

**CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD  
INSPECTION REPORT**

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At approximately 1700 hours, I met with Fred Dean-Turner, General Manager of Auburn Lake Trails, and Richard San Miguel. After introductions were made we discussed all of the above issues. From the unauthorized fill that has occurred at the campground/amphitheatre; the slash that is laying in the nearby wetland and creek; the proposed filling of wetlands and waters of the U.S. that occur at/or on the shoreline of "Indian Bow Lake"; the planned installation of culverts anywhere in ALT, but specifically around the Lake, the taking of riparian habitat around the lake; the uncontained horse manure draining into the American River from the Recycling Area; the plans to re-grade and build additional horse paddocks and roadways and add additional contaminated storm water that would enter the American River; and unchecked home sites that have sediment running into waters of the state. Mr. San Miguel admitted to filling in the wetland area at the campground, as well as working in a seasonal drainage that drained into "Indian Bow Lake". Mr. San Miguel said that he used to be the Compliance Officer in charge of erosion control, but with his responsibilities now being maintenance, there was no one to resume his previous responsibilities as a "compliance officer".

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Inspection of the Auburn Lake Trails revealed problems areas, which threaten water quality. Auburn Lake Trails Property Owners Association have discharged waste in violation of the California Water Code by constructing an amphitheater in a wetlands, by stock piling manure waste, and by failing to provide erosion controls on construction project within the subdivision. The ALT Property Owners Association should be requested to take corrective action and to obtain the necessary permits to comply with State and Federal Regulations.

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Patrick G. Gillum, Area Inspector

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VOLUME III - DESIGN STANDARD FOR LOT OR PARCEL  
(NOT SUBDIVISIONS)

SECTION 1: GRADING PERMIT REQUIREMENTS

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# California Regional Water Quality Control Board Central Valley Region

Robert Schneider, Chair

Winston H. Hickox  
Secretary for  
Environmental  
Protection

Sacramento Main Office  
Internet Address: <http://www.swrcb.ca.gov/rwqcb5>  
3443 Routier Road, Suite A, Sacramento, California 95827-3003  
Phone (916) 255-3000 • FAX (916) 255-3015



Gray Davis  
Governor

15 May 2003

Mr. Fred Dean-Turner  
General Manager  
Auburn Lake Trails Property Owners Association.  
1400 American River Trail  
Cool, CA 95614

## REQUEST FOR CORRECTIVE ACTION, AUBURN LAKE TRAILS, IMPACTS TO WETLANDS AND WATER QUALITY, EL DORADO COUNTY

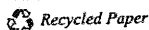
Enclosed is a copy of an inspection report covering a complaint investigation on 5 May and 9 May 2003. During the site visits to the Auburn Lake Trails we identified a number of "areas of concern". The area identified as the "campground/amphitheater" was cleared to bare soil without a proper permits. Fill has been placed in waters of the state at this location, and without adequate erosion and sediment controls, contaminated runoff has entered the watershed. This area needs to be restored to it's original condition, water quality needs to be protected, and steps need to be taken to re-vegetate the area adjacent to the creek once it has been cleaned out (all the slash that is laying around).

There were several lots that had heavy equipment operating on them, or that had been scraped to bare soil. These lots did not have adequate erosion or sediment controls in place, and contaminated runoff was running from the lots and into nearby creeks.

There is a massive amount of horse manure currently stockpiled at your "recycling center". This material is not contained, and is running downhill into the American River watershed. You will be contacted by one of our staff from the "confined animal" section. However, the manure waste is a threat to water quality and should be addresses immediately.

There are apparently plans to fill in areas of wetland around "Indian Bow Lake", including culverts, decomposed granite, etc., also without the necessary permits. Please be aware that any construction, filling or dredging within water of the state or that threaten waters of the state must be properly permitted. Failure to obtain the necessary permits may and failure to protect water quality while conduction those activities may result in formal enforcement action. The Regional Board can impose administrative civil liabilities for violations of the California Water Code. The maximum fine for each day of violation is ten thousand dollars (\$10,000), with additional liability of up to \$10 per gallon of waste discharged, in excess of 1,000 gallons.

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Fred Dean-Turner  
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In addition, you indicated there are plans to increase the number of horses currently boarded at the paddock area upslope and adjacent to Highway 193. These horses would be confined and outside. With the additional horses, the grading towards Hwy 193, and the construction of access roads to the new paddocks, there may be additional contaminated runoff entering the tributary to the American River. Please consider alternatives, which may be less of a threat to water quality.

As discussed the current activities which have impacted water quality must stop. Please be aware that continued construction, and filling of wetlands without the proper permits is a violation of the California Water Code. Please submit a report by **15 June 2003** addressing our concerns.

If you have any questions, please contact me at (916) 255-3397, or George Day at (916) 255-3506.

Patrick G. Gillum  
Environmental Scientist  
Water Quality Certification Unit

cc with enclosure

Mr. Mike Jewel, US Army Corps of Engineers, Sacramento  
Mr. Orvin Lambert, El Dorado County DOT, Placerville

AR 13761

**CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD**

**INSPECTION REPORT**

**DISCHARGER:** Fred Dean-Turner, General Manager Auburn Lake Trails Property Owners Association  
John Plymyer, President of the Auburn Lake Trails Property Owners Association  
Board of Directors, Auburn Lake Trails Property Owners Association

**LOCATION & COUNTY:** 1400 American River Trail, Cool, CA 95614

**CONTACT(S):** Richard San Miguel, Fred Dean-Turner, John Plymyer

**INSPECTED BY:** Patrick Gillum

**INSPECTION DATE(S):** 5 May 2003, and 9 May 2003

**BACKGROUND:**

During the last week of April, and the first week of May, I received a number of anonymous complaints concerning activities that were threaten water quality occurring in the Auburn Lake Trails (ALT) subdivision located in Cool. The complaints alleged that the ALT Property Owners Association had directed the filling in of a wetland to construct an amphitheater; that they had allowed slash from tree cutting to fall into drainages or creeks in the campground; that they allowed a number of home sites to be worked on (by contractors) during periods when winter-like storms were occurring; that they were in the process of planning major changes in the horse paddock area near highway 193 that would dramatically increase contaminated storm runoff into the American River; that they were stockpiling horse manure in a "recycling area" that allowed contaminated runoff to enter the American River; that they had entered a wetland/lake area for the purpose of mowing the area, cleaning out seasonal drainages, and that they had plans to install culverts in several of those drainages that drained into the wetland and the lake and to fill in portions of the wetland by bringing in truckloads of decomposed granite and construct a walking trail at the same lake without obtaining any type of permits.

**5 MAY 2003 OBSERVATIONS:**

On 5 May 2003 at 1130 hours I entered the ALT subdivision, after identifying myself at the guard/gate area and after obtaining a map of the subdivision, to inspect suspected wetland fill and complaints. At "Indian Bow Lake" ALT Property Owners Association were planning to install culverts in seasonal creeks, mow riparian habitat, and then dump truckloads of decomposed along the lake (photos 1,2,3,4, &5). I noticed there were tracks in the wetland area apparently caused by some type of equipment (photo 6).

I then went to the amphitheater/campground area where I noticed several water quality problems. An area of approximately 1-2 acres had recently been cleared, and the adjacent wetlands had been filled by grading and placement of dirt, and slash over a natural drainage to a creek.

