters: had them 4-5 years, pay 76¢ per thousand gallon

peak usage: water pressure low

sewers: replacing sewer lines, 40 years old, seeping water, have the money
moratorium on sewer connections

grants: applying for grant now via Dennis Keller

Comments: This town has a moratorium on sewer connections. This town has raised money to replace pipes, water tank and sewer lines which were leaking, applying grant for new wastewater treatment plant.
ADEQUATE WITH CONCERNS

Pixley PUD 757-3878

person interviewed: Randy Masters, manager 799-3196

Jan. 31, 2008

total population: 2584

of water connections: 800

Can you serve any more homes:

wells: 1 good well

3 wells, out of compliance with ARSENIC standards

infrastructure: pipes — distribution system old, small lines need to be upgraded

tank - elevated tank

meters: half of homes are metered flat rate $20, charged so much per gallon over 30,000 gallons a month

peak usage: haven't gotten to capacity

water quality arsenic problems

grants: applying for grants from USDA, state, and federal engineer is Michael Taylor, Provost and Richard

Sewers: at capacity

got some grant money for bigger wastewater treatment plant, borrowed rest of money from USDA

Comments: This town has serious arsenic contamination problems and at capacity, for wastewater treatment

SIGNIFICANT CONCERNS

Plainview MWC special district
a group of individuals

person interviewed: Lindsay utilities district which sends out wate
bills 562-5982

date: Feb. 25, 2008

total population:

total water hook ups: 168

can you serve any more homes:

wells:

infrastructure: new pipes

meters: yes

peak usage

water quality: their domestic wells had nitrates
Now they get water from Lindsay

Sewers: septic only

Comments: This is a very small community with nitrate contamination problems.

SIGNIFICANT CONCERNS

Poplar CSD 784-7009

person interviewed: Mike Clark, board president, cell 559-359-9918

date: Jan 31, 2008 and Feb 22, 2008

total population: 2500 in 2001

water connections: 596

wells: 3 wells, (2 good, 1 has nitrates)
at 80' deep there is standing water
Real good water supply

infrastructure: pipes - 1972
tank - 1972
pump - new

meters: yes. Don't read them. Flat rate

peak usage: unlimited water

water quality: good

grants: none

Sewers: 1994
640 hook ups
71% of capacity

Major expansion planned
2000 homes to be built
They will pay to be connected to water and sewage and they will pay for expansion of wastewater treatment plant

Comments: This small town has some nitrate contamination problem: RARing to build. No growth for 37 years. All land around community is zoned AE20. Can't wait to develop.

ADEQUATE

Richgrove CSD 1-661-725-5632
Mon, Wed, Fri 8-12
Friday only 1-5

person interviewed: Maria Pimentel

date: Feb. 22, 2008

total population: 2723

of water connections: 532

can you serve more: NO

wells: 2

infrastructure:

meters: working on getting meters

peak usage: at capacity

water quality:

grants: applying for grant from state for new well

sewers: at capacity

Comments: This town cannot serve any more water connections. During peak demand they reach capacity. Waste water treatment plant is at capacity. Applying for grant to drill new well.

SIGNIFICANT CONCERNS

person interviewed: Nancy Bruce, board member, 539-3351
date: Jan. 22, 2008 and March 23, 2008
total population: 1500
of water connections: 389
can you serve more: Don't know
wells: None. SPUD uses Tule River water.
infrastructure: Some very old water pipes laid in 1920's
Don't know where the pipes are. Mapping them now. Can't afford to replace them.
meters: Yes.
peak usage: During peak demand, SPUD reaches the limits of its water rights to the Tule River.
water quality: good
grants: Applying for grants to replace old water pipes and improve wastewater treatment
sewers: Sewer moratorium for last 28 years.
No place to grow wastewater treatment plant.
(375 sewer connections) Want to buy $500,000 ultraviolet light to zap all organisms in wastewater except cryptosporidium. SPUD's permit allows them to treat 100,000 gallons of effluent a day.
Comments: 50% of all private wells in Springville are contaminated with radon or nitrates.
This community has severe constraints on growth.
SIGNIFICANT CONCERNS

Strathmore PUD 559 568 1613

person interviewed: Adele Sanchez

date: Feb. 1, 2008

total population:

of water connections: 487 to 700 dwellings (some share)

Can you hook up more homes: yes. Just approved 41 homes & new school

wells: 5 wells, all high in nitrates
blending water with Friant-Kern canal water. Using only one well.
If water from canal is lost, they will install nitration filtration system

infrastructure: recently replaced 2/3 of water lines

meters: yes. 46¢ per 1000 gallons

peak usage: at capacity. Have to shut down. Ask customers to conserve.

water quality - Nitrates above standards until blending

grants: applied for several grants for nitrate filtration system
problem with disposing of heavily salt laden water

Sewers: old treatment facility
sewer lines need to be replaced
copper in wastewater - hazardous waste
clients pay progressive fee

Comments: All five wells contaminated with nitrates
Blending well water with FRIANT-KERN canal water.
During peak demand at capacity. Wastewater treatment plant old.
Sewer lines need to be replaced. SIGNIFICANT CONCERNS

LSID Lindsay Strathmore Irrigation District supplies water to part of Strathmore PUD.

Terra Bella I 535-4414

person interviewed: Karen Kerwood
date: Jan. 31, 2008
total population: 3200
water connections: domestic treated in town 714
surface water untreated 500

wells: no. using water from Friant-Kern canal

infrastructure: established 1915, aging facilities constantly updated

meters: 900 irrigation meters for lawns and agricalture

peak usage: when near capacity, stop taking water orders from farmers

water quality: not an issue for irrigation

grants: applying for state grant for expansion of treated water

sewers: Terra Bella sewer maintenance district is maintained by Tulare County

Comments: Groundwater around Terra Bella is contaminated with Nitrates This small irrigation district does NOT receive its water supply from groundwater but from Friant-Kern canal. It is vulnerable to 30% loss of water due to restoration of San Joaquin River. During peak demand it reaches capacity.
SIGNIFICANT CONCERNS

Three Rivers CSD

person interviewed: Randy Pares

date: Jan 21, 2008

total population: 2700

of CSD water connections: 75 in Alta Acres subdivision

can you serve more homes: only 5 undeveloped lots

wells: 1 well

1 river well recently rebuilt for use during peak demand

infrastructure: all pipes need to be replaced. All homes assessed.

meters: yes. Read bimonthly. Standard rate. For every gallon over they pay tiered rates

peak usage: exceeded maximum capacity until River well rebuilt in 2007

water quality: good

grants: got a loan for $2 million for rehabilitation of water pipes. grant for $.5 million

sewers: septic only

comments: There are 35 small private, volunteer run water systems in Three Rivers. Most serve a very small number of homeowners, one motel, one school, one RV park. The great majority of private wells serve one home. These homes are on 1-5 acres or more. There is no capacity for the growth projected by the General Plan Update. Some wells are contaminated with radon, nitrates, fecal coliform, or arsenic. There is not reliable groundwater. SIGNIFICANT CONCERNS.

Tipton CSD 752-4182
Mon-Thurs 8-3

person interviewed: Johnny Price, maintenance man, cell- 280-4217
date: Feb. 25, 2008
total population: 1792 in year 2000
of water connections: 594 commercial and residential
wells: 2 wells, third well shut down due to contamination by oil and nitrates

water quality: good
can you serve more? approximately 20-40 more connections

grants: no
meters: don't read meters, flat rate
peak usage: okay, as long as both wells are working

sewers: not maxed out yet, 3/4 capacity

infrastructure: need to drill another well

Comments: This small town could grow as long as both wells work or don't become contaminated. Sewer capacity is at 3/4 capacity. They need to drill another well.

ADEQUATE WITH CONCERNS

TRAVER - Tito Balling 559-935-2300

person interviewed: employee of Tito Balling

date: Feb 8, 2008

total population:

water connections: 180

can you serve more: yes

wells: 3, all good. Third well was needed for water pressure problems at school

infrastructure: pipes old, need to be replaced

meters: not metered

peak usage:

grants: applying for grant for meters

sewer: operated by Tulare County "can't serve" order

comments: many people have their own wells.
impoverished community
The old water pipes need to be replaced.
The water system is under "can't serve" order

SIGNIFICANT CONCERNS

Woodville PUD 686-9649

person interviewed: Ralph Guitierez 901-6097 manager

date: Jan 31, 2008, Feb 22, 2008

total population: 1678 according to 2000 census

water connections: 400

can you serve more: 5-10 houses

wells: 2 good wells, 1 well not used because of sand
sometimes only draw 5 gallons a minute
~~sometimes water is salty~~

infrastructure: would need another well if there were a new subdivision

meters: yes. read once a month. Minimum monthly charge plus 50¢ per 100 cubic feet
average water + sewer fee is $50 a month

peak usage: no problem

water quality: good

grants: applying for state money for new sludge beds

Sewers: connection fee $7400 for water & sewer

Comments: This small town would need another good well if it were to expand water connections. PUD is applying for state grant money for new sludge beds. Old wells sometimes suck air, draw only 5 gallons a minute or draw up salty water. Only capacity for 5-10 more water connections

SIGNIFICANT CONCERNS

California

Income Inequality Grew in California Over the Past Two Decades

California's Richest Families vs. Poorest Families

- The *richest* 20 percent of families have average incomes **7.9** times as large as the *poorest* 20 percent of families.
- This ratio was **6.5** in the late 1980s.
- This growth in income inequality is the **18th** largest in the nation.
- The very richest families — top 5% — have average incomes **13.3** times as large as the poorest 20 percent of families.

The gap between California's richest and poorest families is

8th

largest in the nation.

California's Richest Families vs. Families in the Middle

- The *richest* 20 percent of families have average incomes **2.9** times as large as the *middle* 20 percent of families.
- This ratio was **2.3** in the late 1980s.
- This growth in income inequality is the **5th** largest in the nation.

The gap between California's richest families and families in the middle is

3rd

largest in the nation.

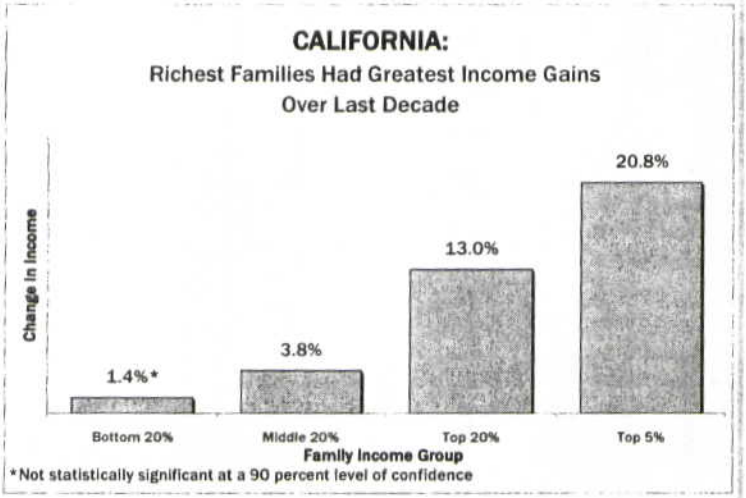
A Closer Look: Short- and Long-term Trends

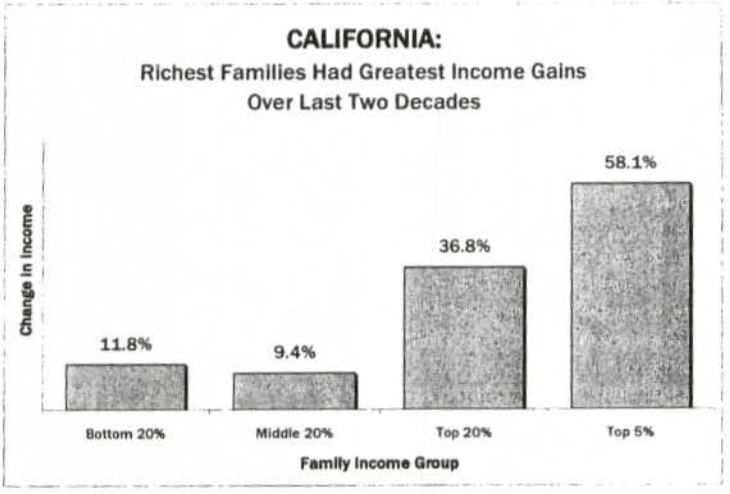
Late 1990s to mid-2000s

- The average income of the *poorest* fifth of families did not change significantly.
- The average income of the *middle* fifth of families increased by **$1,889**, from $49,092 to $50,981.
- The average income of the *richest* fifth of families increased by **$16,772**, from $128,587 to $145,358.
- The average income of the *richest* 5% of families increased by **$41,988**, from $201,397 to $243,386

Late 1980s to mid-2000s

- The average income of the *poorest* fifth of families increased by **$1,926**, from $16,386 to $18,312.
- The average income of the *middle* fifth of families increased by **$4,401**, from $46,580 to $50,981.
- The average income of the *richest* fifth of families increased by **$39,103**, from $106,255 to $145,358.
- The average income of the *richest* 5% of families increased by **$89,456**, from $153,929 to $243,386





Center on Budget and Policy Priorities

Economic Policy Institute

Based on the latest available data (2004-2006)
Source: Center on Budget and Policy Priorities and Economic Policy Institute
Pulling Apart: A State By State Analysis of Income Trends.
Available at: http://www.cbpp.org/4-9-08sfp.htm

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Public Policy Institute of California

California Counts
POPULATION TRENDS AND PROFILES

Volume 1 Number 1 • October 1999

How Many Californians?

A Review of Population Projections for the State

By Hans P. Johnson

Summary

The level of plausible variation in California's future population requires serious consideration by policymakers and planners. Planning and building infrastructure for the wrong population can be costly. To give policymakers and others concerned with projecting population a sense of the range of projections and why the range is so wide, this report compares and analyzes population projections produced for the state by various organizations: the California Department of Finance, the U.S. Census Bureau, the U.S. Bureau of Economic Analysis, UCLA, and the Center for Continuing Study of the California Economy. Those projections are used in short- and long-range planning by local, state, and federal government agencies, as well as by private firms.

The current projections agree on some basic issues: Growth rates will be lower than in the past, but absolute levels of growth will remain high. Natural increase will have more effect than net migration on population growth. Domestic migration will be lower, while international migration will remain strong. California will still have higher growth rates than the rest of the country. However, the projections of future population and rates of population growth vary widely. For example:

- For 2025, the highest and lowest projections differ by more than 10 million people, with the lowest series projecting a population of 41.5 million and the highest projecting over 52 million. By 2040, the difference is over 16 million people (almost half the state's current population), with the lowest projection setting the state's future population at 46.8 million and the highest at 63.4 million.

- These projections imply very different rates of population growth between 1995 and 2025. In the highest projection, California will have another 20 million people by 2025,

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The level of plausible variation in California's future population requires serious consideration by policymakers and planners.

or 64 percent of the state's 1995 population. The lowest projection suggests only about 8 million more, or 29 percent of that population.

- The projections differ substantially in some characteristics of the state's future population: e.g., the size of the state's white population and the age structure.

Each of the projections is plausible if you accept its assumptions regarding migration to and from California. The differences in migration assumptions drive almost all of the differences among the various projections. Over the past 15 years, domestic migration between California and other states has fluctuated dramatically. It is possible that California is on the verge of a new demographic era, one in which the state no longer attracts more domestic migrants than it sends out. It is also possible that the state will return to its longtime demographic history of being a place that attracts more migrants from other states than it sends to those states. The lowest projections assume the former, while the highest projections assume the latter. The most recent evidence indicates that the large domestic migration losses of the early 1990s have ceased, although the state has not returned to the positive flows of domestic migrants that characterize the state's past.

Planners need to be aware of the range of plausible future population levels of the state, and should, accordingly, consider alternative scenarios in their planning.

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Context

The distinguishing feature of California's population is its tremendous dynamism. That dynamism is evident not only in California's rapid population growth, but also in the increasing diversity of the state's population. For decades, California's population growth rates have rivaled those of many less developed countries rather than typifying those of developed regions of the world. As recently as 1950, the state had only 10 million residents, less than one-third of today's 33 million. Over the past few decades, the state also experienced a dramatic increase in ethnic and cultural diversity. In 1970, white non-Hispanics accounted for almost 80 percent of the state's population; today, they account for approximately half of the state's population. By 2020, Latinos will be the single largest ethnic group in the state.

The sheer size of the state's population increase has important implications for almost all government services and functions including welfare, education, transportation, and corrections. Large increases in the state's population also have important implications for protection of natural resources, distribution of water, agriculture, and location and nature of development. No less important, but less predictable, is how the changing composition of the state's population will influence the state's economic evolution, its political representation, and its cultural identity or identities. Projections of 50 million Californians by 2025 suggest that policy issues related to population growth will become even more salient to policymakers. However, projecting future populations is an uncertain undertaking. The demographic future of California is very much in doubt. The recession of the early 1990s saw record numbers of domestic migrants leaving California. From 1990 through 1996, between 1 million and 2 million more people left California for other states than moved to California from the rest of the United States. At the same time, immigration (international migration) to the state increased substantially during the 1970s and 1980s and, though slowing, still remained substantial during the recession of the early 1990s. Some argue that the patterns of the early 1990s ushered in a new era of demographic change in California. Some predict that the state, once a magnet for migrants from the rest of the country as well as the world, will be the next demographic New York: a place that receives immigrants and sends out domestic migrants. Projections of the state's population are heavily influenced by assumptions about migration patterns.