Approved:		
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12 June 2003

Philip Crimmins  
State Clearinghouse  
1400 Tenth Street  
Sacramento, CA 95814

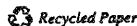
**COMMENTS TO THE DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE EL DORADO COUNTY GENERAL PLAN, SCH NO. 2001082030, EL DORADO COUNTY**

Staff have reviewed the May 2003 "Draft Environmental Impact Report for the El Dorado County General Plan (SCH No. 2001082030)". This Draft EIR identifies and assesses the anticipated environmental effects of the adoption and implementation of a General Plan for the County of El Dorado. The General Plan is intended to provide a long-term framework with which land use planning decisions will be made.

Our agency is delegated the responsibility of protecting the quality of the groundwater and surface waters of the state, and so our comments will only address concerns surrounding those issues.

1. The Development Approval Process Section on page 5.1-12 provides a discussion on the differences between permits by right ("ministerial") and discretionary permits. The document states that "Uses permitted by right are, by definition, those uses and permits, such as building permits, that the County (through the General Plan and/or Zoning Ordinance) has exempted from discretionary action. As ministerial projects, these permits are generally exempt from CEQA review." Please keep in mind that Section 13260 of the California Water Code (CWC) requires that any project for which waste is proposed to be discharged to either surface waters or land must submit a Report of Waste Discharge to the Regional Water Quality Control Board (Regional Board). The Regional Board is not able to adopt Waste Discharge Requirements (WDRs), or a waiver of WDRs, unless a CEQA document has been prepared for the project.
2. Section 5.2 discusses, among other items, the El Dorado regulatory programs related to agriculture and forest resources in El Dorado County. The Wineries Ordinance discussion states that wineries are permitted by right within certain agricultural zone districts. However, wastewater discharges from wineries are regulated by the Regional Board, and as stated above, the Board must comply with the requirements of CEQA in adopting permits. The "by right" permitting of wineries probably does not provide the necessary CEQA documents, and therefore either the County or the winery's consultant would be required to prepare a CEQA document for each winery to be permitted by the Board.

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3. Section 5.5.2 addresses potential impacts related to wastewater flows and system infrastructure that could result from population and employment growth, and provides a description of how wastewater is treated and disposed of within the county. The subsection that discusses "Wastewater Treated by Wastewater Treatment Plants" fails to describe the El Dorado Irrigation District's Camino Heights wastewater treatment plant.
4. Page 5.5-77 discusses the Union Mine Septage Treatment and Disposal Facility, and states that "Within the next two years, and to accommodate growth and acceptance of winery waste, the County plans to almost double the capacity of the treatment facility to a maximum capacity of approximately 30,000 gallons per day." In addition, the document states that County staff plan to expand the sprayfield by two acres to accommodate growth. The Union Mine Septage Treatment and Storage Facility is currently regulated by WDRs Order No.98-238, which allows a current flow of 30,000 gallons per day. Please keep in mind that if the septage treatment and disposal facility is expanded to handle flows greater than what is allowed by WDRs Order No. 98-238, or the sprayfields are expanded to greater than the four acres allowed by the WDRs, then the County will need to apply for updated WDRs.
5. Pages 5.5-78 and 5.5-79 provide a description of the regulatory roles provided by the El Dorado County Environmental Health Department, the State Water Resources Control Board (State Board), and the Regional Board regarding wastewater treatment and disposal systems. The document states that the State Board and Regional Board issue and enforce permits (i.e., WDRs) for WWTPs. In addition to issuing permits for WWTPs, the Regional Board requires that a RWD be submitted for individual onsite septic systems for any residential subdivision of over 100 homes, and for any development where septic tank effluent is disposed to a community leachfield (common disposal systems). In addition, the Regional Board relies on each county to implement an on-site sewage disposal system program consistent with our Basin Plan which includes septic tank "Guidelines". The Regional Board has waived WDRs for individual on-site septic system discharges from single-family residences in those counties enforcing an ordinance that complies with the Board's "Guidelines". The "Guidelines" provide that land developments consisting of less than 100 lots will be processed by the county while tentative maps containing 100 lots or more shall be transmitted to the Board accompanied by a RWD. Our Board does not have resources for a formal program to monitor individual sewage disposal practices for the 38 counties within the Central Valley Region. Therefore, it is important for El Dorado County to ensure compliance with all of the criteria within the "Guidelines".
6. Page 5.5-81 provides a discussion on projected wastewater flows and treatment plant capacities for the El Dorado Irrigation District's El Dorado Hills and Deer Creek WWTPs. Based on the projected flows and current capacities, the Draft EIR indicates that the current treatment capacity would be reached at the El Dorado Hills WWTP around 2015, and at the Deer Creek WWTP around 2025. If the WWTP's are expanded to treat, store, and dispose of flows greater than what each plant is permitted for, then the WDRs will need to be updated.
7. Page 5.5-93 provides a very brief discussion on the potential impacts of water quality from industrial sources. Specifically, it states that "Industrial land uses such as sand and gravel operations, and lumber mills can result in stream turbidity and toxic substances". As stated above,

any facility, including industrial facilities, that discharge waste to land and/or surface waters must submit a RWD to the Regional Board prior to the initiation of any discharge of wastewater. If such facilities are discharging wastewater and are not regulated by WDRs, then the discharge is in violation of the California Water Code.

8. Page 5.5-94, the Onsite Wastewater Treatment System section, states that onsite sewage systems are used for single-family residences, multifamily residences, trailer parks, public facilities, campgrounds, and commercial or industrial establishments, including wineries. As stated above, the Regional Board has waived WDRs for individual on-site septic system discharges from single-family residences in those counties enforcing an ordinance that complies with the Board's "Guidelines". The waived WDRs only apply to single-family residences or the equivalent, discharging domestic wastewater. Regional Board counsel has determined that "or equivalent" corresponds to flows of less than 5,000 gpd. This waiver does not apply to the discharge of winery process wastewater, or the discharge of other industrial wastewater.
9. Page 5.5-105 of the document states that "County regulations for the proper design and installation of onsite systems have been adopted by the County Board of supervisors and have been reviewed and accepted by the RWQCB." However, Regional Board staff has no record that we have reviewed or accepted the County's regulations for design and installation of onsite septic tanks/leachfield systems. As directed by Assembly Bill 885, the State Board is in the process of developing updated regulations for onsite septic systems, and the Regional Board will be required to implement these updated regulations with each County within our region.
10. The section on page 5.5-103 discussing the Regional Board's permitting of wineries is in error. Winery wastewater can contain extremely low pH levels, but this is not the cause of nitrate in the groundwater. Winery wastewater also contains high concentrations of nitrogen and salt. Groundwater monitoring at wineries throughout the Central Valley has shown that the application of winery wastewater to land can cause the underlying groundwater to be degraded by salts (measured as total dissolved solids) and nitrogen. The document states that the permitting of wineries is completed at the local level. It should be noted that the County has no authority under the California Water Code to permit the discharge of industrial wastewater, including the process wastewater from wineries. The Regional Board is in the process of adopting a regulatory scheme for wineries, including a General Order for Onsite Storage/Offsite Disposal (adopted in March 2003), a waiver for small food processors, including wineries (to be considered for adoption in July 2003), a General Order for Land Disposal of Winery Wastewater (projected to be considered in December 2003), and individual WDRs for wineries that do not meet the conditions of either General Order or the waiver.

Philip Crimmins  
State Clearinghouse

- 4 -

12 June 2003

Thank you for the opportunity to offer comments. If you have any questions regarding this matter, please telephone me at (916) 255-3389.