In this report, we compare and analyze a number of long-term population projections for California. First, we discuss the projected populations, then compare the various methods and assumptions used to develop the projections, and finally discuss some implications of the comparisons. Additional charts, tables, and analyses are available on our website at *www.ppic.org.*

In California, domestic migration has been especially volatile over the past ten years.

Long-Term Projections for California

Three government agencies and two independent organizations produce long-term population projections for California: the California Department of Finance (DOF), the United States Census Bureau (CB), the United States Bureau of Economic Analysis (BEA), the Anderson Forecast at UCLA, and the Center for Con-

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Projections of the state's population diverge widely over time.

tinuing Study of the California Economy (CCSCE). The Census Bureau produces two sets of state population projections: Series A, the "preferred" series, and Series B, the "alternative" series. CCSCE produces three series of projections: high, middle, and low. Projections are revised every few years as additional data become available (e.g., a new census) or as population trends diverge from earlier projections. The BEA has ceased making economic and population projections.

The length of the projection series and the level of demographic detail vary among the series (see Table 1). The projections produced by the California Department of Finance and the Census Bureau are most directly comparable in terms of demographic detail. The Census Bureau projections extend to 2025, whereas all the other series extend to at least 2040.

Total Population and Growth Rates

Projections of the state's population diverge widely over time (see Figure 1 and Table 2). By 2025, the difference between the highest and lowest projection is greater than 10 million people, with the

Table 1. Sources of Long-Term Population Projections for California

Source	Projection Years	Year Issued	Demographic Detail
California Department of Finance (DOF)	1998–2040	1998	Single year of age; five race/ethnic groups; 58 counties
United States Census Bureau (CB)	1995–2025	1996	Single year of age; five race/ethnic groups; two series: preferred and alternative
United States Bureau of Economic Analysis (BEA)	1993–2045	1995	Broad age groups
UCLA Anderson Forecast	1996–2050	1998	Eight regions within the state
Center for Continuing Study of the California Economy (CCSCE)	1997–2050	1998	Broad age groups; subregions;* three series: high, middle, low

*Only total population projections for the entire state were available for this report.

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CB alternative series projecting a population of 41.5 million compared with UCLA's projection of over 52 million. The range in long-term projections is substantially less if we exclude the UCLA projections and all the alternative projections.[1] For example, the DOF projections, the CCSCE middle-series projections, and the CB preferred series agree that California will have almost 50 million residents by 2025, although they disagree about the timing of the

[1] By alternative projections, we mean the CB alternative projections and the CCSCE high and low series.

Figure 1. Total Population Projections for California

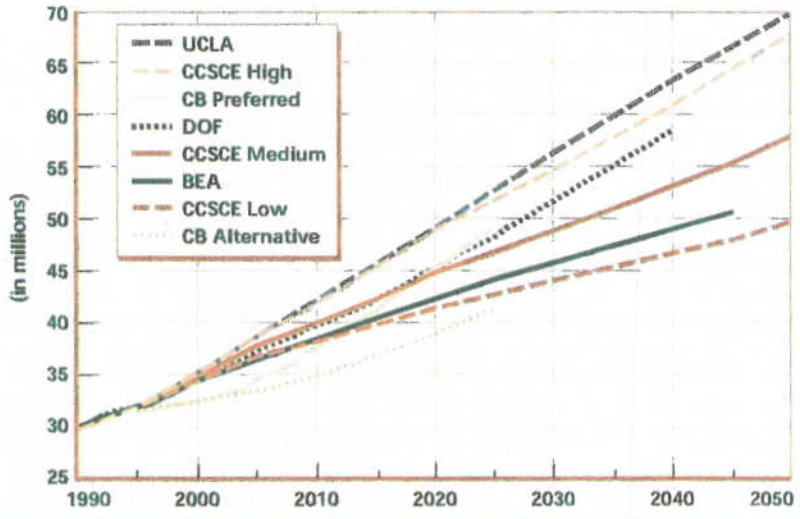
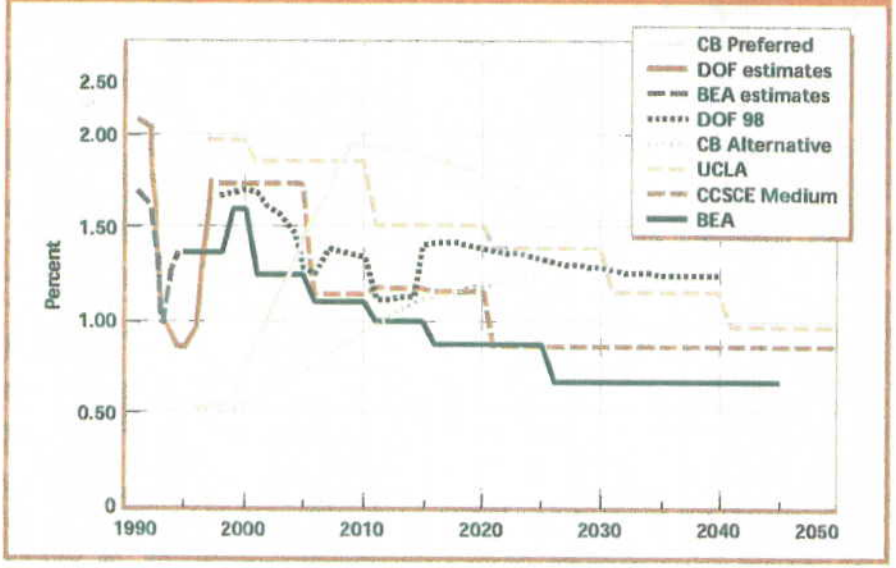


Table 2. Total Population Projections for California (in thousands)

Year	Department of Finance	Census Bureau Preferred	Census Bureau Alternative	BEA	UCLA	CCSCE Medium	CCSCE High	CCSCE Low
1990	29,942			29,905		29,758	29,758	29,758
1995	32,063	31,589	31,589					
1996	32,384	31,758	31,758		32,600			
1997	32,957	31,925	31,917			32,957	32,957	32,957
1998	33,506	32,100	32,078	33,398				
2000	34,653	32,521	32,423	34,470	35,247			
2005	37,372	34,441	33,511	36,657		37,800	38,769	36,831
2010	39,958	37,644	34,968	38,710	42,297	40,030	41,980	38,300
2015	42,371	41,373	36,838	40,686		42,432	45,439	39,850
2020	45,449	45,278	39,034		49,149	44,964	49,084	41,416
2025	48,626	49,285	41,480	44,372		46,917	51,846	42,706
2030	51,869				56,472	48,955	54,749	44,036
2035	55,210					51,081	57,798	45,407
2040	58,731				63,418	53,300	61,002	46,821
2045				50,731		55,615	64,367	48,277
2050					69,823	58,031	67,901	49,779

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Figure 2. Population Growth Rates: Annual Percentage Change



state's population growth between now and 2025. By 2040, the difference between the highest and lowest projections increases to over 16 million people (almost half the state's current population), with UCLA projecting 63.4 million Californians and the CCSCE low series projecting only 46.8 million.

These projections imply very different levels of population growth. The highest projections suggest that California will need to accommodate another 20 million people by 2025, while the lowest suggest the state's population growth will total only about 8 million people between 1995 and 2025. Total population increases would amount to 29 percent of the state's 1995 population according to the lowest series, compared with 64 percent according to the highest series.

The projections show substantial differences even in the short run. Both Census Bureau series project substantially lower population totals than do the other series. For example, the CB series project fewer than 34.5 million California residents in 2005 whereas the DOF projects 37.4 million Californians. This short-term difference is a product of both differing projections of growth and differing current estimates of the state's population at the time the projections were made. During the 1990s, the Census Bureau estimates of the state's population have increasingly diverged from those produced by the DOF: By 1998, the Census Bureau estimates were lower than the DOF estimates by more than 800,000.

As shown in Figure 2, annual growth rates implied by these projections are substantially different—especially the initial projected growth rates, in which the CB projections are three times higher than the DOF projections. The large disparity in initial rates results from differing base years for the projections. The CB projections were developed at a time when the most recent estimates suggested substantial domestic out-migration from California and population growth in the state was quite slow by historic standards.

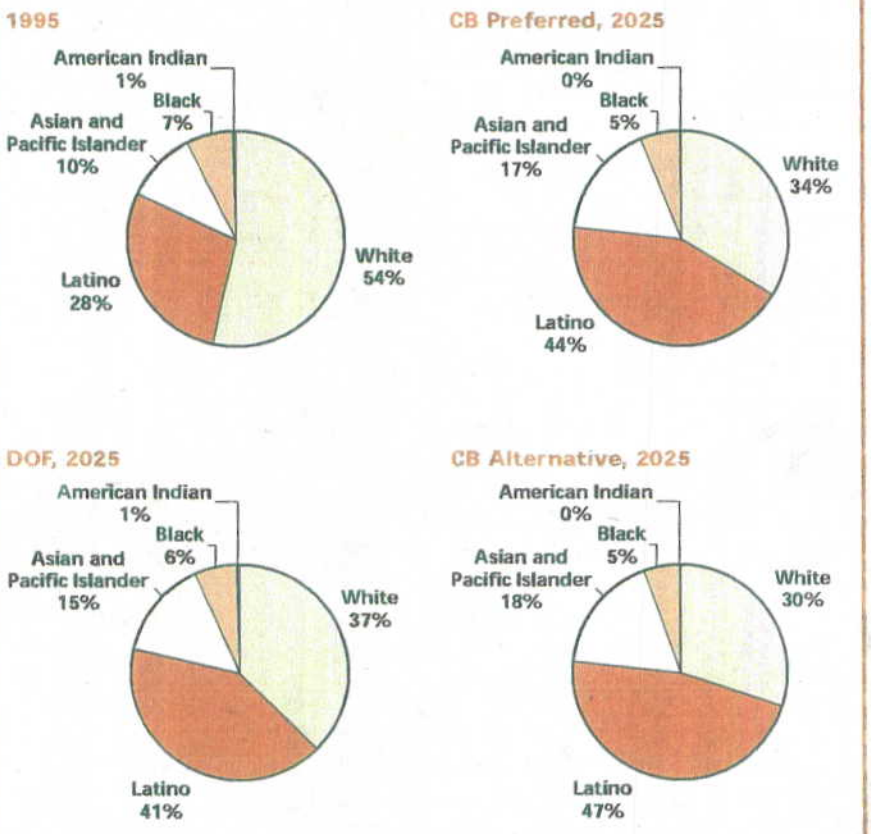
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Although the CB projected growth rates are higher than growth rates experienced by the state in the recession, the CB projections did not anticipate the dramatic short-run change in growth rates that occurred between 1994 and 1998 (see Figure 2). Again, if we exclude the alternative series (CCSCE high, CCSCE low, and CB alternative), the range of long-term projections is substantially narrowed.

Population by Race/Ethnicity

Only the projections by the California Department of Finance and the Census Bureau provide race/ethnic detail. While the DOF and CB projections agree on the direction of race/ethnic distributional changes in the state's population, the projections differ on the magnitude of those changes (see Figure 3). In particular, the DOF projects that a somewhat larger share of the population will be white and a somewhat smaller share will be either Latino or Asian and Pacific Islander than the CB projects. According to the CB projections, no race/ethnic group currently constitutes a majority of California's population. According to the DOF projections, that state will be reached between July 2000 and July 2001. The CB preferred series projects that by 2014 Latinos will be the largest single race/ethnic group in the

Figure 3. California Population by Race/Ethnic Distribution



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state, whereas the DOF projection places that date at around 2021.

In absolute terms, the difference between the CB alternative series and the DOF projections is especially pronounced for whites, with the DOF projecting almost 6 million more whites by 2025 than the CB alternative projections (see Table 3). The lower population of whites in the CB series can be attributed to projected continuing net domestic migration losses. Domestic migrants, both to and from California, are more likely to be white than are immigrants or non-migrants in the state.

Age Structure

An easy way to summarize the age structure of a population is to examine the dependency ratio. The dependency ratio is the number of people of nonworking age (less than 18 and over 65) for every 100 people of working age. It provides a rough indicator of a population's ability to support nonworking members. The DOF, CB, and BEA projections each provide projections by age. As shown in Figure 4, California's dependency ratio is projected to increase substantially after 2010,

Table 3. Population Projections by Race/Ethnicity (in thousands)

		1995	2000	2005	2010	2015	2020	2025	2030	2035	2040
White	DOF	17,180	17,422	17,731	17,902	17,969	18,123	18,216	18,222	18,141	18,005
	CB Preferred	16,630	15,562	15,123	15,394	15,838	16,261	16,626			
	CB Alternative	16,631	15,501	14,537	13,771	13,201	12,788	12,477			
Latino	DOF	9,101	10,689	12,301	13,964	15,643	17,778	20,085	22,547	25,199	28,091
	CB Preferred	9,207	10,646	12,268	14,215	16,410	18,757	21,232			
	CB Alternative	9,206	10,628	12,101	13,691	15,433	17,289	19,243			
Asian and Pacific Islander	DOF	3,338	3,999	4,684	5,314	5,815	6,474	7,128	7,786	8,441	9,092
	CB Preferred	3,380	4,006	4,731	5,602	6,549	7,539	8,564			
	CB Alternative	3,379	3,995	4,635	5,309	6,026	6,786	7,582			
Black	DOF	2,251	2,338	2,434	2,541	2,691	2,806	2,918	3,024	3,128	3,234
	CB Preferred	2,184	2,138	2,158	2,268	2,406	2,544	2,679			
	CB Alternative	2,184	2,129	2,083	2,054	2,042	2,042	2,051			
American Indian	DOF	193	206	222	237	253	266	279	290	300	309
	CB Preferred	189	170	162	165	170	176	183			
	CB Alternative	189	169	154	143	135	130	127			

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as large cohorts of baby boomers begin to enter retirement ages. Because of the certain aging of the baby boom, there is little variation in projections of overall dependency ratios.

To the state government, however, the most important component of the dependency ratio is that attributable to children, because the state is the primary provider of services to children (via education) and provides relatively few services to the elderly. After a substantial rise in the child dependency ratio during the 1990s, the DOF and BEA series project a decline to the mid-2010s, followed by an increase (see Figure 5). This is a welcome short-term trend for a state trying to catch up with large increases in public school attendance. The CB projections show an increase in the child dependency ratio from 1995 to the first few years of the next century, before declining to the mid-2010s. After 2015, however, all the series project that the child dependency ratio will increase substantially, rising to levels not seen since the early 1970s according to the DOF projections.[2] The BEA projections show the same long-term pattern, but the increases are substantially lower.

Figure 4.
Historic and Projected Dependency Ratios for California

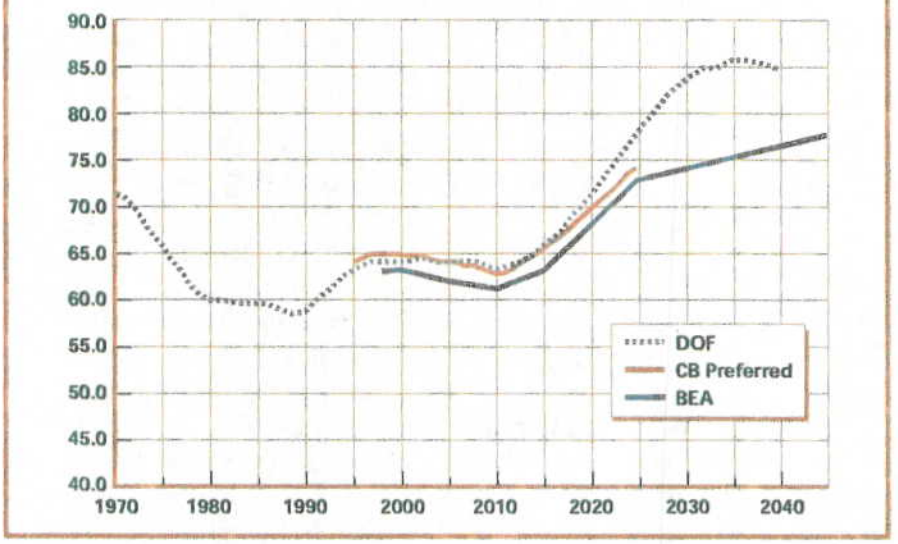
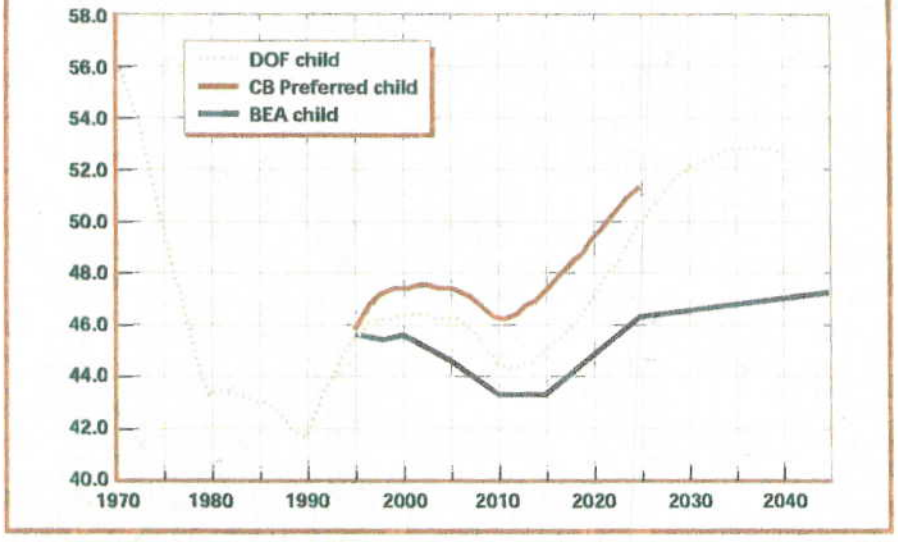


Figure 5.
Historic and Projected Child Dependency Ratios for California



[2] The higher child dependency ratio projections based on the CB preferred series are due to higher fertility projections. The lower BEA projections are based on a method that does not explicitly consider fertility.