SCOTT KRANHOLD  
Waste Discharge to Land Unit

cc: John Morgan, El Dorado County Environmental Health Department, Placerville  
Conrad Montgomery, El Dorado County Planning Department, Placerville  
~~Bill Carey, El Dorado County Building Department, Placerville~~  
Dan Hinrichs, DJH Engineering, Placerville  
Steven Proc, Greenwood



# California Regional Water Quality Control Board

## Central Valley Region

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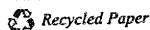
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**INSPECTED BY:** Patrick Gillum

**INSPECTION DATE(S):** 5 May 2003, and 9 May 2003

**BACKGROUND:**

During the last week of April, and the first week of May, I received a number of anonymous complaints concerning activities that were threaten water quality occurring in the Auburn Lake Trails (ALT) subdivision located in Cool. The complaints alleged that the ALT Property Owners Association had directed the filling in of a wetland to construct an amphitheater; that they had allowed slash from tree cutting to fall into drainages or creeks in the campground; that they allowed a number of home sites to be worked on (by contractors) during periods when winter-like storms were occurring; that they were in the process of planning major changes in the horse paddock area near highway 193 that would dramatically increase contaminated storm runoff into the American River; that they were stockpiling horse manure in a "recycling area" that allowed contaminated runoff to enter the American River; that they had entered a wetland/lake area for the purpose of mowing the area, cleaning out seasonal drainages, and that they had plans to install culverts in several of those drainages that drained into the wetland and the lake and to fill in portions of the wetland by bringing in truckloads of decomposed granite and construct a walking trail at the same lake without obtaining any type of permits.

**5 MAY 2003 OBSERVATIONS:**

On 5 May 2003 at 1130 hours I entered the ALT subdivision, after identifying myself at the guard/gate area and after obtaining a map of the subdivision, to inspect suspected wetland fill and complaints. At "Indian Bow Lake" ALT Property Owners Association were planning to install culverts in seasonal creeks, mow riparian habitat, and then dump truckloads of decomposed along the lake (photos 1,2,3,4, &5). I noticed there were tracks in the wetland area apparently caused by some type of equipment (photo 6).

I then went to the amphitheater/campground area where I noticed several water quality problems. An area of approximately 1-2 acres had recently been cleared, and the adjacent wetlands had been filled by grading and placement of dirt, and slash over a natural drainage to a creek.

Approved: 

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**CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD  
INSPECTION REPORT**

There were no Best Management Practices (BMPs) to stabilize the area even though it had been raining and storms were expected to resume later in the week (photos 7, 8, 9, & 10). I walked up a road following the creek and observed slash (from tree cutting) laying in the creek, and wetland area. Whole downed trees were in the watercourse (photos 11, 12, 13, & 14). In one area, it appeared that heavy equipment had been used to access an area to cut trees. Sediment and slash were present in the creek (photos 15, & 16).

I inspected the "Recycling Area" which I estimated to be approximately 200-feet long by 100-feet wide. I observed horse manure, approximately 10 tons, and 6-feet high in parts stacked on two side of an access road. This area was not contained, and there was a creek below it. I observed contaminated runoff running downhill into the creek (photo 17).

On my way to the office, I pulled across highway 193 and looked at the existing horse barn and paddock area (photo 18).

At approximately 1700 hours, I met with Fred Dean-Turner, General Manager of Auburn Lake Trails, and Richard San Miguel. After introductions were made we discussed all of the above issues. From the unauthorized fill that has occurred at the campground/amphitheatre; the slash that is laying in the nearby wetland and creek; the proposed filling of wetlands and waters of the U.S. that occur at/or on the shoreline of "Indian Bow Lake"; the planned installation of culverts anywhere in ALT, but specifically around the Lake, the taking of riparian habitat around the lake; the uncontained horse manure draining into the American River from the Recycling Area; the plans to re-grade and build additional horse paddocks and roadways and add additional contaminated storm water that would enter the American River; and unchecked home sites that have sediment running into waters of the state. Mr. San Miguel admitted to filling in the wetland area at the campground, as well as working in a seasonal drainage that drained into "Indian Bow Lake". Mr. San Miguel said that he used to be the Compliance Officer in charge of erosion control, but with his responsibilities now being maintenance, there was no one to resume his previous responsibilities as a "compliance officer".

Mr. Fred Dean-Turner assured me that no additional work would be done at any of the above sites until he receives my Inspection Report, a possible "Notice of Violation", and authorization to proceed with his projects. He also assured me that no additional fill would be placed in and around the campground, or "Indian Bow Lake".

On Wednesday, May 7, 2003 I contacted Mr. Randy Pollack. Mr. Turner had explained that he was working on two residential lots and confirmed that he did not have adequate Sediment and Erosion Control measures in place. I also contacted the Creals who also had a contractor working on their lot without Sediment and Erosion Control measures in place. Each stated that they would implement Best Management Practices (BMPs) immediately.

I also contacted Mr. Bill Schalker, (the volunteer who is coordinating efforts to fill in the wetlands at "Indian Bow Lake") and asked him what his plans were. He confirmed that he will oversee the installation of culverts, the mowing of wetlands, and the dumping of decomposed granite to make a "walking path" around the lake. I informed him that he would need a 404, 401 or WDRs permit to do that project. He stated that there were no wetlands present around the lake. He also said all of the residents in ALT wanted this project done, and he had the full support of Mr. Fred Dean-Turner, and the ALT Board President, Mr. Plymyer.

I contacted Mr. Plymyer late in the afternoon and discussed with him the same issues that were addressed with Mr. Turner, Mr. San Miguel, and Mr. Schalker. Mr. Plymyer assured me that permits would be obtained (as discussed with Mr. Turner and Mr. San Miguel) for future and current projects requiring them. He stated that Mr. Schalker had no support from him, the ALT Board, or anyone in the office.

Approved:		
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**CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD  
INSPECTION REPORT**

**SUMMARY:**

Inspection of the Auburn Lake Trails revealed problems areas, which threaten water quality. Auburn Lake Trails Property Owners Association have discharged waste in violation of the California Water Code by constructing an amphitheater in a wetlands, by stock piling manure waste, and by failing to provide erosion controls on construction project within the subdivision. The ALT Property Owners Association should be requested to take corrective action and to obtain the necessary permits to comply with State and Federal Regulations.

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Patrick G. Gillum, Area Inspector

Approved:		
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VOLUME III - DESIGN STANDARD FOR LOT OR PARCEL  
(NOT SUBDIVISIONS)

SECTION 1: GRADING PERMIT REQUIREMENTS

All grading must comply with the El Dorado County Grading Ordinance, Chapter 15.14, for multifamily, commercial and industrial construction.

Grading for single family residence construction shall require a grading permit only if one of the following prescriptive standards are exceeded: the driveway grade below 3,000-foot elevation exceeds 15% (nonsurfaced) or 20% (asphalt or concrete surfaced) and for above 3,000-foot elevation exceeds 15% (nonsurfaced) or 15% (asphalt or concrete surfaced), the cut (not supported by the house foundation) or fill earthwork exceeds 5 feet in height, the excavation or fill quantity will exceed 250 cubic yards; the removal, plowing under, or burial of more than 10,000 square feet of surface area on slopes 10% or greater will occur; grading will change existing drainage courses (ditches or swales) on lot or parcel; the proposed grading/construction activity will alter previously placed erosion control items on the lot or parcel.