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Despite their wide disparities, the current projections agree on some basic issues.

Methods and Assumptions of the Projections

Although some of the variation in the population projections results from differing methodologies, the most important source of variation is differing assumptions. Assumptions differ largely because population trends differed when the projections were developed. Most projections weight recent trends heavily in forecasting long-term trends.

Methods

Methods used to project California's population range from the computationally complex "multi-state cohort component projection" technique employed by the Census Bureau to the simple derivative approach employed by UCLA. The projections can be classified into three types: (1) purely demographic (DOF, CB preferred); (2) demographic and economic (CB alternative, BEA, and CCSCE); and (3) derivative extrapolations (UCLA). The purely demographic approaches of the DOF and the CB preferred projections rely on an analysis of historical trends in the components of population change: births, deaths, and migration. This approach implicitly assumes that factors that led to such trends in the past will continue in the future. The methods that incorporate economic factors do so because employment is assumed to drive population growth through migration. Migration, especially domestic migration, to or from California responds strongly to employment opportunities in California versus the nation. The methods employed by CCSCE, BEA, and the CB alternative series use projections of employment to determine future populations of the state. UCLA's projections are primarily based on and extrapolated from an earlier set of projections produced by the Department of Finance, but also include a subjective assessment of recent economic conditions in the state. Finally, some of the state projections consider national population projections (CCSCE, BEA, CB), while others do not (DOF, UCLA).

More complex methods do not necessarily produce more accurate projections, although they might provide details (such as populations by age and gender) that are necessary to the user. Key sources of uncertainty are future employment, domestic migration, and fertility. For example, a decline in fertility rates could lead to substantially lower population projections over the long term for California than the DOF and CB projections currently envision.

Assumptions

When projections are developed partly explains differences between them. The most recent economic and demographic trends available at the time a projection is made are important factors in projecting future trends. In California, domestic migration has been especially volatile over the past ten years. The CB and BEA projections were developed when the most recent data showed massive domestic out-migration from California. Since those projections were developed, however, the large domestic migration outflows have ceased. The DOF, CCSCE, and UCLA projections were all developed after this turnaround, and thus show higher short-term projections. Figure 6 shows the importance of timing for the projections by comparing the DOF and CB migration estimates and projections.

Accuracy, Agreement, and Implications

Demographers have not been particularly successful in identifying and forecasting turning

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points in population growth. For example, two of the most profound demographic events in the last half of the twentieth century, the baby boom and the baby bust, were not accurately foreseen by demographers.

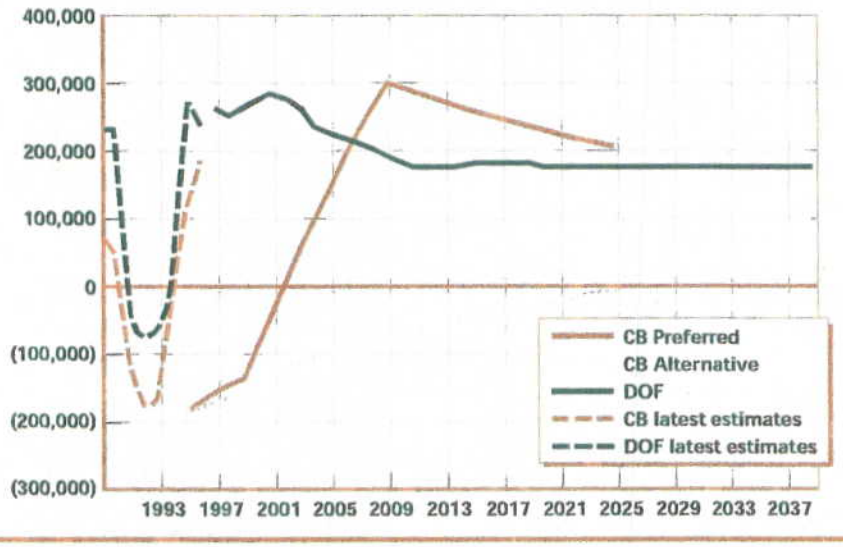
It is not clear which of the current projections for California are most accurate. Based on when the projections were developed, we can conclude that the CB and BEA projections are too low, at least in the short run. In the long run, the wide range of current population projections reflects the uncertainty of California's demographic future. Although the short-term projections of the CB and BEA are too low, any of the long-term population projections could be realized. None of the scenarios represented by the projections are unrealistic. The highest projection series (UCLA) implies annual growth rates for California that are lower than for any comparable historic period. The lowest projection series (CCSCE's low series) assumes that California's share of national employment growth will be only moderately lower than in the past.

Despite their wide disparities, the current projections agree on some basic issues:

- California's future growth rates will be generally lower than past rates, though absolute levels of growth will remain high.
- Natural increase will be a greater source of population growth in the state than net migration.
- Domestic migration is not forecast to be as great as in the past, while international migration will remain strong.
- California growth rates will still exceed those of the rest of the nation.

The level of plausible variation in California's future population requires serious consideration by policymakers and planners. Prudent planners should consider several different future levels of California's population in developing their plans. Planning and building infrastructure for the wrong population can be costly. These costs should be explicitly considered and evaluated in developing plans for alternative future scenarios. ◆

Figure 6. Estimates and Projections of Net Migration
Census Bureau and Department of Finance



In the long run, the wide range of current population projections reflects the uncertainty of California's demographic future.

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Our web site version of this report contains two appendices with additional tables, charts, and discussions of California population projections. We also provide links to the web sites of the organizations that produce population projections for California.

The Public Policy Institute of California is an independent, nonpartisan research organization established in 1994 with an endowment from William R. Hewlett. The Institute is dedicated to raising public awareness of issues and giving elected representatives and other public officials in California a more informed basis for developing policies and programs.

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FILE COPY

Public Comments to the Planning Commission on April 23, 2008
Regarding the Tulare County General Plan Update 2030

Five reputable organizations make population projections for California. Tulare County chose to use the predictions of the California Department of Finance which made some of the highest population projections. The Supervisors seem to have concluded we need to put these people in all parts of the county, regardless of the consequences of greater air pollution, groundwater contamination, groundwater overdraft, infrastructure costs, and loss of agricultural land.

The Public Policy Institute of California in October 1999 analyzed the causes of population growth and the accuracy of population projections over time. Different organizations predict widely varying numbers of people over the 26 year time period from 1999 to 2025 from 29% to 64% population growth. The Institute found population predictions are accurate only 10 years into the future. The Public Policy Institute of California states the California population growth rate will be lower than in the past because:

- birth rates are declining
- there will be less interstate migration to California because there are fewer job opportunities due to our recession
- there will be less international migration to California because of fewer jobs and the crackdown on illegal immigration at the Mexican border and at workplaces that employ illegal aliens. These migrants don't want to spend time in jail and be deported.

Tulare County Supervisors need to consider the level of plausible variation in population projections. Planning and building infrastructure for the wrong population can be costly.

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In the beginning of the Goals and Policies Report under General Plan Framework Value Statements, there are serious omissions. Clean air, clean water, and adequate water supply are not mentioned. Protection of natural resources was the first priority of the citizens in the public workshops conducted by RMA and in the Blueprint workshops conducted by the Great Valley Center. After reading the General Plan Update, I believe omission of clean air, clean water, and water supply in the Value Statements was intentional. In the Air Quality and Water Resources sections air and water are not protected by mandatory policies and enforceable implementation measures. "Shall encourage", "shall identify", "shall promote", "shall support", "shall monitor", "shall consider", "as appropriate", and "where feasible" do not guarantee compliance. The County has no trouble putting mandatory wording in policies protecting oil and gas resources, prime timber resources, and rock and gravel quarries. They have obvious monetary value. It's harder to calculate the cost of an asthma attack, increased risk of cancer or reduced crop yield due to poor air quality or the impact of nitrate laden groundwater on a child or pregnant woman. It's harder, but possible, and has been achieved by other counties. On the other hand, the cost of drilling a deeper well because new development has continually lowered the groundwater level can be easily quantified. All the environmental consequences of this General Plan buildout have not been disclosed, analyzed, and mitigated. CEQA requires this. This DEIR must be redone and the Goals and Policies Report revised to address the real threats to human health and the environment.

Attachment 40

April 23, 2008 Carole A. Clum

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Three Rivers, CA 93271-9610

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To the Board of Supervisors and Planning Commission at Joint Hearing on February 26, 2008, Addressing General Plan Update Omissions

There are serious omissions in the Value Statements listed on page ES-6 of the Draft Environmental Impact Report of the Tulare County General Plan Update.

Clean air, clean water and sustainable water were top priorities of the citizens of Tulare County during all the public workshops and the Blueprint Process.

I have carefully read the Air Quality and Water Resources elements of the Goals and Policies Report of the Tulare County General Plan. The policies and implementation measures for air quality, water supply and water quality are weak, vague, and unenforceable.

We need clean air. This General Plan Update makes air quality worse. You know that.

A sixth value statement must be added to specifically, directly address air quality, water quality and water supply. And the policies and implementation measures must be made mandatory. Every mitigation must be mandatory and sufficient to offset the adverse impact.

Carole Clum
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Carole Clum

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Comments by Carole Clum to the Board of Supervisors at the Hearing on Draft General Plan Update, Feb. 26, 2008

It is impossible to assess and mitigate the impact of new development on water resources when the decision makers do not have a complete, accurate, current description of the existing environment. It is only against this baseline that intelligent decision making can be made. The DEIR analysis of water supply and water quality is fundamentally flawed because:

- Keller-Wegley Report, a major document used to assess water supply and water quality, is incomplete, missing vital figures and community maps assessing adverse impacts on many unincorporated communities due to loss of water from the Friant-Kern canal. Nevertheless, Dennis Keller, notes the uncertainty of the outcome of the NRDC v. Rodgers case concerning the restoration of the San Joaquin River, depending on the successful rebound of the chinook salmon,

- No consideration of the delta smelt decision to restore the Sacramento delta and limit water exported to Tulare County,

- No consideration of Global Climate Change and scientists' consensus that Tulare County will receive increasingly less precipitation and less snowpack and will experience ever warmer average temperatures which will adversely impact water supply, groundwater overdrafting and groundwater contamination and recharge.

- Absolutely no consideration of serious groundwater overdrafting now in Tulare County,

- Inadequate and inaccurate data in Table 4-5, page 4-107 of the DEIR, which purports to show the ability of 21 unincorporated communities to meet population growth demands of the General Plan Update buildout to 2030,

- Most of the water resources data was collected in 2003 or earlier. This DEIR was published in 2008,

- No consideration of the significant adverse impact on hydrology of Global Climate Change as echoed in the State Water Project Delivery Reliability Report of Jan. 22, 2008,

- No consideration of the expense of improving municipal water supply infrastructure and wastewater treatment facilities to accommodate 72% population growth.

- Page 4-130 of the DEIR states, "The majority of domestic water purveyors in unincorporated areas of the County would continue to be dependent upon groundwater to meet their water needs. Until comprehensive assessments of groundwater and groundwater management efforts occur, it is not possible to

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conclude that the County's groundwater resources would be capable of meeting future water demands resulting from implementation of the General plan Update.

- There is widespread contamination of groundwater by nitrates, arsenic, DBCP, radon, etc. Until county-wide, comprehensive groundwater quality monitoring occurs, there is no way to determine if the population can grow by 72%.

- No consideration of expense of removing contaminants from groundwater and who will pay. Purchasing filtration systems to remove contamination from water is expensive. Maintaining filtration systems is expensive. And disposing of the concentrated contaminant (now officially hazardous waste) is extremely expensive. Small unincorporated municipal water systems cannot afford the expense. This is especially true of disadvantaged communities.

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April 14, 2008

Mr. David Bryant
Division Manager - Special Projects
Tulare County Resource Management Agency
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Visalia, CA 93277

Re: Review and Comments Regarding Water Resources
Draft Tulare County General Plan *Goals and Policies Report*, *Background Report*, and *Environmental Impact Report*

Dear Mr. Bryant:

Water resources information contained in the Draft Tulare County General Plan is presented in multiple sections in three different documents. The sections have little consistency between them, much is based on old and general data sources, and they are not internally cross referenced rendering the information difficult to access for policy makers and the public, and likely for the document preparers as well.

The pertinent sections of the *Goals and Policies Report* and the *Draft Environmental Impact Report* (DEIR) indicate that they are based upon the "detailed" information contained in the Water Resources section of the *Background Report*. However, there are in fact two unrelated Water Resources sections in the *Background Report*. Both of these Water Resources sections are based on sources that had been revised as of the date of the *Background Report*.

The two Water Resources sections of the *Background Report* need to be updated with current information and integrated into a single comprehensive section. Additionally, the General Plan water resources sections and analysis should address the impacts and planning necessary to address the potentially profound changes to precipitation and Sierra snowpack caused by Global Climate Change.

Once the Water Resources section of the *Background Report* is revised to fully address the present and future water resources of Tulare County, the dependant sections of the *Goals and Policies Report* and DEIR should be revised accordingly.

This letter discusses specific issues and provides comments regarding the three documents.

Background Report – Water Resources

Oddly, there are two different Water Resources sections contained in the *Background Report*. The Water Resources section contained in the body of the report is essentially an extract of the *California Water Plan* published by the State Department of Water Resources in 1998. The *Background Report* is dated December 2007; the 2005 update to the *California Water Plan* should have been used, rather than nearly 10-year-old data.

The other Water Resources section is included as Appendix C of the *Background Report*. While not specifically identified, this document is presumed to be the "Keller, Wegley & Associates" report referenced in other General Plan Documents including the DEIR. Further, the *Background Report* table of contents and introduction make no mention of any appendices. This is the document that was not included in the initial release of the General Plan and DEIR, which resulted in extension of the public review period.

California's Groundwater (Bulletin 118, Update 2003) published by the California Department of Water Resources has much more specific information regarding groundwater conditions in the three principal

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Tulare County subbasins. This document is cited in the DEIR, but is not referenced in, nor was it apparently used for preparation of the Water Resources sections in the *Background Report*.

Most of the references cited in the Water Resources sections are not included in the *Background Report* Bibliography. All citations and reference sources used for the Water Resource sections should be included in the Bibliography.

Water Resources Report in Body of Background Report

The introduction to the Natural Resources section of the *Background Report*, of which the Water Resources section is a part, states "This chapter of the Background Report provides a general overview of water resources and mineral resources within Tulare County to identify and understand these key natural resources." However, what is presented in section 10.2 Water Resources, is not what section 10.1 Introduction states that it is.

The *Background Report*, and the *California Water Plan* upon which it is based, provides broad regional information about the Tulare Lake Hydrologic Region, which in addition to Tulare County includes most of Fresno County, all of Kings County, and the western two-thirds of Kern County. It is essentially an extract of the *California Water Plan*.

While it is useful and important to provide a regional setting when conducting an analysis of water resources, all of the analyses of projected water usage and availability are based on the large regional analysis conducted by the state (other than one table of irrigation districts in the county based on data in a 36-year-old report [cited as Bookman-Edmonston Engineering, 1972]).

Misleading Local Conclusions by Reliance on Regional Analysis

Relying on an overly broad regional view of water resources can lead to misleading conclusions on a local level. For example, the Water Resources section of the *Background Report* concludes with tables presented in the "Water Use Summary" subsection. Tables 10-7 and 10-8, Tulare Lake Basin Average Year and Drought Water use, respectively, list urban, agricultural, environmental, and total water usage for 1995 and projected for 2020.

Face-value inspection of average year water use indicates 13,100 thousand acre-feet used in 1995 decreasing to 12,900 thousand acre-feet in 2020. While this projection is good news for the Tulare Lake Hydrologic Region *as a whole*, the local story for Tulare County is not so rosy.

Closer inspection shows that there is a projected increase of 409 thousand acre-feet (59% increase) in urban water usage, which is offset by a projected decrease of 613 thousand acre feet (6% decrease) in agricultural usage. However, the decrease in agricultural usage is largely due to the anticipated retirement of land in western Fresno and Kings counties. And of course, the largest portion of the increase in urban water usage would be expected to occur in the populated eastern portion of the Basin including Tulare County.

Therefore, if the projections were less generalized and focused on impacts to Tulare County, they would show a projected deficit. This is because a decrease in pumping in the confined aquifer on the west side of the Valley would not be expected to compensate for increased urban usage in the county, especially for the unconfined aquifer from which most of the populated areas of Tulare County obtain their water.

Incorrect Conclusion Regarding Groundwater Supplies

In discussing the 820,000 acre-feet per year of overdraft in the Tulare Lake Basin, the Water Resources section concludes that "this overdraft is due to reductions of surface supplies in recent years by Delta export restrictions, Endangered Species Act requirements, and other factors."

While there is no arguing that decreases in imported surface water supplies have exacerbated the overdraft, the Basin and Tulare County have been in overdraft since long before imported surface water

supplies were made available. The simple fact is that we have been mining our groundwater by pumping and using more than can be sustainably replenished. The quoted conclusion appears to be a political opinion, not a statement of scientific fact.

Tulare County has been conducting non-sustainable mining of its groundwater since development began in the second half of the 19th century. Water table elevations declined between 41 and 100 feet between 1860 and 1961 in the unconfined aquifer beneath Tulare County (Williams and others, 1989). Greater declines were experienced in the lower confined aquifer resulting in the well documented significant land subsidence in the Tulare to Wasco area.

A recent study conducted on the Kaweah River Watershed for the Kaweah Delta Water Conservation District (KDWCD) determined that 413,000 acre-feet were mined between 1981 and 1999, representing a loss of 17% of the total groundwater in storage (KDWCD, December 2003; revised July 2007).

A hydrograph of a water supply well in the City of Visalia was included in Appendix C of the *Background Report* (a copy is attached to this letter for reference). The hydrograph shows a declining static water level (non-pumping) trend from 50 feet below ground surface (bgs) in 1986 to 100 feet bgs in 2005. A hydrograph of this well included in the KDWCD report shows water levels back to 1945, which display a declining trend from original depths of 20 to 30 feet bgs in the 1940s.

Water Resources Report in Appendix C of Background Report

This document provides a much more detailed analysis of the four valley watersheds and the foothill mountain region of Tulare County.

Much of the information in this document should have been included in water resource summaries contained in the other General Plan documents. For example, the following information from Appendix C should be included in water resource summaries of the main General Plan documents including the *Goals and Policies Report* and the DEIR:

Kings River Watershed

- *The static levels of groundwater within the Kings River Watershed exhibit a gradual decline, with time.*
- *There are no communities which are not impacted, to some degree, by either naturally occurring or man-induced contamination within this watershed.*

Kaweah River Watershed

- *While the easterly unit showed approximate balance, computations utilizing different methodologies showed that the overall underground reservoir was overdrafted at a level of between 17,000 [revised to 21,700 in the July 2007 revision] to 36,000 acre-feet per year. Groundwater trend information for the City of Visalia area is presented on Figure 4-8. As can be seen from an analysis of this figure, the static groundwater trend is ever decreasing, as is the corresponding quantity of water being held in storage in the groundwater reservoir.*
- *Lands immediately adjacent to foothills exhibit elevated chloride and nitrate characteristics. As groundwater is tapped toward the central portion of the valley floor of the County, the water normally produced is of excellent quality. Anomalies occur where man-induced contamination has adversely influenced the quality characteristics. Influences from nematodecides such as DBCP, herbicides, pesticides and fertilizers all appear at certain locations within the Kaweah River Watershed, as do the impacts from industrial chemicals such as dry cleaning solvents and petroleum fuels.*

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Tule River Watershed

- [No analysis of groundwater trends were included in the document for the Tule River Watershed. The document should be revised to include this section.]
- *The east side of the valley floor in the Tule River Watershed contains the highest population of individuals impacted by lower quality groundwater of any area within the County. From the foothill fringe, adverse groundwater quality extends into the valley floor for several miles in all locals, except for those immediately adjacent to the Tule River.*

Deer Creek/White River Watershed

- *The maintenance of the groundwater reservoir through this area is dependent, as previously noted, on the continued capability to have available surface water sources available for delivery into the area.*
- *The groundwater quality characteristics appurtenant to the Deer Creek/White River Watershed vary from east to west. In general, water quality on the east side of the valley floor of the County in this area is characterized by diminished quality where nitrates, phenols and salts are present in different concentrations and in different locals. On the westerly side of the Deer Creek/White River Watershed, groundwater quality again declines into unacceptable conditions. Principal among these conditions are elevated levels of arsenic and microsand conditions requiring special drilling techniques and/or well head treatment to allow compliance with applicable standards. Many of these wells produce various gases including hydrogen sulfide, methane and natural gas, further aggravating the capability to deliver a potable supply.*

Analysis of Anticipated Change of Status over Planning Horizon is Incomplete

The Appendix C report states that "This overview includes the status of each of the major sources and any anticipated change in status over the planning horizon covered by the General Plan update." However, there is no analysis of potential impacts due to, and planning needed to address Global Climate Change.

The document includes a good overview on the San Joaquin River restoration litigation and its possible implications to Tulare County water resources. However, this section concludes by stating that:

> *There is no possible way of providing an estimate of those impacts at the current time other than to indicate that both settlement and an adverse court decision will considerably modify the status quo.*

But a few paragraphs before is the statement:

> *Information contained in the Expert Report of Richard M. Moss, P.E., in his representation of the Friant Division contractors in the referenced litigation provides estimates of the degree to which water deliveries could be potentially reduced to County lands as a result of a decision to provide flows for San Joaquin River restoration purposes.*

Why is there "no possible way" to estimate the impacts if there are specific estimates of potential water delivery reductions in the Moss report? Specific estimates of potential impacts to available water supply should be prepared based on available data to provide the information needed to plan for future growth in Tulare County.

Goals and Policies Report – Water Resources

The introduction to *Section 11. Water Resources* states "The policies in this element should not be construed to insert the County into the allocation or management of water resources." This is in direct conflict with several of the implementation measures which state that the County shall take a lead role in management such as WR-1.8 and WR-3.2. Perhaps removing the word "management" from this

sentence would resolve the conflict, but leave the ostensible intent of clarifying that the County does not have regulatory authority over the allocation of water resources.

A number of the policies lack implementation measures. Without effective implementation measures, stated policies are just well-intentioned platitudes without much chance of being realized.

All of the policies and implementation measures should be reviewed and rewritten as necessary to promote "sustainable" water resources in Tulare County. This means not contributing to the groundwater overdraft and not approving new projects with the hope of obtaining unknown or undefined surface water imports at some time in the future. Additionally, planning for the potential impacts of Global Climate Change should be included in the water resource policies and implementation measures.

The Existing Conditions Overview should be revised as needed subsequent to completion of the necessary updating and revisions to the *Background Report*.

11.1 General

WR-1.1 Groundwater Withdrawal

There are not adequate implementation measures for this policy. While Implementation Measure 1 is listed as implementing this policy, it specifically addresses an ordinance "permit process for groundwater export." This implementation measure is applicable to policy *WR-1.3 Water Export Outside the County*, which is not listed as a policy this measure implements.

A similar implementation measure and ordinance should be required to address new wells and groundwater extraction within the County.

WR-1.2 Groundwater Monitoring

Use of the terminology "The County shall support the collection of monitoring data..." should be changed to "The County shall require the collection of monitoring data..."

Implementation Measure 5 should require groundwater monitoring "for facilities or uses that are potential sources of groundwater pollution as part of project approvals..."

Implementation Measure 9 states that the "County shall seek cooperation from realtors to require all sales of homes to have water testing for nitrates and bacteria in addition to valley sites testing for DBCP and mountain sites for radiological contamination." Instead, the County should develop an ordinance requiring testing of all new domestic wells, and of domestic wells upon sale of existing homes. The County should require that the Environmental Health Department develop a list of contaminants of concern by location in the County and that the wells be tested for these contaminants.

WR-1.3 Water Export Outside County

Use of vague and undefined criteria such as use of the word "substantially" in "Find and determine that the extraction will not substantially increase the overdraft of the groundwater underlying the County" significantly limit effectiveness of the proposed ordinance. No export should be allowed that would cause any contribution to overdraft.

Issuance of permits for groundwater export should be for relatively short time periods and should require a reevaluation of permit conditions and findings for renewal.

WR-1.4 Conversion of Agricultural Water Resources

This policy should be rewritten to replace "discourage" with "prohibit the transfer of water used for agricultural purposes..." This important policy lacks implementation measures.

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WR-1.6 Expand Use of Reclaimed Water

This policy lacks any implementation measures.

WR-1.7 Collection of Additional Groundwater Information

This policy is vague and should include language regarding collection of data relating to both water supply and quality. Further, information collected should be made readily available to County residents via County websites.

WR-1.8 Groundwater Basin Management

This is a good policy, but the policy and Implementation Measure 11 seem to be in conflict with the statement in the section Introduction referenced above that the "policies in this element should not be construed to insert the County into the allocation or management of water resources."

WR-1.9 Collection of Additional Surface Water Information

This policy lacks any implementation measures. Information collected should be made readily available to County residents via County websites.

WR-1.10 Channel Modification

This policy should be modified to:

> *Channel modification shall be ~~discouraged~~ prohibited in streams and rivers where it increases the rate of flow, rate of sediment transport, erosive capacity, ~~have~~ has adverse effect on aquatic life or ~~modify necessary groundwater recharge~~ reduces groundwater recharge.*

Implementation Measure 13 should be changed from "Stream crossing points should involve a minimum disturbance to banks..." to "Stream crossing points shall be designed to minimize disturbance to banks..."

11.2 Water Quality

WR-2.1 Protect Water Quality

This is a very important policy, however, the terminology "all major land use and development plans" is vague and must be concisely defined. This policy should also be implemented for all projects in known sensitive areas (e.g., as identified under policy WR-3.9).

While there is some overlap in implementation measures for other policies, there is no specific measure to implement this policy.

WR-2.2 National Pollutant Discharge Elimination System (NPDES) Enforcement

Implementation Measure 15, which addresses waterway flood control design, lists WR-2.2 as the sole policy that this measure implements. Was this meant to address policy WR-1.10?

WR-2.3 Best Management Practices (BMPs)

In addition to construction and urban runoff, this policy should include runoff form industrial and agricultural sites (especially from confined animal feeding operations).

WR-2.5 Major Drainage Management

Suggest modifying this policy to:

> *The County shall continue to promote protection of each individual drainage basin within the County based ~~in the basins~~ on each basin's unique hydrologic and use characteristics.*

There are no implementation measures for this policy.

WR-2.6 Degraded Water Resources

This policy should be changed to:

> *The County shall ~~encourage and support the identification of~~ identify degraded surface water and groundwater resources and promote restoration whenever ~~where appropriate~~ feasible.*

There is no specific implementation measure for this policy.

WR-2.7 Industrial and Agricultural Sources

This policy should be changed to:

> *The County shall ~~work with~~ require to its fullest regulatory authority that agricultural and industrial concerns ~~to~~ ensure that water contaminants and waste products are handled in a manner that ~~protects the long-term viability~~ prevents degradation of water resources ~~in~~ of the County.*

The only implementation measure for this policy is 16, which is limited to consideration of expanding the role of the Water Commission to "examine contaminant management." Stronger implementation measures should be developed.

WR-2.8 Point Source Control

There are no implementation measures for this policy.

WR-2.9 Private Wells

Suggest modifying this policy to:

> *The County shall ensure that private wells are adequately constructed to provide protection from bacteriological and chemical contamination and do not ~~provide~~ create a potential groundwater contamination hazard ~~as to contaminate the aquifer~~.*

11.2 Water Supply

WR-3.1 Develop Additional Water Sources

There are no implementation measures for this policy. Likely, the greatest source of additional water will be realized from conservation measures. Rather than simple "promotion of water conservation programs," the County should develop ordinances requiring significant water conservation in new developments and provide incentives for retrofitting existing development. These should include, but not be limited to:

- Installation of water meters and implementation of tiered pricing
- Installation of low-flow toilets, shower heads, water faucets, etc.
- Water conserving irrigation and usage requirements
- Water conserving landscaping

Some of these measures are included in Implementation Measure 10. Policy WR-3.1 should be included in the policies that are implemented by this measure.

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WR-3.2 Develop an Integrated Regional Water Master Plan

This is a good policy, but the policy and implementation measures seem to be in conflict with the statement in the Introduction referenced above that the "policies in this element should not be construed to insert the County into the allocation or management of water resources."

Implementation Measure 3 should assure that watershed planning includes a balance of all water demands including environmental and rural in addition to agricultural and urban demands.

WR-3.3 Adequate Water Availability

This is an excellent and important new policy, however, Implementation Measure 19 should be strengthened to:

> *The County shall adopt an ordinance to require new development proposals to provide suitable evidence of adequate and sustainable long-term water availability or will serve letter prior to approval of the tentative map or other entitlement. For subdivisions proposing to use well water, the new ordinance shall eliminate current waiver provisions and require ~~well pump tests~~ aquifer testing, including long-term pumping tests, conducted by a qualified Professional Geologist or Engineer, to demonstrate water supply capabilities. The aquifer testing report must include a professional opinion that proposed extraction from the new well will be sustainable, will not contribute to groundwater overdraft, and must consider cumulative and regional impacts.*

Simply stating that "well pump tests" be conducted is not adequate as this could be interpreted to mean short-term tests (commonly referred to as "Edison" tests) that would not yield information on the sustainability of the water supply.

WR-3.4 Water Resource Planning

Water resource planning should include evaluation of, and planning for, potential impacts due to Global Climate Change.

WR-3.5 Uses of Native and Drought Tolerant Landscaping

This policy should be changed to:

> *The County shall encourage the use of low water consuming, drought-tolerant and native landscaping and ~~emphasize the importance of utilizing~~ develop an ordinance requiring utilization of water conserving techniques, such as night watering, mulching, and drip irrigation.*

Implementation Measure 10 should be modified to include a water conservation ordinance mandating irrigation schedules, draining or filling of pools by permit, no hosing down sidewalks or driveways, etc. This implementation measure should also be modified to require installation of water meters and tiered billing within the County's regulatory authority.

WR-3.6 Agricultural Irrigation Efficiency

There is no specific implementation measure for this policy.

WR-3.10 Diversion of Surface Water

This is a good policy, but is rendered vague by the terminology "needed groundwater recharge." How is this determined? Perhaps this should be defined as part of policies WR-3.2 and/or WR-3.9. There are no implementation measures for WR-3.10.

Draft Environmental Impact Report – Water Resources

The DEIR does not include discussion and analysis of potential impacts to water resources due to Global Climate Change. The DEIR concludes that there is "no feasible mitigation available" for two of the four identified impacts, yet a number of policies are included in the *Goals and Policies Report* which may provide mitigation if properly implemented. Three of the four identified impacts are expected to cause "significant and unavoidable" impacts to the water resources of Tulare County due to implementation of the policies in the General Plan Update.

The authors of the DEIR need to conduct additional analysis in conjunction with the proposed revisions to the *Background Report* and *Goals and Policies Report* to identify appropriate mitigations to these impacts to provide sustainable water resources for Tulare County. To simply state they are significant and unavoidable with no mitigation measures available is unacceptable.

Impact WR-1: The General Plan Update would require or result in the construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

Impact WR-1 indicates that new facilities that may need to be constructed "could include water treatment facilities, pipelines, pump houses, wells, etc." Construction and extraction of groundwater from new wells will potentially further exacerbate the groundwater overdraft in the County. This is not discussed in the impact analysis or addressed in the mitigation measures.

Impact WR-2: The General Plan Update would require new or expanded water supply entitlements.

The impact analysis finds:

> *Implementation of the General Plan Update would result in additional County-wide residential and non-residential land use developments. These land uses and development consistent with the General Plan Update would increase the demand for water and, in some cases, result in insufficient water supplies available to serve some of the unincorporated areas designated for urban development from existing entitlements. New or expanded entitlements would be required.*

Additionally, the impact analysis finds:

> *As a result, this analysis of the adequacy of future water supplies is based upon whether or not there is a reasonable likelihood that public water suppliers will be able to successfully bring future water supplies on line where it is necessary to serve their respective districts.*

Impact analysis focuses on infrastructure improvements by twenty unincorporated communities for treatment of contaminated water supplies or improved storage and delivery of water. However, the analysis does not address the decreasing availability of water county-wide caused by continued overdraft, decreasing availability of imported surface water supplies, and issues related to Global Climate Change.

The DEIR concludes there is "no feasible mitigation available" for this impact and that it will result in "significant and unavoidable" impact to the water resources of the County.

Mitigation of this impact should include a policy not to approve any development in the County unless the project provides evidence that adequate and sustainable water is available without further exacerbating overdraft conditions. This would be consistent with policy WR-3.3.

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Impact WR-3: The General Plan Update would have the potential, in the long-term, to deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table.

The impact analysis finds:

> *Implementation of the General Plan Update would result in an increased demand on groundwater supplies for urban and rural uses within the unincorporated areas of the County. Due to the lack of comprehensive information regarding the County's groundwater resources, it is uncertain if groundwater supplies would be sufficient to meet the future demand of rural private domestic, small municipal and agricultural wells.*
>
> *In some of the unincorporated urban development areas, there are concerns that adequate water supplies cannot be achieved through sustainable groundwater management, that is, without creating declining groundwater levels, and adversely affecting existing wells. Such concerns are heightened by the fact that most of these areas are presently dependent upon groundwater supplies.*

There is more than enough information in the *Background Report* and available elsewhere in published reports to conclude that current water usage is not sustainable and has resulted in long-term overdraft of groundwater in the County. Certainly if the County is not meeting its current needs, future demand will only exacerbate the situation.

While the *Goals and Policies Report* provides a number of policies that would help mitigate this impact, the DEIR concludes there is "no feasible mitigation available." Mitigation of this impact should include a policy not to approve any development in the County unless the project provides evidence that adequate and sustainable water is available without further exacerbating overdraft conditions. This would be consistent with policy WR-3.3.

Other mitigations should include the provisions of WR-1.1, as modified above, mandatory water conservation measures, and all of the WR-3 policies as modified above.

Impact WR-4: The General Plan Update could violate water quality standards or waste discharge requirements, or otherwise degrade water quality.

The DEIR finds that this impact is "less-than-significant" with "no mitigation required." However, this was based on a fatally flawed impact analysis. The impact analysis only considered surface-water runoff, but did not consider potential exacerbation of widespread groundwater contamination due to increased demands, potential contamination from agricultural operations, especially confined animal feeding operations, and other sources.