# California Regional Water Quality Control Board Central Valley Region



Winston H. Hickox  
Secretary for  
Environmental  
Protection

Robert Schneider, Chair

Gray Davis  
Governor

Sacramento Main Office

Internet Address: <http://www.swrcb.ca.gov/rwqcb5>  
3443 Roubier Road, Suite A, Sacramento, California 95827-3003  
Phone (916) 255-3000 • FAX (916) 255-3015

12 June 2003

Philip Crimmins  
State Clearinghouse  
1400 Tenth Street  
Sacramento, CA 95814

## **COMMENTS TO THE DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE EL DORADO COUNTY GENERAL PLAN, SCH NO. 2001082030, EL DORADO COUNTY**

Staff have reviewed the May 2003 "Draft Environmental Impact Report for the El Dorado County General Plan (SCH No. 2001082030)". This Draft EIR identifies and assesses the anticipated environmental effects of the adoption and implementation of a General Plan for the County of El Dorado. The General Plan is intended to provide a long-term framework with which land use planning decisions will be made.

Our agency is delegated the responsibility of protecting the quality of the groundwater and surface waters of the state, and so our comments will only address concerns surrounding those issues.

1. The Development Approval Process Section on page 5.1-12 provides a discussion on the differences between permits by right ("ministerial") and discretionary permits. The document states that "Uses permitted by right are, by definition, those uses and permits, such as building permits, that the County (through the General Plan and/or Zoning Ordinance) has exempted from discretionary action. As ministerial projects, these permits are generally exempt from CEQA review." Please keep in mind that Section 13260 of the California Water Code (CWC) requires that any project for which waste is proposed to be discharged to either surface waters or land must submit a Report of Waste Discharge to the Regional Water Quality Control Board (Regional Board). The Regional Board is not able to adopt Waste Discharge Requirements (WDRs), or a waiver of WDRs, unless a CEQA document has been prepared for the project.
2. Section 5.2 discusses, among other items, the El Dorado regulatory programs related to agriculture and forest resources in El Dorado County. The Wineries Ordinance discussion states that wineries are permitted by right within certain agricultural zone districts. However, wastewater discharges from wineries are regulated by the Regional Board, and as stated above, the Board must comply with the requirements of CEQA in adopting permits. The "by right" permitting of wineries probably does not provide the necessary CEQA documents, and therefore either the County or the winery's consultant would be required to prepare a CEQA document for each winery to be permitted by the Board.

**California Environmental Protection Agency**



The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Web-site at <http://www.swrcb.ca.gov/rwqcb5>

3. Section 5.5.2 addresses potential impacts related to wastewater flows and system infrastructure that could result from population and employment growth, and provides a description of how wastewater is treated and disposed of within the county. The subsection that discusses "Wastewater Treated by Wastewater Treatment Plants" fails to describe the El Dorado Irrigation District's Camino Heights wastewater treatment plant.
4. Page 5.5-77 discusses the Union Mine Septage Treatment and Disposal Facility, and states that "Within the next two years, and to accommodate growth and acceptance of winery waste, the County plans to almost double the capacity of the treatment facility to a maximum capacity of approximately 30,000 gallons per day." In addition, the document states that County staff plan to expand the sprayfield by two acres to accommodate growth. The Union Mine Septage Treatment and Storage Facility is currently regulated by WDRs Order No.98-238, which allows a current flow of 30,000 gallons per day. Please keep in mind that if the septage treatment and disposal facility is expanded to handle flows greater than what is allowed by WDRs Order No. 98-238, or the sprayfields are expanded to greater than the four acres allowed by the WDRs, then the County will need to apply for updated WDRs.
5. Pages 5.5-78 and 5.5-79 provide a description of the regulatory roles provided by the El Dorado County Environmental Health Department, the State Water Resources Control Board (State Board), and the Regional Board regarding wastewater treatment and disposal systems. The document states that the State Board and Regional Board issue and enforce permits (i.e., WDRs) for WWTPs. In addition to issuing permits for WWTPs, the Regional Board requires that a RWD be submitted for individual onsite septic systems for any residential subdivision of over 100 homes, and for any development where septic tank effluent is disposed to a community leachfield (common disposal systems). In addition, the Regional Board relies on each county to implement an on-site sewage disposal system program consistent with our Basin Plan which includes septic tank "Guidelines". The Regional Board has waived WDRs for individual on-site septic system discharges from single-family residences in those counties enforcing an ordinance that complies with the Board's "Guidelines". The "Guidelines" provide that land developments consisting of less than 100 lots will be processed by the county while tentative maps containing 100 lots or more shall be transmitted to the Board accompanied by a RWD. Our Board does not have resources for a formal program to monitor individual sewage disposal practices for the 38 counties within the Central Valley Region. Therefore, it is important for El Dorado County to ensure compliance with all of the criteria within the "Guidelines".
6. Page 5.5-81 provides a discussion on projected wastewater flows and treatment plant capacities for the El Dorado Irrigation District's El Dorado Hills and Deer Creek WWTPs. Based on the projected flows and current capacities, the Draft EIR indicates that the current treatment capacity would be reached at the El Dorado Hills WWTP around 2015, and at the Deer Creek WWTP around 2025. If the WWTP's are expanded to treat, store, and dispose of flows greater than what each plant is permitted for, then the WDRs will need to be updated.
7. Page 5.5-93 provides a very brief discussion on the potential impacts of water quality from industrial sources. Specifically, it states that "Industrial land uses such as sand and gravel operations, and lumber mills can result in stream turbidity and toxic substances". As stated above,

any facility, including industrial facilities, that discharge waste to land and/or surface waters must submit a RWD to the Regional Board prior to the initiation of any discharge of wastewater. If such facilities are discharging wastewater and are not regulated by WDRs, then the discharge is in violation of the California Water Code.

8. Page 5.5-94, the Onsite Wastewater Treatment System section, states that onsite sewage systems are used for single-family residences, multifamily residences, trailer parks, public facilities, campgrounds, and commercial or industrial establishments, including wineries. As stated above, the Regional Board has waived WDRs for individual on-site septic system discharges from single-family residences in those counties enforcing an ordinance that complies with the Board's "Guidelines". The waived WDRs only apply to single-family residences or the equivalent, discharging domestic wastewater. Regional Board counsel has determined that "or equivalent" corresponds to flows of less than 5,000 gpd. This waiver does not apply to the discharge of winery process wastewater, or the discharge of other industrial wastewater.
9. Page 5.5-105 of the document states that "County regulations for the proper design and installation of onsite systems have been adopted by the County Board of supervisors and have been reviewed and accepted by the RWQCB." However, Regional Board staff has no record that we have reviewed or accepted the County's regulations for design and installation of onsite septic tanks/leachfield systems. As directed by Assembly Bill 885, the State Board is in the process of developing updated regulations for onsite septic systems, and the Regional Board will be required to implement these updated regulations with each County within our region.
10. The section on page 5.5-103 discussing the Regional Board's permitting of wineries is in error. Winery wastewater can contain extremely low pH levels, but this is not the cause of nitrate in the groundwater. Winery wastewater also contains high concentrations of nitrogen and salt. Groundwater monitoring at wineries throughout the Central Valley has shown that the application of winery wastewater to land can cause the underlying groundwater to be degraded by salts (measured as total dissolved solids) and nitrogen. The document states that the permitting of wineries is completed at the local level. It should be noted that the County has no authority under the California Water Code to permit the discharge of industrial wastewater, including the process wastewater from wineries. The Regional Board is in the process of adopting a regulatory scheme for wineries, including a General Order for Onsite Storage/Offsite Disposal (adopted in March 2003), a waiver for small food processors, including wineries (to be considered for adoption in July 2003), a General Order for Land Disposal of Winery Wastewater (projected to be considered in December 2003), and individual WDRs for wineries that do not meet the conditions of either General Order or the waiver.

Philip Crimmins  
State Clearinghouse

- 4 -

12 June 2003

Thank you for the opportunity to offer comments. If you have any questions regarding this matter, please telephone me at (916) 255-3389.



SCOTT KRANHOLD  
Waste Discharge to Land Unit

cc: John Morgan, El Dorado County Environmental Health Department, Placerville  
Conrad Montgomery, El Dorado County Planning Department, Placerville  
~~Bill Carey, El Dorado County Building Department, Placerville~~  
Dan Hinrichs, DJH Engineering, Placerville  
Steven Proc, Greenwood

Assembly Bill No. 885

CHAPTER 781

An act to add Chapter 4.5 (commencing with Section 13290) to Division 7 of the Water Code, relating to water.

[Approved by Governor September 27, 2000. Filed with Secretary of State September 27, 2000.]

LEGISLATIVE COUNSEL'S DIGEST

AB 885, Jackson. Onsite sewage treatment systems.

Existing law authorizes a California regional water quality control board to prohibit, under specified circumstances, the discharge of waste from individual disposal systems or community collection and disposal systems that use subsurface disposal.

This bill would require the State Water Resources Control Board, on or before January 1, 2004, and in consultation with the State Department of Health Services, the California Coastal Commission, the California Conference of Directors of Environmental Health, counties, cities, and other interested parties, to adopt, specified regulations or standards for the permitting and operation of prescribed onsite sewage treatment systems that meet certain requirements.

The bill would require each regional board to incorporate the state board's regulations or standards into the appropriate regional water quality control plans.

The bill would make a statement of legislative intent relating to assistance to private property owners with onsite sewage treatment systems.

*The people of the State of California do enact as follows:*

SECTION 1. Chapter 4.5 (commencing with Section 13290) is added to Division 7 of the Water Code, to read:

CHAPTER 4.5. ONSITE SEWAGE TREATMENT SYSTEMS

13290. For the purposes of this chapter:

(a) "Local agency" means any of the following entities:

(1) A city, county, or city and county.

(2) A special district formed pursuant to general law or special act for the local performance of functions regarding onsite sewage treatment systems within limited boundaries.

(b) "Onsite sewage treatment systems" includes individual disposal systems, community collection and disposal systems, and

alternative collection and disposal systems that use subsurface disposal.

13291. (a) On or before January 1, 2004, the state board, in consultation with the State Department of Health Services, the California Coastal Commission, the California Conference of Directors of Environmental Health, counties, cities, and other interested parties, shall adopt regulations or standards for the permitting and operation of all of the following onsite sewage treatment systems in the state and shall apply those regulations or standards commencing six months after their adoptions:

- (1) Any system that is constructed or replaced.
- (2) Any system that is subject to a major repair.
- (3) Any system that pools or discharges to the surface.
- (4) Any system that, in the judgment of a regional board or authorized local agency, discharges waste that has the reasonable potential to cause a violation of water quality objectives, or to impair present or future beneficial uses of water, to cause pollution, nuisance, or contamination of the waters of the state.

(b) Regulations or standards adopted pursuant to subdivision (a), shall include, but shall not be limited to, all of the following:

- (1) Minimum operating requirements that may include siting, construction, and performance requirements.
- (2) Requirements for onsite sewage treatment systems adjacent to impaired waters identified pursuant to subdivision (d) of Section 303 of the Clean Water Act (33 U.S.C. Sec. 1313(d)).
- (3) Requirements authorizing a qualified local agency to implement those requirements adopted under this chapter within its jurisdiction if that local agency requests that authorization.
- (4) Requirements for corrective action when onsite sewage treatment systems fail to meet the requirements or standards.
- (5) Minimum requirements for monitoring used to determine system or systems performance, if applicable.

(6) Exemption criteria to be established by regional boards.

(7) Requirements for determining a system that is subject to a major repair, as provided in paragraph (2) of subdivision (a).

(c) This chapter does not diminish or otherwise affect the authority of a local agency to carry out laws, other than this chapter, that relate to onsite sewage treatment systems.

(d) This chapter does not preempt any regional board or local agency from adopting or retaining standards for onsite sewage treatment systems that are more protective of the public health or the environment than this chapter.

(e) Each regional board shall incorporate the regulations or standards adopted pursuant to subdivisions (a) and (b) into the appropriate regional water quality control plans.

13291.5 It is the intent of the Legislature to assist private property owners with existing systems who incur costs as a result of the

implementation of the regulations established under this section by encouraging the state board to make loans under Chapter 6.5 (commencing with Section 13475) to local agencies to assist private property owners whose cost of compliance with these regulations exceeds one-half of one percent of the current assessed value of the property on which the onsite sewage system is located.

13291.7. Nothing in this chapter shall be construed to limit the land use authority of any city, county, or city and county.

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CALIFORNIA CODES  
WATER CODE  
SECTION 13290-13291.7

13290. For the purposes of this chapter:

- (a) "Local agency" means any of the following entities:
- (1) A city, county, or city and county.
  - (2) A special district formed pursuant to general law or special act for the local performance of functions regarding onsite sewage treatment systems within limited boundaries.
- (b) "Onsite sewage treatment systems" includes individual disposal systems, community collection and disposal systems, and alternative collection and disposal systems that use subsurface disposal.

13291. (a) On or before January 1, 2004, the state board, in consultation with the State Department of Health Services, the California Coastal Commission, the California Conference of Directors of Environmental Health, counties, cities, and other interested parties, shall adopt regulations or standards for the permitting and operation of all of the following onsite sewage treatment systems in the state and shall apply those regulations or standards commencing six months after their adoptions:

- (1) Any system that is constructed or replaced.
  - (2) Any system that is subject to a major repair.
  - (3) Any system that pools or discharges to the surface.
  - (4) Any system that, in the judgment of a regional board or authorized local agency, discharges waste that has the reasonable potential to cause a violation of water quality objectives, or to impair present or future beneficial uses of water, to cause pollution, nuisance, or contamination of the waters of the state.
- (b) Regulations or standards adopted pursuant to subdivision (a), shall include, but shall not be limited to, all of the following:
- (1) Minimum operating requirements that may include siting, construction, and performance requirements.
  - (2) Requirements for onsite sewage treatment systems adjacent to impaired waters identified pursuant to subdivision (d) of Section 303 of the Clean Water Act (33 U.S.C. Sec. 1313(d)).
  - (3) Requirements authorizing a qualified local agency to implement those requirements adopted under this chapter within its jurisdiction if that local agency requests that authorization.
  - (4) Requirements for corrective action when onsite sewage treatment systems fail to meet the requirements or standards.
  - (5) Minimum requirements for monitoring used to determine system or systems performance, if applicable.
  - (6) Exemption criteria to be established by regional boards.
  - (7) Requirements for determining a system that is subject to a major repair, as provided in paragraph (2) of subdivision (a).
- (c) This chapter does not diminish or otherwise affect the authority of a local agency to carry out laws, other than this chapter, that relate to onsite sewage treatment systems.
- (d) This chapter does not preempt any regional board or local agency from adopting or retaining standards for onsite sewage treatment systems that are more protective of the public health or the environment than this chapter.
- (e) Each regional board shall incorporate the regulations or standards adopted pursuant to subdivisions (a) and (b) into the appropriate regional water quality control plans.