The DEIR does find that "Water quality impacts may also be significantly greater during the rainy season," but offers no analysis or proposed mitigation measures. Much more work needs to be conducted on this impact.

Global Climate Change

As stated previously, none of the General Plan documents (*Background Report, Goals and Policies Report*, nor DEIR) address the potential impacts of Global Climate Change on the water resources of Tulare County. It would be irresponsible not to include planning for the potential effects of Global Climate Change in these essential planning documents.

It is the overwhelming consensus of researchers that Global Climate Change will likely cause profound changes to precipitation patterns affecting Central California and significant decreases in the Sierra snowpack. The California Department of Water Resources estimates "the potential loss of 5 million acre-feet or more of average annual water storage in the State's snowpack" (DWR, July 2006).

It is recommended that the County review available information and published reports from the California Department of Water Resources and other sources and revise all of the General Plan documents and DEIR to address and plan for the potential impacts of Global Climate Change on the water resources of Tulare County.

Sincerely,

Kimball R. Loeb
Professional Geologist No. 5865
Certified Hydrogeologist No. HG 121
Certified Engineering Geologist No. EG 1945

Attachment: Figure 4-8, Average Groundwater Elevations, City of Visalia

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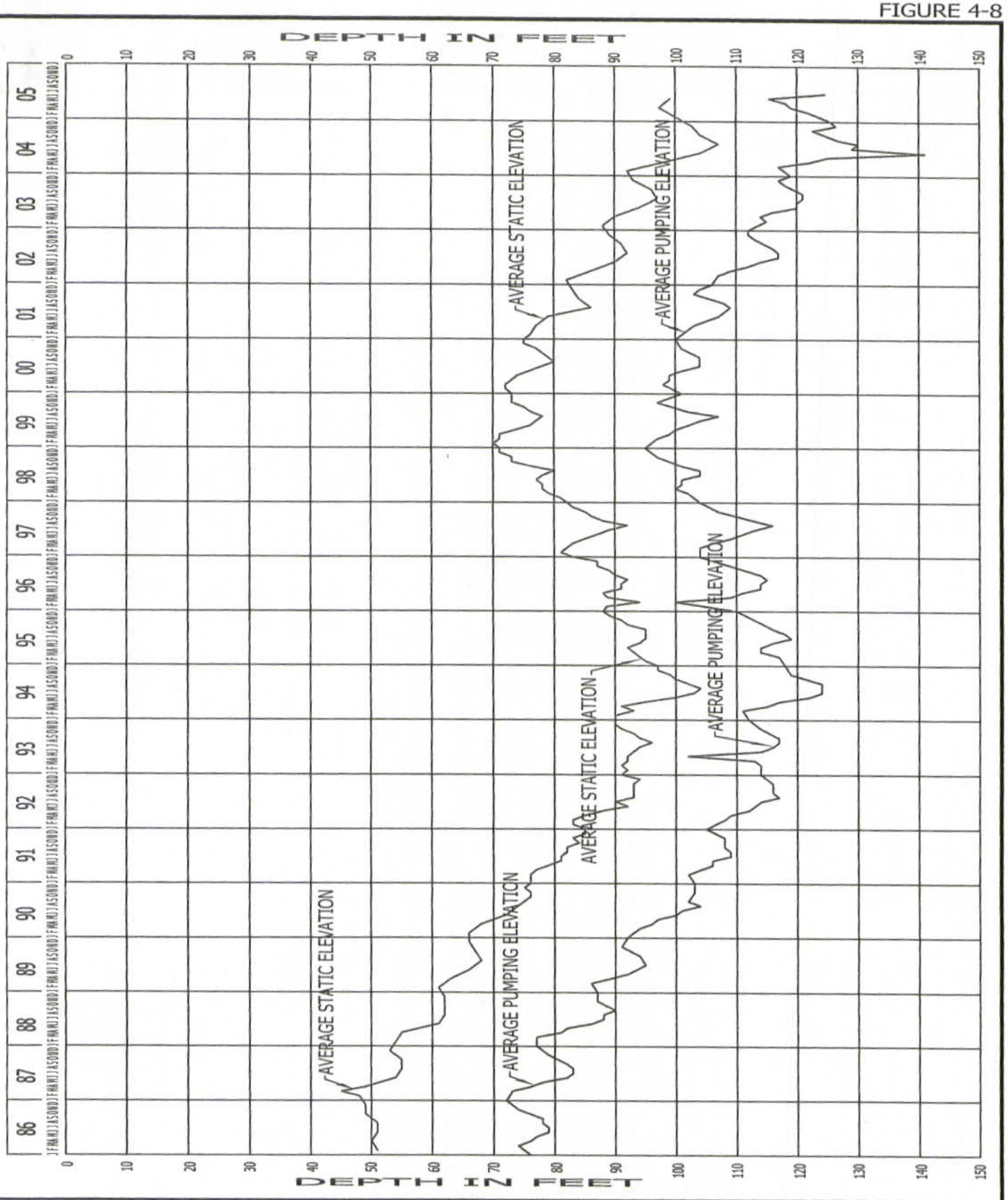
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Attachment 42

FIGURE 4-8



AVERAGE GROUNDWATER ELEVATIONS

--

CITY OF VISALIA

--

GENERAL PLAN
COUNTY OF TULARE

Attachment 42

File Copy

Mineral King Group
Kern-Kaweah Chapter

SIERRA CLUB
FOUNDED 1892



April 14, 2008

David Bryant, Project Planner
Tulare County Resource Management Agency
Government Plaza
5961 South Mooney Boulevard
Visalia CA 93277

Re: Tulare County General Plan Update and DEIR

Dear Mr. Bryant:

The Sierra Club Mineral King Group include members throughout Tulare County. We submit these comments and recommendations on the General Plan Update and DEIR.

Scenic Landscapes

The scenic landscapes element acknowledges that our county possesses many of California's most unspoiled places and presents goals and policies that reflect our values. Unfortunately, it falls short on effective implementation.

SL-1.1 is a policy to *require new development to not significantly impact or block views of natural landscapes* and the implementation for this policy is that the County shall adopt procedure criteria. This is vague and we have a right to know what the criteria are. The DEIR states the GP Update will *substantially degrade the existing visual character* and *no other feasible mitigation available*. We disagree and submit this mitigation measure as procedure criteria for the County to adopt: The County shall adopt a tree ordinance to protect the visual beauty of this resource. This mitigation is feasible because the City of Visalia has adopted an oak tree ordinance and it is evident throughout the city.

SL-1.3 is a policy to protect watercourses. It did not mention rivers, creeks and streams. These are natural landscapes and must be included. Implementation measures were not listed, so we will submit one: The County shall require a 30-ft or more setback from waterway channels; width of the setback shall depend on the presence of riparian habitat and shall include the riparian habitat. This mitigation is feasible because the City of Visalia has adopted such a standard. Many cities in California, including the City of Visalia, made the mistake of paving over their waterways many decades ago and are now recognizing that these are valuable community resources. Protecting this resource is an asset to the health and wellness of a community's residents. Natural open space and parks along waterways is a scenic respite from the urban structure. Hiking and walking trails along waterways offers aerobic fitness and is much more scenic than a going-nowhere treadmill in a tasteless gym.

SL-2 is a goal *to protect the scenic views for travelers along the County's roads and highways*. Policy SL-2.1 is to formalize a system of County scenic routes and says to see

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Attachment 4.3

Figure 7.2-1. There is no Figure 7.2-1 in the report. The closest thing to Figure 7.2-1 is Figure 7.2 in the Background Report and is a map of solid waste facilities - not very scenic.

The value of scenic corridors is additionally recognized in the Foothill Growth Management Plan as FGMP-6 to protect scenic routes within the foothills. Several policies are stated to achieve this goal.

FGMP-6.1 is a policy to protect scenic roads against obtrusive development. The policy refers to the FGMP adopted in 1981, which describes some implementation measures. The current version of the FGMP does not state any so we offer this one: New towns or a Planned Community Area (PCA) shall not be allowed within scenic corridors. These types of massive developments with shopping centers and industrial operations are obtrusive.

FGMP-6.2 is a policy for the County to identify scenic routes. Without a doubt, Yokohl Drive through Yokohl Valley is a scenic route.

FGMP-6.3 is a policy *that development along all scenic highways and routes meet the development standards of this FGMP*. Which development standard is the FGMP referring to? The 1981 version identifies a few building standards and scenic corridor standards, but the development standards in the Appendix of the current version refer only to fire protection. The FGMP is very confusing and convoluted. There should be a discussion on which implementation measures from the 1981 version still apply.

We would also like to point out that the FGMP identified development corridors - areas in the foothills where development may occur and will be guided by the PD-F zone. Four development corridors were identified: 1) Badger/Elderwood 2) Kaweah River 3) Tule River 4) Round Valley.

Another point on page 3-3 of the FGMP, a statement in the first paragraph reads "*it is the policy of the FGMP to strengthen the community identify of Springville, Lemon Cove and Three Rivers; therefore, most retail commercial is limited to those existing communities rather than areas outside these communities*".

These two points support our proposed implementation measure that new towns or PCA's shall not be located within a scenic corridor.

Air Pollution

It is common knowledge that air pollution in the San Joaquin Valley is quite dreadful. As a reminder, our air basin is classified extreme non-attainment for ozone and the EPA requires a plan to meet the standards of the federal Clean Air Act by the year 2010. Failure to demonstrate achievement of the standards could lead to denial of federal funding and permits for highway construction and sewage treatment plants. This could result in economic disruption for our county because businesses will not or cannot locate here.

In response to the extreme non-attainment, the Board of Supervisors adopted Resolution 2002-0157 in 2002, requiring the County to commit to implementing Reasonably Available Control Measures (RACM). Some of these are good, such as increasing transit service to the

unincorporated communities of Woodville, Poplar and Cotton Center; supporting the purchase of hybrid vehicles for the County fleet. The Board followed up with another resolution in 2004, Resolution 2004-067, with additional RACM such as *the development and implementation of recommended procedures, thresholds, and policies related to land use projects to help achieve air quality goals.*

We recommend it is now time for the Board of Supervisors to adopt an updated resolution that the County will commit to implementing the Best Available Control Measures (BACM). This new resolution should include expanding transit service to all growth communities, purchasing clean-burning buses, and developing concise, effective procedures to achieve air quality goals.

As written, the DEIR is inconsistent with the Goals and Policies Report and the GPR is internally inconsistent. For example, the DEIR states that *best available controls* will be implemented to regulate air emissions (Impact AQ-2, p. 4-55), referring to policies AQ-4.1 through AQ-4.5 in the GPR. However, AQ-4.1 actually states that BACM and RACM will be applied. Additionally, AQ-4.1 is inconsistent with its stated goal (AQ-4), which is *to implement the best available controls and monitoring necessary to regulate air emissions.* Thus it is also inconsistent with the Board of Supervisors outdated resolutions. A new, updated resolution can be based on specific thresholds. For instance, projects with potentially significant emissions should be analyzed and those that trigger an agreed threshold will be required to implement BACM.

The DEIR presents an inadequate analysis of indirect source review for new development directed into all the UDBs, HDBs, UABs, SOIs, New Towns, Urban Corridors, Highway Corridors, Regional Growth Corridors, and Foothill Growth Corridors. It presents an inadequate discussion of the cumulative impacts resulting from the General Plan Update. The data presented only refers to on-road vehicle and dairy/feedlot emissions. The DEIR should present a summary of the types of sources of air pollution. These would be industrial sources such as factories and power plants; mobile sources including off-road; area sources such as construction and landscaping activities; and residential sources such as energy consumption. Concurrent to this, the DEIR should present an inventory of emissions produced by each type of source.

While many projects will be subject to the ISR rule adopted by the San Joaquin Valley Air Pollution Control District (SJVAPCD), the rule will only offset about half the air pollution associated with the project. Given that our air basin must attain federal standards by 2010, the Plan should include a goal to reduce new projects air pollution impacts to zero. A BACM implementation to achieve this could be a requirement for all new projects to come to an agreement with the SJVAPCD to completely offset the air pollution associated with the project. A number of developers in Bakersfield (the West Ming project and the Old River Ranch project) have agreed to participate in an Emissions Reduction Program through the SJVAPCD. This program utilizes techniques such as onsite design features and offsite pollution reduction projects to completely offset the emissions associated with the project. Such participation is validation that this mitigation measure is feasible. The DEIR should include an evaluation of such a program.

Additionally, a recent article in the Fresno Bee, published 2/22/08, reports that a Fresno County judge has upheld a fee imposed on developers to pay for pollution caused by traffic

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coming from new homes and businesses built on sprawl. The ruling allows the Air District to raise millions of dollars to invest in clean air projects, such as replacing diesel buses and street sweepers. The fee can be reduced if developers offset the emissions associated with their project...more reason for implementing an Emissions Reduction Program. These fees could be a benefit to the County, which can be used to uphold your 2002 Resolution for increased transit service and purchasing hybrid vehicles.

Global Warming

The DEIR acknowledges the GP Update will significantly conflict with state AB32 goals to reduce greenhouse gas (GHG) emissions. It offers an analysis of CO_2 emissions from on-road vehicles and methane from dairy and feedlot operations. However, it fails to provide a systematic analysis of other sources of GHGs such as electric generation facilities, gas generation facilities, waste facilities, cement manufacture, residential and commercial.

The DEIR presents two new policies AQ-4.7 and AQ-4.9 as mitigation measures to reduce GHG. The two new policies are not included in the Goals and Policies Report (GPR). We request these policies be officially incorporated into the GPR. AQ-4.9 is a Greenhouse Gas Emissions Reduction Plan. It is merely a policy that states the County will do what it is already required to do by AB32. The DEIR defers action by stating that projects, which will contribute significant CO2 emissions, have not been defined. Deferring action (i.e. implementation/mitigation measures) is not acceptable under CEQA. For instance, the DEIR lists policies on energy conservation (ERM-1 through ERM-4.6) that are designed to address GHG impacts, yet implementation measures were not stated.

The Goals and Policies Report is inadequate in offering sufficient goals and policies for the reduction of greenhouse gas emissions. We request the GPR contain a separate goal that GHG associated with new projects shall be objectively quantified and completely mitigated. There are a number of policies and implementation measures that could serve as project-specific mitigation. Some of these include:

- Green building measures, such as design buildings to be at least 15% more energy efficient than Title 24 standards.
- Solar energy measures, such as building solar photovoltaics and solar water heating into every structure.
- Water conservation and efficiency measures, such as create water-efficient landscapes, install water-efficient fixtures and appliances.
- Land use measures, such as incorporate mixed-use, infill, higher density developments into all new projects.
- Transportation and motor vehicle measures, such as designating a certain percentage of parking spaces for ride sharing vehicles.

The California Attorney General's Office has made available a document to help local agencies with mitigation measures that can be adopted to offset global warming impacts caused by the projects they permit. This document is available at http://ag.ca.gov/globalwarming/ceqa.php. Once the County determines which mitigation measures will be required, the General Plan Update EIR should address the effect that each of the mitigation measures will have on GHG impacts.

Biological Resources

The DEIR has not fully considered all available options to mitigate GPU impacts to sensitive habitat (Impact ERM-1), riparian habitat (Impact ERM-2), wetlands habitat (Impact ERM-3) and therefore presents an inadequate analysis of project impacts:

ERM-1 is a goal to preserve and protect sensitive, significant habitat. Unfortunately, the policies supporting this goal are too broadly drawn and vague. Policy should be clear and solid, with well defined standards. Thus, mitigation can be measured against these standards. For instance, ERM-1.1, a policy for protection of rare and endangered species, should include a "no net loss" standard. It could be added to the current policy as written: "....., *through compatible land use development* that strives to avoid the net loss of important wildlife habitat." Thus the mitigation for this could be achieved through the use of conservation easements or mitigation banking.

Including the "no net loss" standard would also provide a process to measure mitigation for ERM-1.2, which is a policy to limit or modify development in environmentally sensitive areas. For instance, implementation measure #4 states *"Where avoidance is infeasible, the County shall.....limit the loss of habitat, including modification of the proposal"* and is just a restatement of the policy. It provides no real mitigation. We recommend strengthening this implementation measure to state "Where avoidance is infeasible, the County shall require mitigation at sufficient ratios to replace the function and value of the habitat that was removed or degraded. Mitigation can be adequately achieved through restoration, creation, or mitigation banking."

ERM-1.4, 1.5, 1.6, and 1.8 are policies to protect riparian areas and wetlands. Again, these policies should indicate well defined standards.

Remaining riparian habitat provide critical wildlife habitat and movement corridors. A policy with standards, such as stating "No mature riparian woodland is destroyed or reduced in size" is a clear, strong statement as to how mitigation can be measured. Or a policy similar to that of Fresno County General Plan, October 2000 (Policy OS-D.4) with buffer standards, which provide a clear, unambiguous process for implementation:

"Policy OS-D.4 The County shall require riparian protection zones around natural watercourses and shall recognize that these areas provide highly valuable wildlife habitat. Riparian protection zones shall include the bed and bank of both low- and high-flow channels and associated riparian vegetation, the band of riparian vegetation outside the high-flow channel, and buffers of 100 feet in width as measured from the top of the bank of unvegetated channels and 50 feet in width as measured from the outer edge of the dripline of riparian vegetation."