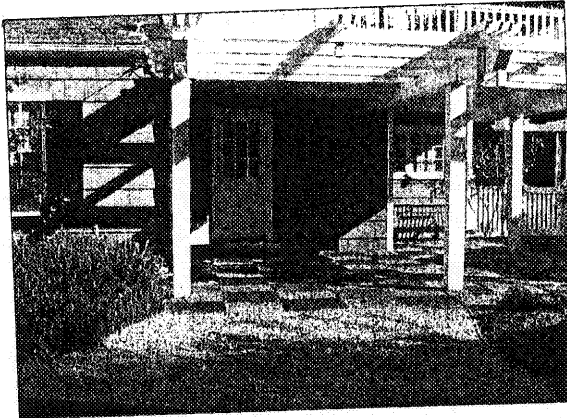
13291.5 It is the intent of the Legislature to assist private property owners with existing systems who incur costs as a result of the implementation of the regulations established under this section by encouraging the state board to make loans under Chapter 6.5 (commencing with Section 13475) to local agencies to assist private property owners whose cost of compliance with these regulations exceeds one-half of one percent of the current assessed value of the property on which the onsite sewage system is located.

13291.7. Nothing in this chapter shall be construed to limit the land use authority of any city, county, or city and county.

S. F. Chronicle  
4/6/2002

**ONE OPTION:**

Gravel is interspaced with pavers to define a patio.



## Hardscaping the right way

There are benefits to not making a concrete decision

BAY AREA CLEAN WATER AGENCIES

Planning a new driveway or walkway? If you are, consider including simple design changes that will beautify your home and protect Bay Area waters.

Designing, also known as "hardscaping" a driveway or walkway at your home can be a fun project. Choosing the right kind of materials can make your yard and home more attractive and inviting, and help protect local creeks, the bay and the delta.

"It's one of those things most people don't even think about," said Geoff Brosseau, executive director of the Bay Area Clean Water Agencies. "But opting for materials other than concrete when hardscaping areas of your yard can have a really positive impact

on water quality in the region."

Most driveways and front walkways are constructed of impermeable materials like asphalt and concrete that do not allow water to reach the soil. By preventing rainwater from infiltrating the soil, impermeable surfaces like roads, rooftops and walkways cause rainwater to run off directly to the storm drains, carrying a variety of pollutants such as pesticides, phosphates, oil and heavy metals with it. This polluted runoff flows untreated to local waterways and can harm fish and other wildlife.

Compounding the problem, the swifter flows caused by impermeable surfaces cause erosion and deliver extra sediment into Bay Area creeks. Sediment blocks out sunlight, killing plants and

animals that depend on them, and prevents some species like trout and steelhead from breeding.

Tom Richman, landscape architect and president of Tom Richman and Associates in Palo Alto, says permeable materials are the latest trend.

"Many people are turning to permeable pavements because of their attractiveness and benefits to the environment," says Richman.

Landscape architect David Phelps of Marin's Gardens and Gables agrees. "The trend now is to use permeable materials thanks to the ever-increasing diversity and selection of concrete pavers and the popularity of informal flagstone patios," says Phelps.

Many materials available work well for driveways and walkways. Attractive options include brick,

natural stone, crushed aggregate and concrete unit pavers.

■ **Brick.** Brick, a traditional building material typically made of fired clay, is available in a variety of colors, sizes, materials and finishes to individualize your walkway, driveway or patio design. To form a permeable pavement, lay the brick with sand joints on a crushed rock base. Brick pavement is more permeable in light rains and with wider joints.

"Brick would only be used if the client already had brick used in the garden or on the house. It is also somewhat formal and gives the garden a more stately look," says Phelps.

■ **Natural stone.** Natural stone, like brick, is a traditional building material that forms a permeable surface when laid with sand on a crushed rock base. These stones are available in a variety of natural materials with varying colors, shapes, textures and finishes that include flagstone, slate, granite and bluestone.

■ **Crushed aggregate.** Crushed aggregate — or gravel — is a granular material that can be laid in any shape or configuration. Permeability increases with larger aggregate sizes, so open graded mixes are more permeable than mixes that include fine particles.

Crushed aggregate is easy to install and can be used in walkways, patios, parking stalls, or private driveways with low potential for erosion. Crushed aggregate is the best option for expansive soils such as clay. For patios and walkways, a smaller aggregate should be used, but a larger aggregate makes a better driving surface.

■ **Unit pavers.** A modern variation of traditional brick technology, concrete unit pavers are discrete units that are usually set in an interlocking pattern on a prepared sand base. Some of these

shapes form patterns that include an open cell to increase permeability.

"As a homeowner, there are lots of factors you take into consideration when starting a project like this," says Brosseau. "Cost is important, but so is the look of your house and your neighborhood. You want to do something that will fit in nicely."

Phelps helps his clients balance these decisions. "The best test for the material is to learn the intended use of the space," says Phelps. "Will it be for quiet sitting, playing sports, tricycle traffic, vehicular traffic, or just viewed from an upstairs window? Form should always follow function."

washingtonpost.com

## Architects and Urban Planners Can Help Solve Flood, Drought and Water Pollution Problems

By Roger K. Lewis

Saturday, September 7, 2002; Page H05

Management of the earth's water resources was among the issues discussed at the politically charged United Nations World Summit on Sustainable Development, which concluded this week in Johannesburg. But I wonder whether there was any discussion about the relationship between managing water resources and architecture and urban design.

You didn't have to attend the conference to know that dealing intelligently with water is a critical, worldwide challenge. Here and elsewhere in the United States, brown lawns, parched foliage, dry streams and water rationing have been constant reminders of this summer's drought conditions. Catastrophic flooding in Central and Eastern Europe, dramatized by images of the inundated historic heart of Prague, underscored the challenge.

Water poses three critical sustainability problems: having too little where and when it's needed for habitation, industry and agriculture; having too much where and when it's not wanted; and maintaining water quality to protect and preserve natural ecosystems and wildlife habitats.

Architecture and urban design can't stop fertilizers and pesticides from washing off farmland into rivers and bays, change the jet stream or modify rainfall patterns. But they can help in addressing and mitigating water problems. What and how we build directly influences a region's water supply as well as the quality of the region's streams, rivers, lakes, bays and coastal waters.

The essence of the mitigation-by-design strategy is simple: Reduce or minimize the amount of land covered by materials that prevent rain from falling directly onto the soil.

Most rain falling on the ground is absorbed. Soil acts as a natural filter and cleanses the water percolating down. The naturally filtered water eventually reaches underground aquifers or, downhill from where the rain fell, reaches the surface again to feed a spring or stream.

Because the surfaces of roads and parking lots and the roofs of buildings are impervious, virtually all the rain falling on these surfaces runs off. If it is dumped on the ground, some of it is absorbed. But in urbanized areas, most runoff is collected by storm drains and catch basins. These channel the water into networks of culverts and underground pipes, eventually leading to outfalls at streams, bayous, rivers, lakes or the sea.