Remaining wetlands habitat is a State and federal concern, and includes policies for "no net loss". State policy include goals to achieve "net gain" in wetland acreage. ERM-1.6 is a weak policy and should be strengthened to state "The County shall support the preservation and management of wetlands to achieve no net loss of wetland acreage, function or value". Thus, a strong policy provides a solid base to establish concrete mitigation. Examples would

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be avoidance of wetlands as the preferred, but where avoidance is not possible, mitigation would be to achieve a net gain in wetland habitat through restoration or creation.

The "no net loss" standard is feasible because numerous County General Plans, including Fresno County, include this standard. The GPR should be revised to include this standard and the DEIR should include a discussion and analysis of this standard.

ERM-1.8 is a policy for open space buffers but does not provide solid guidelines, specifically because it incorporates the word "should" in the buffer requirements. Changing the word "should" to "shall" and adding standards, such as the Fresno County Policy OS-D.4, will strengthen the policy.

Many of the policies (ERM-1.1, ERM-1.4, ERM-1.5, ERM-1.6, and ERM-1.8) will be carried out through the Zoning Ordinance (Implementation Measure #7 and #8). Implementation Measure #7 is not true mitigation. It is merely a technicality to update the Zoning Ordinance with the Resource Conservation (RC) designation for those areas that are already parks or preserves (i.e. Sequoia/Kings Canyon NP, Blue Ridge NWR) and as new parks or preserves are added. Additionally, this designation is vague because the description for RC (GPR page 5-8) is in the foothill and mountain regions, which leaves out many preserves on the Valley floor (i.e. James K. Herbert Wetlands Preserve, Pixley NWR, etc.).

The DEIR is deficient in discussing how the Zoning Ordinance will protect sensitive, significant habitat and does not quantify how new requirements will mitigate GPU impacts. It does not provide any information to the general public on the adequacy of mitigation that will be incorporated in the Zoning Ordinance (Implementation Measure #8).

In practice, the Zoning Ordinance is undesirable as a means to implement mitigation unless the standards are clearly defined in the General Plan. Mitigation measures must be transparent and available for public review. An acceptable implementation measure would be to prepare a Waterways, Open Space, Wetlands/Riparian or similar Ordinance in conjunction California Department of Fish and Game, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, other stakeholders, interested citizens; and then submitted for public hearing as a separate process.

Thank you for consideration of our comments that we believe, are reasonable and flexible and can be incorporated into the General Plan Update.

Respectfully submitted,

Mary Moy
Conservation Chair
Sierra Club Mineral King Group

Significance Conclusion

Due to the soil quality coupled with the availability of irrigation water at the proposed Project site, the Project site is considered prime farmland; therefore, conversion of the site to nonagricultural use would be a significant impact.

Mitigation Measures

MM 4.2-1: Prior to issuance of a grading or building permit, whichever occurs first, the applicant shall provide written evidence of completion of one or more of the following measures to mitigate the loss of agricultural land at a ratio of 1:1 for net acreage before conversion. Net acreage is to be calculated based on excluding existing roads and areas already developed with structures. A plot plan shall be submitted substantiating the net acreage calculation along with written evidence of compliance:

- Funding and/or purchase of agricultural conservation easements (will be managed and maintained by an appropriate entity);
- Purchase of credits from an established agricultural farmland mitigation bank;
- Contribution of agricultural land or equivalent funding to an organization that provides for the preservation of farmland in California; or
- Participation in any agricultural land mitigation program adopted by Kern County that provides equal or more effective mitigation than the measures listed above.

Mitigation land shall meet the definition of prime farmland or farmland of statewide importance established by the State Department of Conservation. Completion of the selected measure, or with the Planning Director's approval, a combination of the selected mitigation measures, can be on qualifying land within the San Joaquin Valley (San Joaquin, Stanislaus, Merced, Fresno, Madera, Kings, Tulare, or Kern County) or outside the San Joaquin Valley with written evidence that the same or equivalent crops can be produced on the mitigation land.

Level of Significance after Mitigation

Impacts would be significant and unavoidable.

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SETTLEMENT AGREEMENT AND RELEASE

This Settlement Agreement and Release ("Agreement") is made this 11th day of May, 2007, by and between the Sierra Club, a California nonprofit corporation ("Sierra Club"), and the City of Bakersfield and the City Council of the City of Bakersfield, (collectively, "City"), Keith Gardiner, an individual, Jennifer Gardiner, an individual, Gardiner Family, LLC, a California limited liability company and Rosedale Farming Group, a California limited partnership (collectively, "Landowner"), (Sierra Club, City and Landowner are sometimes individually referred to herein as a "party" or collectively as the "parties").

This agreement is made with reference to the following facts and circumstances:

A. Both Landowner and Sierra Club have an interest in preserving agricultural farm land.

B. Landowner is the owner of real property depicted and described in Exhibit "A" ("Property"), and is developing said Property as a project within the City.

C. The City Council of City, on November 16, 2005, approved General Plan Amendment and Zone Change GPA/ZC No. 04-0671 and adopted Resolution 267-05 approving and certifying a Final Environmental Impact Report in support of the General Plan Amendment and Zone Change ("EIR"), all of which conferred certain entitlements to development of the Property including, but not limited to, a development agreement between the City and Landowner.

D. Sierra Club filed a Petition for Writ of Mandate in the Kern County Superior Court captioned *Sierra Club vs. City of Bakersfield* (Case No. S-1500-CVB-257073-RJO) ("Case") alleging, among other things, that the EIR is inadequate and not in compliance with the requirements of the California Environmental Quality Act (Pub. Res. Code Sec. 21000, et seq.) ("CEQA").

E. The Kern County Superior Court has not rendered a decision regarding the matters contained in the Sierra Club's court filing and no judgment has been entered in the Case.

F. The parties are mindful of the costs and uncertainty associated with further litigation and appeals and have conducted discussions that have led to a compromise resolution among them, and the parties desire to adjust, compromise, settle and satisfy all claims asserted among them, or which could have been asserted among them related to or arising from the matters released below.

NOW, THEREFORE, in consideration of the mutual promises hereinafter set forth and for other good and valuable consideration, the adequacy and receipt of which are hereby acknowledged, the parties agree as follows:

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1. Covenant Not to Sue and Mutual Release

By entering into this Agreement, Sierra Club, Landowner, and City, each agree not to sue and hereby fully release and discharge one another, and any and all of their respective present and past officers, partners, agents, members, employees, elected officials, insurers, attorneys and representatives, with respect to any and all claims, demands, causes of action of any nature related to the City's approval of the project involving the Landowner and the Property described above that are based upon facts in existence prior to the date of this Agreement. The Release is also intended to include any claim or cause of action challenging any current or subsequent permits, approvals or entitlements granted or issued by the City or any other public agency necessary or related to the implementation of the terms of this Agreement or to the development and construction of the project substantially as approved, including, but not limited to, permits, approvals or entitlements allowing any non-material changes to the current zoning. This Release, however, is not intended to bar any claim, demand or cause of action or liability challenging any alleged failure to implement mitigation measures or comply with conditions of the Subdivision as approved, or challenging any subsequent approval of a material change to the project zoning. For purposes of this Agreement, a material change shall be any change which results in a significant change in the density of the Subdivision, in a significant increase in the severity of an environmental impact of the Subdivision, or in a new significant environmental impact of the Subdivision.

By execution of this Agreement, the parties hereto do hereby expressly waive any and all rights based upon the provisions of Section 1542 of the Civil Code of the State of California, which reads as follows:

> "A general release does not extend to claims which the creditor does not know or suspect to exist in his favor at the time of executing the release, which if known to him, must have materially affected his settlement with the debtor."

The provisions of this Agreement do not affect Landowner's obligation to defend and indemnify the City as set forth in the conditions of approval for General Plan Amendment / Zone Change No. 04-0671 and Bakersfield Municipal Code Section 16.16.110.

2. Payment Obligations

A. Landowner shall be responsible for paying an agricultural conversion fee (the "Fee") of $2,500.00 per acre, as provided in and according to the fee schedule contained in Exhibit "B". Landowner shall have the right to assign the duty to make such payment to a subsequent owner of any portion of the Property, who will step into Landowner's shoes and would be responsible for making payments required by this Agreement. Regardless of any subsequent changes to the project or Exhibit "B," if any, appropriate payments to the Sequoia Riverlands Trust or its assignee or successor must be made by the Landowner

Attachment 45

or Landowner's assignee.

B. The Fee shall be paid to the Sequoia Riverlands Trust or its assignee or successor contemporaneous in time with the issuance of building permits. Funds can and will only be used for (i) acquisition of agricultural lands or agricultural conservation easements in Kern County and (ii) administration of the Sequoia Riverlands Trust, including but not limited to administrative overhead, salaries, educational activities, transaction costs, endowments, monitoring and enforcement of conservation easements.. In no event shall any of the fees be paid to, or used for the benefit of, the Sierra Club. The City shall not be obligated to monitor the Sequoia Riverlands Trust or its assignee or successor nor shall the City act as the keeper or holder of any of the funds placed in the Sequoia Riverlands Trust.

C. Landowner shall pay Sierra Club's attorney's fees and costs in the amount of $37,770.80 within ten (10) days of the execution of this Agreement.

D. A transfer fee of one quarter percent (1/4 %) or a minimum of $750.00, whichever is greater, shall be paid to the Sequoia Riverlands Trust or its assignee or successor each time a residential, commercial or industrial property that has been built is re-sold. The transfer fee shall be used for administration of the land trust, including but not limited to the following purposes: (i) acquisition of agricultural lands or agricultural conservation easements in Kern County and (ii) administrative overhead, salaries, educational activities, transaction costs, endowments, monitoring and enforcement of conservation easements. The fee shall be explained in detail as part of the project's Covenants, Conditions, and Restrictions (C.C.R.s), which shall be recorded. In addition, this agreement shall be recorded upon its execution. This fee shall be paid in perpetuity or for the longest period allowed by law.

E. A one time administration fee of $75,000.00 will be paid at the signing of this Settlement Agreement to assist in the administration of the land trust, which amount will operate as an offset against Landowner's total payment obligations under subsection A of section 2 of this Agreement.

F. The payment provisions in Section 2, subdivisions (A) - (E) of this Agreement are subject to modification through the operation of the "essential parity conditions and covenants" discussed in section 3 of this Agreement, below.

G. Sierra Club acknowledges that the obligations of Landowner under Section 2 of this Agreement are the obligation of Landowner only and not obligations of the City. Sierra Club therefore shall have no remedy of any kind and shall

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neither initiate nor maintain an action against the City for breach of any of the provisions of Section 2 of this Agreement.

3. Essential Parity Conditions and Covenants

Sierra Club acknowledges that it is currently negotiating with Castle and Cooke on agricultural land preservation mitigation fees and measures in regards to Castle and Cooke's West Ming Project.

If Sierra Club and Castle and Cooke enter into an agreement concerning agricultural land preservation mitigation fees and measures for the West Ming Project ("West Ming Agreement") that requires Castle and Cooke to contribute a transfer fee that is lower than the transfer fee owed by Landowner under this instant Agreement, then the Sierra Club must negotiate in good faith to amend this instant Agreement to match, as nearly as possible, the lower transfer fee reflected in the West Ming Project.

If Sierra Club is unsuccessful in negotiations with Castle and Cooke and the West Ming Project and/or unsuccessful with any court action it might bring against Castle and Cooke regarding the West Ming Project, then any and all transfer fees under this Agreement as referenced in subsection D of section 2 of this Agreement are null and void.

The provision is intended by the parties to prevent this Agreement from placing Landowner's development project in an economically disadvantageous position where it faces agricultural land preservation burdens not equally shared by one of its key competitors, Castle and Cooke. In the event of a dispute concerning the meaning of this Agreement, it should be interpreted so that it is consistent with that end.

4. This Settlement Not an Admission

The parties agree that this Settlement and the settlement reached herein does not and shall not constitute or be construed in any manner or at any time as an admission or indication of any liability or obligation, or that the City's approval of the project or any process or procedure related thereto violates or violated any statute, ordinance or other requirement of law in any manner or respect whatsoever, or that any document relied on was deficient in any respect, or that any of the allegations in the suit providing any basis for the relief sought are true.

5. Litigation Fees and Costs

All parties shall be responsible for the payment of their own attorneys' fees, and all other expenses incurred in connection with the Agreement, any matter or thing respecting the claims made in the Agreement, and/or Settlement thereof, and this Agreement except for those Attorney's fees and costs agreed above.

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6. The Parties' Exclusive Remedies

A. The Parties' and Sequoia Riverlands Trust or its assignee or successor's sole and exclusive remedy for breach of this Agreement shall be an action for specific performance or injunction. In no event shall any party be entitled to monetary damages for breach of this Agreement. In addition, no legal action for specific performance or injunction shall be brought or maintained until (a) the non--breaching party provides written notice to the breaching party which explains with particularity the nature of the claimed breach, and (b) within thirty (30) days after receipt of said notice, breaching party fails to cure the claimed breach or, in the case of a claimed breach which cannot be reasonably remedied within a thirty (30) day period, breaching party fails to commence and thereafter diligently complete the activities reasonably necessary to remedy the claimed breach.

B. The failure of the City or any other governmental entity with jurisdiction under applicable law to approve any action required to be taken pursuant to this Agreement which lies within the jurisdiction of the City or said governmental entity shall not constitute a breach of covenants contained in this Agreement with the sole exception that if LAFCO does not allow the project to be annexed into the City of Bakersfield the Agreement shall be null and void.

C. If the grounds for the Sierra Club's breach of this Agreement is an alleged initiation or joinder of a lawsuit, dismissal of the suit by or as to the Sierra Club shall constitute a complete cure. If the dismissal of the lawsuit does not occur within thirty (30) days of the receipt of the notice required by Section 6(a) above and litigation ensues, then the prevailing party shall be entitled to recover its reasonable attorney's fees and costs.

D. In the event a party breaches this Agreement and thereafter fails to cure the breach according to the terms of this Agreement, the non-breaching party shall be relieved of its obligations under this Agreement, and the release provided in paragraph 1 as to the non-breaching party shall terminate.

7. Representation and Warranty of Authority

Each individual signing this Agreement represents and warrants that he or she has the authority to execute this Agreement on behalf of the entity on whose behalf he or she signs and to bind and obligate such entity according to the terms and covenants of this Agreement.

8. Third Party Beneficiaries

No member of the Sierra Club nor any other person, other than the City, and the Sequoia Riverlands Trust or its assignee or successor shall be deemed a third party beneficiary of this Agreement, nor shall any such person have any right to bring any action in his or her individual capacity to enforce this Agreement

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9. Severability

Each provision of this Agreement is intended to be severable. In the event any term or provision hereof is declared to be illegal or invalid, for any reason whatsoever, by a court of competent jurisdiction, such illegality or invalidity shall not affect the balance of the terms and provisions hereof, which terms and provisions shall remain binding and enforceable.

10. Voluntary Agreement

The individual signing this Agreement on behalf of the Sierra Club declares that he or she has read and understands this Agreement and warrants and represents that he or she executes this Agreement voluntarily and without duress or undue influence on the party of or on behalf of any party hereto. The individual signing this document on behalf of the Sierra Club hereby acknowledges that Sierra Club has been represented in negotiations and for the preparation of this Agreement by counsel of its own choice, that he or she has read this Agreement and has had it fully explained to him or her by said counsel, and that he or she is fully aware of the contents of this Agreement and of the legal effect of each and every provision hereof. Said person represents and warrants that execution and delivery of this Agreement has been duly approved according to the Bylaws and/or applicable rules governing the conduct of the business of the Sierra Club.

The Sierra Club agrees that upon the execution of this Agreement it will within three (3) business days file a dismissal with prejudice in Kern County Superior Court of that certain case entitled Sierra Club vs. City of Bakersfield (Case No. S-1500-CVB257073-RJO).

11. Entire Agreement

This Agreement contains the sole and entire agreement and understanding to which Sierra Club, Landowner and the City are parties with respect to the subject matter hereof, and any and all prior discussions, negotiations, commitments or understandings related hereto, if any, are hereby merged herein. No representations, oral or otherwise, expressed or implied, other than those contained herein have been made by any party hereto with respect to the matters contained herein.

12. Counterparts

This Agreement may be executed in one or more counterparts, each of which shall be deemed an original agreement, but all of which together shall constitute one agreement.

13. Delivery of Signature Page by Facsimile or E-Mail Transmission

The parties agree that this Agreement will be considered signed when the signature of a party is delivered by (1) execution of an original, (2) facsimile transmission of a signed signature page, or (2) e-mail transmission of a signed and scanned signature page. Such facsimile or e-mail signature shall be treated in all respects as having the same effect as an original signature.

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IN WITNESS WHEREOF, the parties have executed this Agreement as of the date first above written.

SIERRA CLUB

SIERRA CLUB, a California nonprofit corporation

By: Dudley Wills, Vice-Chair, Kern-Kaweah Chapter
Name: Title:

LANDOWNER

KEITH GARDINER, an individual

By:
Keith Gardiner

CITY

CITY OF BAKERSFIELD

By: Robert M. Sheffy, Deputy City Attorney
Name: Title:

JENNIFER GARDINER, an individual

By:
Jennifer Gardiner

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GARDINER FAMILY LLC, a
California limited liability company

By: _____
Keith Gardiner, Its Managing
Member

ROSEDALE FARMING GROUP, a California
limited partnership

By: _____
Jeffrey Townsend, Its General Partner

Attachment 45

GARDINER FAMILY LLC, a
California limited liability company

By:_____
Keith Gardiner, Its Managing
Member

ROSEDALE FARMING GROUP, a California
limited partnership

By:_____
Jeffrey Townsend, Its General Partner

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AGRICULTURAL LAND CONSERVATION TOOLS

Pros and Cons

Categories	Pros	Cons
Land Use Planning Tools - City Growth Strategies		
1 Increased Urban Development Densities/Density Bonuses	Incentive for more compact development, saving land; low cost	May simply be tool for greater development efficiency unless linked with agland protection goals; NIMBY resistance to higher density
2 Transfer of Development Credits	Market driven; no public funds for acquisitions; can accomplish multiple goals (e.g., agland protection, compact development, etc.)	Can be complex to design and administer; sending and receiving areas need to be well defined; NIMBY resistance to higher density
3 Urban Infill Development Policies	More efficient use of urban lands; possible infrastructure cost savings; uses less agland; other urban benefits	Redevelopment of blighted areas may be more costly than development of agland; higher densities may meet resistance from homebuyers, developers, realtors and local politicians.
Land Use Planning Tools - County/Regional Planning Strategies		
4 General Plan Agricultural Element	Signals an entities' commitment to agriculture land uses; can tie together in one place all agland conservation policies; proactive	Temporary, can be changed w/one vote; "down-zoning" difficult to do w/o "taking" claims; element itself is just a vehicle
5 Cluster Development	Flexibility in land use planning; compact development; retain agland	Land-use conflicts; urban infrastructure in ag area; growth inducing
6 Exclusive Agricultural Zoning	Low cost; part of general plan; simple to administer; flexible	Can change with one vote of a board or council; variably applied; may be as restrictive as Williamson Act without tax benefits; not always related to quality of agland
7 Sphere of Influence/City Annexation Policies	One primary role is prime agland conservation; preventative tool	Often competitive self-interests of city members hinders its role in agland conservation; could usurp role of general purpose govt. entity
8 New Towns	If planned for strategically, new towns can relieve growth pressures on farmlands and direct to lower quality agricultural lands	Water and transportation needs may present problems for a new nucleus of growth; may simply be new location for growth in addition to continuing growth in existing cities.
Land Use Planning Tools - Urban Separators		
9 Greenbelts	Creates clear definition of boundaries; improved planning certainty; has multiple benefits if accepted in county	Needs agreement among cities/county; see urban limit lines; is somewhat more stable than zoning, but needs to be enforced

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AGRICULTURAL LAND CONSERVATION TOOLS (continued)

Pros and Cons

Categories	Pros	Cons
10 Urban Limit Line/Growth Boundary	Provides certainty to landowners; integrated w/general planning approach; may reduce taxes on land outside line; low public cost	Temporary; establishment of line is hot politically; like zoning, can be changed with a vote; may limit land for housing & increase cost
11 Buffers	Provide separation between conflicting land uses (e.g., ag and urban), reducing nuisance complaints, vandalism and trespass problems.	Can be costly to developer, city or farmer; not necessarily proven to address all conflicts; land waste if buffer is not used for urban amenity or lower intensity agriculture.
Fee Simple/Easement Acquisition		
12 Purchase of Ag Conservation Easements	Voluntary; stays on tax rolls; just compensation; landowner income; less costly than fee simple; permanent protection; flexible	Still costly for most threatened lands; permanent loss of development potential; often misunderstood as a property rights taking; landowner resistance to permanent easement
13 Fee Simple Acquisition	More control; generates lease income; often better for owner	Expensive; may remove land from tax roll; liability of ownership
14 Lease, Lease-Purchase	Lower up-front costs than fee simple or easement acquisitions; greater landowner acceptance; flexible	Uncertainty of lease; temporary; may ultimately be more costly
15 Transfer of Development Credits (see above)	Voluntary; stays on tax rolls; just compensation; landowner income; local admin. cost only; incentive for compact development	Can be complicated to administer; NIMBYs in "receiving areas"; cost internalized in housing prices; needs to be well thought out
16 Williamson Act In Lieu Cancellation Fees for Conservation Easements (see above)	Keeps cancellation fee dollars local; flexibility for county/landowner; loss in conservation with cancellation is offset with new easement	Loss of state general fund dollars; requires some state oversight and rules

Attachment 46

AGRICULTURAL LAND CONSERVATION TOOLS (continued)

Pros and Cons

Categories	Pros	Cons
CEQA Tools		
17 Land Evaluation and Site Assessment Model	More objective land use decisions; documents decision-making; quantifies impacts of land use decisions; more defensible decisions	Subjectivity can still creep in when setting weighted values to factors; can be time-consuming; may be limited by lack of data; variable effectiveness based on purpose of application
18 Federal Farmland Protection Policy Act for California	Makes state agencies responsible for assessing impacts of projects on farmland; would spur development of consist. state agland policy	Could increase costs of state projects; CEQA already requires assessment of project impacts on farmland; administrative costs
19 Mitigation Banking for Agland Loss	No public funds involved; directly linked to loss of resource; can be strategically linked to general plan; puts a price on resource loss	Requires loss of farmland to protect farmland; increases housing costs; may put city at competitive disadvantage for development; future ag. viability uncertain
Agricultural Enhancement Tools		
20 Right-To-Farm Ordinance	Educational/awareness raising; may offer conflict resolution forum; may limit agricultural landowner liability	Enforceability questioned; must be more than notice in land title to be effective awareness raising/educational tool
21 Federal and State Tax Incentives: Tax Credits/deductions and Capital Gains	Increase incentives for sustaining agricultural uses; encourage ag investment; facilitate transfer of land to next generation	Reduction in federal tax revenues; consumer resistance to more agricultural subsidies; complex policy implications
22 Federal Estate/Inheritance Tax Reform	Reform would allow farms and ranches to be passed along from one generation to the next, keeping land in production; savings to landowner could allow for reinvestment in the land and stimulate local economies.	Reform would be costly to federal government, resulting in lower income tax revenues; would have to be designed to ensure land remains in farming.
23 Agricultural Enterprise Zones	Addresses profitability and practicality of continued farming; recognition that is more than just saving land; multi-faceted; educational	Usually requires public investment in program, policy and budget; requires shift in attitude about agland as urban reserve land; willingness of public to pay for agricultural land and use as an urban amenity
24 Agricultural Enhancement Boards	Like ag elements of general plans; a board can focus entities' policy on agland conservation; develop programs for ag enterprise zones	Many counties already have ag commissions or advisory boards; must have clear role and public support; requires additional staff

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AGRICULTURAL LAND CONSERVATION TOOLS (continued)

Pros and Cons

Categories	Pros	Cons
25 Agricultural Land Redevelopment Act	Would use tax increment funding to enhance urban fringe farmland; could be a tool to consolidate fragmented parcels too small to farm	Undeveloped idea; would tax increment from enhanced farmland be enough? Would there be city or landowner interest or support?
Funding Mechanisms		
26 Installment-Purchase Financing	Uses future dollars to protect land today; multiple landowner tax benefits; flexible for landowner; successfully uses in Maryland	Would require significant upfront, long-term funding; has not been tested extensively
27 Tax Increment - Agland Transfer	Requires no new public funding or taxes; links cost of loss of farmland with protection of farmland elsewhere; can be used with other tools	Local government foregoes normal property tax revenue often anticipated to help pay for urban services
28 Tax Increment - Williamson Act Land	See benefits of "Tax Increment", above; would increase tax benefits and incentives for land remaining in Williamson Act	Local government foregoes normal increase in tax revenue as land exits Williamson Act contracts; increment may not be enough
29 Williamson Act In Lieu Cancellation Fees for Conservation Easements	See item 13, above	See item 13 above
30 Bond Measure	Uses future funds to protect currently threatened agland; voter acceptance of bond measures may be improving with economy	Increases public debt; voter approval in recent years difficult; cost
Funding Mechanisms		
31 Land Transfer Tax or Fee	Direct policy link of fund source (i.e., loss of farmland) with agland conservation; times of greatest threat also times of greatest revenue	Competing uses for land transfer fees; increases cost of development and housing; taxpayer resistance to new tax; sale not necessarily equivalent to land value increase
32 Sales Tax	Taxes and benefits stay local; those enjoy benefits pay directly	Increases costs of living; taxpayer resistance to new tax
33 Donation	No direct cost to the public; tax benefits to the landowner (see item 30)	Disposition of donated land needs to be determined; possible loss to local tax roll; conditions of accepting donation needs to be clear; loss of state and federal tax revenue

Attachment 46

AGRICULTURAL LAND CONSERVATION TOOLS (continued)

Pros and Cons

Categories	Pros	Cons
34 Tax Credit (SB 1280)	No upfront public costs; provides incentives for land donations; provides capital for landowner investment in land improvements	Public cost is in foregone income tax revenues; criteria for accepting donations must be clear; disposition of land needs to be clear
35 City-County Development Agreements	City and county cooperation engendered and competition for development reduced; city control over border and sprawl; promote compact urban growth; reduced county rural development service costs	Difficult to overcome jurisdictional competition; may limit development options and increase housing costs; may raise representation issues.
36 City-County Revenue Sharing Agreements	Reduced interjurisdictional competition for development; balances costs and revenues for development	Revenue sharing divisive; only so much revenue to go around; poor substitute for a statewide solution to local revenue shortfall
37 Project Development Agreements	Linked with loss of farmland; flexible; may require no public finances	Questions of legality have been raised in some cases; usually reactive, not proactive

Attachment 46

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

2010 Rank[1]	County	ST	Total Population[2]	At-Risk Groups									$PM_{2.5}$ Annual, 2006–2008	
				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]	Design Value[12]	Grade[13]
1	Pinal	AZ	327,301	85,283	42,819	8,028	23,791	10,272	3,936	84,882	18,309	43,350	21.6	FAIL
2	Kern	CA	800,458	238,789	71,678	22,479	46,597	23,265	7,790	181,207	44,207	156,128	21.5	FAIL
3	Riverside	CA	2,100,516	583,297	241,428	54,909	126,317	63,620	23,196	513,861	125,986	260,109	19.7	FAIL
3	Tulare	CA	426,276	135,427	40,821	12,749	24,202	12,169	4,249	96,539	23,644	90,369	19.7	FAIL
5	Allegheny	PA	1,215,103	250,672	204,705	23,597	88,545	43,690	18,952	385,161	89,099	145,977	18.3	FAIL
6	Fresno	CA	909,153	270,512	89,615	25,465	53,191	26,798	9,390	213,027	52,230	197,265	17.7	FAIL
7	Jefferson	AL	659,503	157,990	89,377	14,873	38,956	22,217	8,909	188,555	57,398	88,637	17.3	FAIL
7	San Bernardino	CA	2,015,355	590,810	170,130	55,617	118,301	59,184	19,520	458,534	111,974	288,756	17.3	FAIL
9	Kings	CA	149,518	40,715	11,487	3,833	8,930	4,349	1,308	32,288	7,759	22,566	17	FAIL
10	Hamilton	OH	851,494	206,018	114,701	19,394	61,384	28,595	11,457	242,599	64,838	113,411	15.7	FAIL
10	Madison	IL	268,078	61,931	37,811	5,830	16,217	9,045	3,628	76,653	18,072	32,953	15.7	FAIL
12	Los Angeles	CA	9,862,049	2,549,168	1,054,932	239,969	611,881	311,413	112,035	2,508,754	618,355	1,482,051	15.6	FAIL
13	Wayne	MI	1,949,929	507,861	234,544	47,808	141,145	63,463	24,562	529,981	131,973	393,147	15.4	FAIL
13	Kanawha	WV	191,018	41,029	31,892	3,862	14,381	6,848	2,991	60,630	18,639	29,656	15.4	FAIL
13	Brooke	WV	23,520	4,396	4,588	414	1,825	883	406	8,018	2,459	2,674	15.4	FAIL
16	Clark	IN	106,673	25,813	13,601	2,430	7,416	3,540	1,377	29,603	7,886	11,286	15.3	FAIL
16	Stanislaus	CA	510,694	145,476	53,728	13,695	30,520	15,491	5,581	124,778	30,713	72,561	15.3	FAIL
18	Clayton	GA	273,718	80,762	18,664	7,603	16,334	8,035	2,517	61,071	17,757	39,619	15.2	FAIL
18	Harris	TX	3,984,349	1,145,274	316,399	107,812	206,787	119,643	39,499	929,844	267,659	603,105	15.2	FAIL
18	Cabell	WV	94,631	19,658	15,551	1,851	7,157	3,313	1,396	28,724	8,822	18,725	15.2	FAIL
21	Cobb	GA	698,158	182,460	59,274	17,176	43,312	22,154	7,564	175,077	50,882	62,563	15.1	FAIL
21	Cuyahoga	OH	1,283,925	301,457	195,113	28,378	93,253	44,264	18,682	385,175	103,383	199,694	15.1	FAIL
21	Bibb	GA	155,216	41,727	20,251	3,928	9,484	4,994	1,990	42,225	12,257	32,923	15.1	FAIL
24	Loudon	TN	46,445	9,901	9,661	932	3,262	1,666	788	15,289	4,269	5,106	14.9	PASS
24	Beaver	PA	172,476	35,214	31,681	3,315	12,565	6,308	2,850	56,769	13,220	19,600	14.9	PASS
24	Berkeley	WV	102,044	26,497	11,108	2,494	7,294	3,261	1,199	26,568	8,215	11,253	14.9	PASS

Notes:

1. Counties are ranked by design value. See note 12 below.
2. **Total Population** represents the at-risk populations in counties with $PM_{2.5}$ monitors.
3. Those **18 & under** and **65 & 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 2008 based on national rates (NHIS) applied to county 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 2008 based on state rates (BRFSS) applied to county population estimates (U.S. Census).
6. **Chronic bronchitis** estimates are for adults 18 and over who had been diagnosed in 2008, based on national rates (NHIS) applied to county 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 county 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 county 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 county 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 in a county meets the standard. Design values for the annual $PM_{2.5}$ concentrations by county were collected from data previously summarized by the EPA and were downloaded on December 1, 2009 from EPA's website at http://www.epa.gov/air/airtrends/values.html.
13. **Grades** are based on EPA's determination of meeting or failure to meet the NAAQS for annual PM2.5 levels during 2006-2008. Counties meeting the NAAQS received grades of Pass; counties not meeting the NAAQS received grades of Fail.

Attachment 47

People at Risk in 25 Most Ozone-Polluted Counties

2010 Rank[1]	County	ST	Total Population[2]	At-Risk Groups							High Ozone Days in Unhealthy Ranges, 2006–2008	
				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	2,015,355	590,810	170,130	55,617	118,301	59,184	19,520	288,756	141.8	F
2	Riverside	CA	2,100,516	583,297	241,428	54,909	126,317	63,620	23,196	260,109	132.8	F
3	Kern	CA	800,458	238,789	71,678	22,479	46,597	23,265	7,790	156,128	115.7	F
4	Tulare	CA	426,276	135,427	40,821	12,749	24,202	12,169	4,249	90,369	110.2	F
5	Los Angeles	CA	9,862,049	2,549,168	1,054,932	239,969	611,881	311,413	112,035	1,482,051	92.3	F
6	Fresno	CA	909,153	270,512	89,615	25,465	53,191	26,798	9,390	197,265	66.2	F
7	El Dorado	CA	176,075	37,896	19,950	3,567	11,707	6,118	2,301	13,692	48.3	F
8	Nevada	CA	97,118	17,384	17,481	1,636	6,832	3,661	1,624	8,848	46.7	F
9	Sacramento	CA	1,394,154	362,492	158,340	34,124	86,442	44,138	16,274	182,573	44.7	F
10	Kings	CA	149,518	40,715	11,487	3,833	8,930	4,349	1,308	22,566	40.0	F
11	Placer	CA	341,945	74,348	52,148	6,999	22,569	11,699	4,776	22,873	39.3	F
12	Harris	TX	3,984,349	1,145,274	316,399	107,812	206,787	119,643	39,499	603,105	35.7	F
13	Mariposa	CA	17,976	3,112	3,377	293	1,265	669	296	2,388	34.2	F
14	San Diego	CA	3,001,072	744,470	337,004	70,082	188,661	95,863	34,760	364,576	33.8	F
15	San Luis Obispo	CA	265,297	49,431	38,323	4,653	18,160	9,359	3,670	30,243	32.0	F
16	Ventura	CA	797,740	206,833	91,279	19,470	49,794	25,737	9,699	68,486	31.3	F
17	Rowan	NC	139,225	32,568	19,841	3,066	8,067	4,711	1,911	21,042	30.0	F
18	Maricopa	AZ	3,954,598	1,083,241	451,031	101,972	280,306	122,897	45,668	521,208	29.0	F
19	Merced	CA	246,117	76,722	24,433	7,222	14,091	7,080	2,490	52,005	28.2	F
20	Tarrant	TX	1,750,091	493,382	149,164	46,445	91,590	53,034	17,837	208,934	27.5	F
21	Sevier	TN	84,835	18,967	12,886	1,785	5,887	2,933	1,219	11,097	26.3	F
22	Mecklenburg	NC	890,515	237,056	73,754	22,316	49,226	27,682	9,234	95,508	26.2	F
23	Imperial	CA	163,972	47,801	17,493	4,500	9,663	4,855	1,732	32,833	24.7	F
24	Fairfield	CT	895,030	223,180	118,119	21,009	57,917	29,990	12,062	71,553	24.2	F
24	Harford	MD	240,351	59,315	28,123	5,584	16,965	7,957	3,033	13,606	24.2	F

Notes:
1. Counties are ranked by weighted average. See note 10 below.
2. **Total Population** represents the at-risk populations in counties with ozone monitors.
3. Those **18 & under** and **65 & over** are vulnerable to ozone 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 2008 based on national rates (NHIS) applied to county 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 2008 based on state rates (BRFSS) applied to county population estimates (U.S. Census).
6. **Chronic bronchitis** estimates are for adults 18 and over who had been diagnosed in 2008, based on national rates (NHIS) applied to county 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 county 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 (2006-2008), multiplying the total in each range by the assigned standard weights (i.e., 1 for orange, 1.5 for red, 2.0 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+.