Rainwater washing across roofs, roadways and parking lots picks up and retains pollutants -- hydrocarbons deposited by vehicles, industrially produced chemicals, decaying microorganisms and just plain dirt. Most of these materials remain in the water and are there when it reaches outfalls. Thus, increasing the amount of impervious surface within a region worsens pollution in the region's waters.

Adding impervious construction to a region's landscape has another unwanted consequence: It substantially reduces the amount of water reaching and recharging the region's underground aquifers, often a critical source of potable well water as well as a source of water for recharging streams and rivers.

The most obvious negative consequence of paving and roofing the natural landscape is the one that structured drainage systems traditionally seek to prevent -- flooding. Eventually a storm always comes along to overload the system, no matter how well it has been engineered. That's especially true in areas that are flat, about flood plains or lie in valleys where cresting rivers have no place to go except through towns.

Since the 1960s, stricter environmental standards have resulted in storm-water systems designed not only to prevent flooding but also to improve water quality. In many suburbs, runoff is piped or channeled to retention ponds where sediment can settle out before the water leaves the pond.

Yet no matter how effective newer systems are in temporarily managing storm water, covering the landscape with impervious materials -- roofing and paving -- still alters the environment.

What does all this have to do with architecture?

When designing a building or a community, architects, planners, engineers and their clients can make several intelligent choices to reduce damage.

- Site development plans and road networks can be configured as efficiently as possible, with streets no wider than absolutely necessary. Reducing the curb-to-curb width of a street from 40 feet to 36 feet, still enough for two lanes and curbside parking, reduces paved surface area and runoff by 10 percent. It also helps calm traffic by slowing down cars.

- Most sidewalks and parking lots are paved and impervious, but many could be surfaced with more porous paving materials to accommodate vehicles while still allowing rain to seep through. In more densely urbanized areas, placing parking under buildings, in parking garages or even on building roofs eliminates undesirable runoff from surface parking lots, which are ugly anyway.

- Geometrically compact buildings reduce roof area and site coverage while increasing usable, pervious open space. Putting a given amount of floor space in a two-story rather than a one-story building reduces the roof and footprint area by half. Going from two stories to three stories reduces site coverage and roof runoff by one-third. Compact buildings offer other sustainability benefits: more compact foundations, less exterior wall surface, less energy consumption for heating and air conditioning, and usually lower construction and operating costs.

- Site development plans can incorporate more "green infrastructure," such as networks of vegetated swales and constructed wetlands, to disperse and retain storm water on-site and allow more of it to soak naturally into the ground instead of being piped away.

In the short run, the effects of such design actions, considered project by project, may seem marginal. But in the long run, and in the aggregate, they will make a measurable difference. For a sustainable future, we need to undertake these design actions now.

*Roger K. Lewis is a practicing architect and a professor of architecture at the University of Maryland.*

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June 6, 2003, Los Angeles Times

### SUN VALLEY SETS OUT TO HARNESS RAINFALL

Idea is to capture and use runoff, reducing water imports and helping environment.

By Miguel Bustillo, Times Staff Writer

Five years ago, environmentalist Andy Lipkis took a group of bureaucrats to a bungalow in South Los Angeles and faked a rainstorm.

As officials huddled under umbrellas, fire hoses bombarded the roof with hundreds of gallons of water in a matter of minutes. But instead of flowing into the street, every drop coming off the little house was caught and put to use.

A cistern connected to the roof collected enough moisture to help water the backyard for weeks. Hedges in the front absorbed water flowing toward the street, directing it back into the ground. A tiny metal grate captured the oil-tainted runoff that trickled down the driveway and deposited it in a tank that filtered it clean before releasing it into the earth.

It was just one bungalow in a city of thousands. But Lipkis, 48, head of the group TreePeople, argued that what his audience was witnessing could be done everywhere in Los Angeles — not only to save water, but to prevent flooding and stop filthy runoff from polluting the ocean.

The officials were so impressed that they are now attempting to duplicate the feat on a larger scale — catching and reusing rainfall in a 4.4-square-mile residential and industrial area of Sun Valley in the San Fernando Valley.

It won't be cheap, but Lipkis and a growing number of official converts believe the approach could turn out to be a major step toward two important goals — conserving precious water in an arid metropolis and cleaning the region's beaches — and in the process, challenging the odd logic of water use in the city.

To quench Los Angeles' legendary thirst, hugely expensive man-made rivers pipe in water from hundreds of miles away. Today, the city imports roughly 85% of its water. Yet to prevent flash floods, the city pays again to convert natural streams into concrete storm drains that shuttle the same precious fluid out of town as swiftly as possible when it rains.

With roughly 70% of Los Angeles covered by structures or pavement, such a large amount of motor oil, chemicals and waste washes down drains and out to sea that the city repeatedly violates the Clean Water Act. It is under a federal court order to stop the pollution soon, which could cost taxpayers tens of millions of dollars in cleanup fees if an alternative to mass treatment is not found.

For years, environmental activists have argued that a different approach to how the city handles rainwater could accomplish those cleanup goals at a far lower price and produce drinking water at the same time. With the Sun Valley project, they will get a chance to see if their theories actually work.

"It's a very important project, not only for Southern California, but for the entire country," said David Beckman, a senior attorney with the Natural Resources Defense Council.

Lipkis' 1998 house-doubling captivated Carl Blum, then deputy director of the county Public Works Department. Before he retired in 2000, Blum saw to it that one of the last parts of the city still prone to major flooding became a testing ground.

"Essentially, we are putting in a forest instead of a storm drain," Lipkis said. "The implications are huge for the future of L.A."

The project involves planting thousands of trees, turning old gravel pits into small lakes, and installing underground tanks to collect the rain that falls on hundreds of driveways, parking lots and rooftops.

Supporters say the Sun Valley experiment makes far more sense than diverting storm water into a drain that sluices it into the ocean — the county's original plan for coping with the area's frequent flooding.

By directing the water into the ground, the project should also help recharge subterranean water supplies, reduce ocean pollution and return natural beauty to a community called neglected by neighborhood leaders.

The largely Latino working-class area is home to numerous trash dumps, auto dismantlers and recyclers, many of which sit alongside apartment houses and single-family homes.

The Sun Valley plan will cost in excess of \$100 million, more than twice as much as the storm drain, and take at least a decade — and possibly twice as long — to complete.

Although the county, which is spearheading the project, has pledged \$42 million and other state and local agencies are promising support, the project has not been fully financed.

Nonetheless, supporters say the benefits will greatly outweigh the costs.

"We started to say: 'If this works in one house, would it work on a whole block? An entire neighborhood?'" said Vik Bapna, the county official in charge of the Sun Valley project.

"We started to look at the technical aspects and determined that, yes, it was feasible. We looked at the financial aspects, the political aspects, and determined, yes, it was all feasible."

Sun Valley was built without storm drains, and it floods so frequently that television news crews routinely head there to film dramatic scenes of high water after rainstorms.

Such a problem is the flooding that the Los Angeles Unified School District agreed in 2001 to provide a special shuttle to bus children to elementary schools outside the neighborhood. The shuttle actually saved money, because attendance was down so much in Sun Valley that its schools were losing state funds.

Parents — some of whom braved the same knee-deep floodwaters themselves decades earlier — were keeping children home from school on rainy days for safety reasons.