Attachment 47

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

2010 Rank[1]	County	ST	Total Population[2]	At-Risk Groups									High $PM_{2.5}$ Days in Unhealthy Ranges, 2006–2008	
				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	800,458	238,789	71,678	22,479	46,597	23,265	7,790	181,207	44,207	156,128	55.2	F
2	Fresno	CA	909,153	270,512	89,615	25,465	53,191	26,798	9,390	213,027	52,230	197,265	53.3	F
3	Allegheny	PA	1,215,103	250,672	204,705	23,597	88,545	43,690	18,952	385,161	89,099	145,977	45.5	F
4	Riverside	CA	2,100,516	583,297	241,428	54,909	126,317	63,620	23,196	513,861	125,986	260,109	27.3	F
5	Jefferson	AL	659,503	157,990	89,377	14,873	38,956	22,217	8,909	188,555	57,398	88,637	25.0	F
6	Los Angeles	CA	9,862,049	2,549,168	1,054,932	239,969	611,881	311,413	112,035	2,508,754	618,355	1,482,051	19.7	F
7	Sacramento	CA	1,394,154	362,492	158,340	34,124	86,442	44,138	16,274	359,465	88,749	182,573	19.5	F
8	Salt Lake	UT	1,022,651	302,184	89,440	28,446	60,222	30,200	10,192	236,479	44,953	89,216	18.2	F
9	Tulare	CA	426,276	135,427	40,821	12,749	24,202	12,169	4,249	96,539	23,644	90,369	15.3	F
10	Stanislaus	CA	510,694	145,476	53,728	13,695	30,520	15,491	5,581	124,778	30,713	72,561	13.0	F
11	Kings	CA	149,518	40,715	11,487	3,833	8,930	4,349	1,308	32,288	7,759	22,566	12.7	F
12	San Bernardino	CA	2,015,355	590,810	170,130	55,617	118,301	59,184	19,520	458,534	111,974	288,756	11.2	F
12	Merced	CA	246,117	76,722	24,433	7,222	14,091	7,080	2,490	56,327	13,791	52,005	11.2	F
14	Philadelphia	PA	1,447,395	361,859	185,962	34,064	100,391	46,961	18,156	390,839	88,611	331,349	11.0	F
15	Utah	UT	530,837	185,393	33,761	17,452	28,728	13,536	3,851	98,073	18,088	61,648	10.7	F
16	Pinal	AZ	327,301	85,283	42,819	8,028	23,791	10,272	3,936	84,882	18,309	43,350	10.2	F
17	San Joaquin	CA	672,388	194,385	68,391	18,299	39,916	20,227	7,204	162,098	39,865	108,919	9.2	F
18	Cook	IL	5,294,664	1,313,534	624,187	123,651	311,719	171,660	64,274	1,408,857	329,408	767,182	8.7	F
19	San Diego	CA	3,001,072	744,470	337,004	70,082	188,661	95,863	34,760	774,396	190,719	364,576	8.5	F
20	Union	NJ	523,249	129,721	65,627	12,211	33,748	17,336	6,769	145,343	33,320	45,220	8.3	F
20	Baltimore City	MD	636,919	153,154	75,404	14,417	45,370	20,875	7,808	171,278	41,126	116,585	8.3	F
20	Cache	UT	112,616	35,915	8,563	3,381	6,381	3,047	922	22,639	4,237	13,020	8.3	F
23	Orange	CA	3,010,759	765,649	342,841	72,075	188,534	96,726	35,888	790,757	195,691	294,758	8.2	F
24	Lane	OR	346,560	69,455	49,662	6,538	23,760	12,190	4,864	103,115	19,293	53,423	8.0	F
25	Dauphin	PA	256,562	59,937	35,138	5,642	18,135	8,797	3,564	75,118	17,200	27,090	7.3	F
25	Washington	PA	206,407	41,852	35,648	3,940	15,099	7,464	3,264	66,055	15,299	20,690	7.3	F
25	Plumas	CA	20,275	3,525	4,041	332	1,440	778	360	7,082	1,791	2,408	7.3	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 & under** and **65 & 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 2008 based on national rates (NHIS) applied to county 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 2008 based on state rates (BRFSS) applied to county population estimates (U.S. Census).
6. **Chronic bronchitis** estimates are for adults 18 and over who had been diagnosed in 2008, based on national rates (NHIS) applied to county 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 county 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 county 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 county 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 (2006-2008), 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+.

Attachment 47

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

2010 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	Phoenix-Mesa-Scottsdale, AZ	4,281,899	1,168,524	493,850	110,000	304,097	133,169	49,604	1,089,057	234,900	564,558
2	Bakersfield, CA	800,458	238,789	71,678	22,479	46,597	23,265	7,790	181,207	44,207	156,128
3	Los Angeles-Long Beach-Riverside, CA	17,786,419	4,695,757	1,900,610	442,040	1,094,827	556,680	200,338	4,484,079	1,104,703	2,394,160
3	Visalia-Porterville, CA	426,276	135,427	40,821	12,749	24,202	12,169	4,249	96,539	23,644	90,369
5	Pittsburgh-New Castle, PA	2,441,464	500,897	420,508	47,153	178,047	88,152	38,601	780,756	180,882	285,428
6	Fresno-Madera, CA	1,057,486	311,788	104,922	29,351	62,100	31,280	10,965	248,680	60,964	222,540
7	Birmingham-Hoover-Cullman, AL	1,198,932	290,401	157,265	27,338	70,565	39,978	15,778	336,620	102,410	151,234
8	Hanford-Corcoran, CA	149,518	40,715	11,487	3,833	8,930	4,349	1,308	32,288	7,759	22,566
9	Cincinnati-Middletown-Wilmington, OH-KY-IN	2,198,337	549,333	264,870	51,712	157,199	72,080	27,598	598,538	159,753	244,738
9	St. Louis-St. Charles-Farmington, MO-IL	2,903,894	697,769	378,775	65,686	183,117	97,327	38,410	819,824	200,971	327,896
11	Charleston, WV	303,944	66,579	47,792	6,267	22,796	10,760	4,586	94,143	28,970	47,793
11	Detroit-Warren-Flint, MI	5,354,225	1,308,684	656,566	123,194	395,818	178,282	69,051	1,489,633	371,145	742,617
11	Weirton-Steubenville, WV-OH	122,054	23,865	23,413	2,247	9,324	4,528	2,075	41,043	11,747	18,869
14	Louisville-Jefferson County-Elizabethtown-Scottsburg, KY-IN	1,380,591	334,788	174,598	31,519	100,030	46,144	18,053	387,276	104,392	175,744
14	Modesto, CA	510,694	145,476	53,728	13,695	30,520	15,491	5,581	124,778	30,713	72,561
16	Atlanta-Sandy Springs-Gainesville, GA-AL	5,729,304	1,539,475	489,978	144,921	352,973	177,744	59,961	1,394,748	405,484	677,521
16	Houston-Baytown-Huntsville, TX	5,829,620	1,636,150	485,730	154,019	305,885	177,361	59,438	1,387,414	399,750	790,893
16	Huntington-Ashland, WV-KY-OH	284,234	61,064	45,266	5,749	21,366	9,953	4,194	86,407	24,878	51,840
19	Cleveland-Akron-Elyria, OH	2,887,492	674,060	415,419	63,454	210,320	99,014	40,752	851,201	228,028	370,946
19	Macon-Warner Robins-Fort Valley, GA	390,674	101,778	46,661	9,580	24,200	12,584	4,808	104,349	30,300	63,795
21	Hagerstown-Martinsburg, MD-WV	263,753	62,949	34,072	5,925	19,009	8,708	3,366	72,491	19,603	26,016
21	Knoxville-Sevierville-La Follette, TN	1,041,955	229,952	154,126	21,647	72,575	35,954	14,714	307,808	86,888	151,230
23	Augusta-Richmond County, GA-SC	534,218	135,645	65,742	12,769	33,240	17,488	6,776	146,046	41,759	91,978
24	Indianapolis-Anderson-Columbus, IN	2,035,327	532,625	232,310	50,140	137,759	65,257	24,517	537,022	142,759	234,047
25	Parkersburg-Marietta, WV-OH	160,678	34,222	26,995	3,221	12,066	5,742	2,499	50,725	14,845	25,740
25	York-Hanover-Gettysburg, PA	525,702	119,487	73,383	11,248	37,477	18,007	7,258	153,182	35,016	40,986

Notes:
1. Cities are ranked using the highest design value 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 & under** and **65 & 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 2008 based on national rates (NHIS) applied to county 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 2008 based on state rates (BRFSS) applied to county population estimates (U.S. Census).
6. **Chronic bronchitis** estimates are for adults 18 and over who had been diagnosed in 2008, based on national rates (NHIS) applied to county 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 county 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 county 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 county population estimates (U.S. Census).
11. **Poverty** estimates come from the U.S. Census Bureau and are for all ages.

Attachment 48

People at Risk in 25 Most Ozone-Polluted Cities

2010 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]	Poverty[9]
1	Los Angeles-Long Beach-Riverside, CA	17,786,419	4,695,757	1,900,610	442,040	1,094,827	556,680	200,338	2,394,160
2	Bakersfield, CA	800,458	238,789	71,678	22,479	46,597	23,265	7,790	156,128
3	Visalia-Porterville, CA	426,276	135,427	40,821	12,749	24,202	12,169	4,249	90,369
4	Fresno-Madera, CA	1,057,486	311,788	104,922	29,351	62,100	31,280	10,965	222,540
5	Sacramento--Arden-Arcade--Yuba City, CA-NV	2,417,404	591,377	293,951	55,670	153,359	78,640	29,653	285,352
6	Hanford-Corcoran, CA	149,518	40,715	11,487	3,833	8,930	4,349	1,308	22,566
7	Houston-Baytown-Huntsville, TX	5,829,620	1,636,150	485,730	154,019	305,885	177,361	59,438	790,893
8	San Diego-Carlsbad-San Marcos, CA	3,001,072	744,470	337,004	70,082	188,661	95,863	34,760	364,576
9	San Luis Obispo-Paso Robles, CA	265,297	49,431	38,323	4,653	18,160	9,359	3,670	30,243
10	Charlotte-Gastonia-Salisbury, NC-SC	2,338,289	597,972	247,933	56,291	133,010	75,049	27,301	281,161
11	Phoenix-Mesa-Scottsdale, AZ	4,281,899	1,168,524	493,850	110,000	304,097	133,169	49,604	564,558
12	Merced, CA	246,117	76,722	24,433	7,222	14,091	7,080	2,490	52,005
13	Dallas-Fort Worth, TX	6,622,032	1,831,927	579,393	172,450	348,930	201,876	68,125	820,338
14	Knoxville-Sevierville-La Follette, TN	1,041,955	229,952	154,126	21,647	72,575	35,954	14,714	151,230
15	El Centro, CA	163,972	47,801	17,493	4,500	9,663	4,855	1,732	32,833
16	New York-Newark-Bridgeport, NY-NJ-CT-PA	22,154,752	5,178,014	2,889,985	487,436	1,472,232	743,282	290,311	2,585,219
16	Washington-Baltimore-Northern Virginia, DC-MD-VA-WV	8,249,194	1,984,957	894,778	186,856	585,428	271,393	99,323	624,420
18	Cincinnati-Middletown-Wilmington, OH-KY-IN	2,198,337	549,333	264,870	51,712	157,199	72,080	27,598	244,738
19	Atlanta-Sandy Springs-Gainesville, GA-AL	5,729,304	1,539,475	489,978	144,921	352,973	177,744	59,961	677,521
19	Birmingham-Hoover-Cullman, AL	1,198,932	290,401	157,265	27,338	70,565	39,978	15,778	151,234
21	Las Vegas-Paradise-Pahrump, NV	1,910,121	501,919	207,091	47,248	119,491	60,364	22,013	212,098
22	Modesto, CA	510,694	145,476	53,728	13,695	30,520	15,491	5,581	72,561
22	Philadelphia-Camden-Vineland, PA-NJ-DE-MD	6,398,896	1,528,290	846,470	143,868	443,728	214,554	84,875	712,300
24	Chico, CA	220,337	45,934	33,068	4,324	14,641	7,514	2,996	44,569
25	Baton Rouge-Pierre Part, LA	797,208	202,763	82,256	19,088	48,156	25,357	9,029	122,432

Notes:
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2. Total Population represents the at-risk populations for all counties within the respective Combined or Metropolitan Statistical Area.
3. Those **18 & under** and **65 & 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 2008 based on national rates (NHIS) applied to county 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 2008 based on state rates (BRFSS) applied to county population estimates (U.S. Census).
6. **Chronic bronchitis** estimates are for adults 18 and over who had been diagnosed in 2008, based on national rates (NHIS) applied to county 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 county 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.

Attachment 48

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

2010 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, CA	800,458	238,789	71,678	22,479	46,597	23,265	7,790	181,207	44,207	156,128
2	Fresno-Madera, CA	1,057,486	311,788	104,922	29,351	62,100	31,280	10,965	248,680	60,964	222,540
3	Pittsburgh-New Castle, PA	2,441,464	500,897	420,508	47,153	178,047	88,152	38,601	780,756	180,882	285,428
4	Los Angeles-Long Beach-Riverside, CA	17,786,419	4,695,757	1,900,610	442,040	1,094,827	556,680	200,338	4,484,079	1,104,703	2,394,160
5	Birmingham-Hoover-Cullman, AL	1,198,932	290,401	157,265	27,338	70,565	39,978	15,778	336,620	102,410	151,234
6	Sacramento--Arden-Arcade--Yuba City, CA-NV	2,417,404	591,377	293,951	55,670	153,359	78,640	29,653	647,176	160,164	285,352
7	Salt Lake City-Ogden-Clearfield, UT	1,717,261	518,277	150,699	48,788	100,197	50,204	16,978	393,363	74,859	141,927
8	Visalia-Porterville, CA	426,276	135,427	40,821	12,749	24,202	12,169	4,249	96,539	23,644	90,369
9	Modesto, CA	510,694	145,476	53,728	13,695	30,520	15,491	5,581	124,778	30,713	72,561
10	Hanford-Corcoran, CA	149,518	40,715	11,487	3,833	8,930	4,349	1,308	32,288	7,759	22,566
11	Merced, CA	246,117	76,722	24,433	7,222	14,091	7,080	2,490	56,327	13,791	52,005
12	Philadelphia-Camden-Vineland, PA-NJ-DE-MD	6,398,896	1,528,290	846,470	143,868	443,728	214,554	84,875	1,808,716	412,970	712,300
13	Provo-Orem, UT	540,820	188,783	34,748	17,771	29,278	13,810	3,948	100,258	18,511	62,642
14	Phoenix-Mesa-Scottsdale, AZ	4,281,899	1,168,524	493,850	110,000	304,097	133,169	49,604	1,089,057	234,900	564,558
15	Stockton, CA	672,388	194,385	68,391	18,299	39,916	20,227	7,204	162,098	39,865	108,919
16	Chicago-Naperville-Michigan City, IL-IN-WI	9,793,036	2,504,341	1,087,551	235,751	580,310	314,388	115,977	2,564,659	605,408	1,139,254
17	San Diego-Carlsbad-San Marcos, CA	3,001,072	744,470	337,004	70,082	188,661	95,863	34,760	774,396	190,719	364,576
18	Washington-Baltimore-Northern Virginia, DC-MD-VA-WV	8,249,194	1,984,957	894,778	186,856	585,428	271,393	99,323	2,208,468	520,827	624,420
18	New York-Newark-Bridgeport, NY-NJ-CT-PA	22,154,752	5,178,014	2,889,985	487,436	1,472,232	743,282	290,311	6,225,658	1,409,941	2,585,219
18	Logan, UT-ID	125,070	39,979	10,051	3,764	7,117	3,411	1,065	25,688	4,849	14,174
21	Eugene-Springfield, OR	346,560	69,455	49,662	6,538	23,760	12,190	4,864	103,115	19,293	53,423
22	Harrisburg-Carlisle-Lebanon, PA	660,042	145,638	97,953	13,710	47,390	22,934	9,456	197,208	45,243	59,172
23	San Jose-San Francisco-Oakland, CA	7,354,555	1,657,339	889,331	156,016	480,165	248,277	93,911	2,050,091	509,263	662,858
23	Indianapolis-Anderson-Columbus, IN	2,035,327	532,625	232,310	50,140	137,759	65,257	24,517	537,022	142,759	234,047
23	Allentown-Bethlehem-Easton, PA-NJ	808,210	182,515	120,493	17,181	57,072	27,849	11,508	239,635	55,042	72,641

Notes:
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3. Those **18 & under** and **65 & 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 2008 based on national rates (NHIS) applied to county 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 2008 based on state rates (BRFSS) applied to county population estimates (U.S. Census).
6. **Chronic bronchitis** estimates are for adults 18 and over who had been diagnosed in 2008, based on national rates (NHIS) applied to county 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 county 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 county 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 county population estimates (U.S. Census).
11. **Poverty** estimates come from the U.S. Census Bureau and are for all ages.

Attachment 48