"Every time it rained, no matter how hard it rained, the streets were always flooded," recalled Assemblywoman Cindy Montanez (D-San Fernando), who represents the area. "Kids couldn't get to school because there was a raging river running down the street. And it's still that way."

The first phases of the Sun Valley project are scheduled to begin next year in a park, a middle school and the neighborhood's most notoriously photogenic intersection, Tuxford Street and San Fernando Road.

If it succeeds, it could eventually lead to what conservationists are calling an "environmental retrofit" of the entire city. Over time, TreePeople contends, a citywide retrofit would not only curb ocean pollution but also reduce Los Angeles' demand for outside water by as much as 50% while making the city a greener, more desirable place to live.

"In the earlier part of this century, we looked at a single strand of a complicated issue," said Melanie Winter of the River Project, a group pushing for revival of the city's streams. "While William Mulholland [the city engineer who built the Los Angeles Aqueduct] was running around like crazy trying to figure out how to bring drinking water to the city, you had engineers figuring out how to carry rainwater out.

"This is a different paradigm of engineering — working with nature rather than against it."

Not everyone is so optimistic.

Although the Los Angeles Department of Water and Power is one of the agencies participating in the Sun Valley project, Jerry Gewe, its assistant general manager for water, believes that the approach has limited potential because it cannot be duplicated widely enough to meet all of the city's water needs. He predicts that the city will eventually have to turn to desalination.

"Unfortunately, most of our city does not have the type of groundwater basins you have in the San Fernando Valley," Gewe said, noting that the sand and gravel beneath the Valley historically have served as a natural water filter.

Other government officials and environmentalists taking part in the project disagree, saying that although the techniques used in Sun Valley may not work throughout the city, some similar mix of rain-saving tools can be equally effective.

Numerous government agencies and politicians are supporting the Sun Valley project. Los Angeles recreation officials are participating because they see it as an opportunity to add parks and playing fields that could collect rainwater on the side.

Similarly, CalFed, a state-federal collaboration to reorganize water use in the San Joaquin and Sacramento valleys, is contributing financially because it believes that finding new ways to slake Los Angeles' thirst will help its own efforts to conserve water.

Persuading the doubtful residents of Sun Valley has been a special hurdle. Government officials have pledged to fix the flooding problem many times but never have, so residents are skeptical of the latest promises.

The Sun Valley team decided to demonstrate good faith by tacking the most visible sign of the problem first: the intersection of Tuxford and San Fernando.

Next year, the team will begin to build a series of catch basins to capture runoff around the intersection and use it to water new trees and landscaping. A community activist has already renamed the corner "Tuxford Green."

Meanwhile, an adjacent business, Sun Valley Paper Stock, has offered to collect rainwater from its roof and channel it underground.

"I have lived here for 33 years and I've seen a lot of changes, most of them bad," said Vicky Burch, the head of the Sun Valley Neighborhood Improvement Assn. "This one I'm excited about."



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# NEWS

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Date: July 2, 2002

Contacts: Jennifer Burris, Media Relations Associate

Andrea Durham, Media Relations Assistant

(202) 334-2138; e-mail <news@nas.edu>

## FOR IMMEDIATE RELEASE

### Sewage Sludge Standards Need New Scientific Basis

WASHINGTON -- The U.S. Environmental Protection Agency's standards that govern using treated sewage sludge on soil are based on outdated science, says a new report from the National Academies' National Research Council. The agency should update its standards using improved methods for assessing health risks, and should further study whether treated sewage sludge causes health problems for workers who apply it to land and for residents who live nearby, added the committee that wrote the report. More rigorous enforcement of the standards is needed as well.

"There is a serious lack of health-related information about populations exposed to treated sewage sludge," said committee chair Thomas A. Burke, professor, department of health policy and management, Johns Hopkins University Bloomberg School of Public Health, Baltimore. "To ensure public health protection, EPA should investigate allegations of adverse health effects and update the science behind its chemical and pathogen standards."

Under a 1993 Clean Water Act rule designed to protect public health and the environment, sewage sludge can be applied to land if it is sufficiently treated to limit concentrations of certain chemicals and reduce disease-causing pathogens. Sewage sludge that meets these standards is referred to as biosolids. Depending on the extent of treatment, biosolids may be applied as a fertilizer where there is limited public exposure to it, such as farms and forests, or on sites with more public contact such as parks, golf courses, lawns, and home gardens. Since 1992, when a ban on ocean dumping was instituted, applying biosolids to land has reduced the amount of sewage sludge that would otherwise need to be buried in landfills or incinerated. About 5.6 million tons of sewage sludge are used or disposed of each year in the United States, and 60 percent of that is used for land application.

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Craig Hicks  
Managing Editor

Tom Roberts  
Deputy Managing Editor

Lauren Morello  
Online Producer

Jonathan Waldman  
Web Outreach Specialist

Contact us by e-mail  
[news@nas.edu](mailto:news@nas.edu)

Methods for assessing the health risks posed by exposure to chemicals have evolved substantially since the 1993 biosolids rule was established. In addition, EPA used an unreliable 1988 survey to identify hazardous chemicals in sewage sludge when it set the standards, and other chemicals have since been found to be of potential concern. A new survey and revised risk assessments are needed, the committee said. The revised risk assessments also should reflect the potential for regional variations in climate, water flow, and biosolids characteristics, and should be designed to protect individuals against realistic maximum exposures.

The committee agreed with EPA's general approach for regulating pathogens, which requires the level of disease-causing microorganisms to be reduced through treatment of sewage sludge and restrictions on use of land immediately after biosolids are applied. However, the agency should use new pathogen-detection technology to ensure that treatments are reliable. Microbial risk assessments that include the possibility of secondary transmission of disease, such as through person-to-person contact or through food, air, or water, also should be developed. As is the case with chemicals, a new national survey of pathogens in sewage sludge should be carried out.

To assure the public that biosolids regulations are being followed, EPA should increase its efforts to ensure that companies producing biosolids meet the regulatory requirements to remove or neutralize chemicals and pathogens. EPA also needs to ensure that biosolids are applied in accordance with special management practices. In certain cases, biosolids can be applied with the understanding that the land cannot be used for a specified period to allow pathogens to fall below detectable levels. However, EPA has not been verifying if pathogens are dying off, whether the land is being used for agriculture or grazing, or whether public access is adequately restricted. Field data are needed in these cases, the committee said.

EPA also should conduct studies of the potential health risks, or lack thereof, to workers and residential populations exposed to biosolids. The report cites anecdotal reports linking biosolids to adverse health effects, ranging from mild allergic reactions to more severe chronic conditions, along with public concern about those reports. The committee also cited a lack of population studies on individuals exposed to biosolids, such as farmers and nearby residents. Studies on workers exposed to raw sewage are not an adequate substitute for studies of populations exposed to biosolids in the environment, the committee concluded. More funding and staff are needed to support EPA's regulation of biosolids. Some of these resources should go toward the needed research.

The study was sponsored by the U.S. Environmental Protection Agency. The National Research Council is the principal operating arm of the National Academy of Sciences and the National Academy of Engineering. It is a private, nonprofit institution that provides science and technology advice under a congressional charter. A committee roster follows.

The report **Biosolids Applied to Land: Advancing Standards and Practices** is available on the Internet at <http://www.nap.edu>. Copies will be available for purchase later this summer from the National Academy Press; tel. (202) 334-3313 or 1-800-624-6242. Reporters may obtain a pre-publication copy from the Office of News and Public Information (contacts listed above).

NATIONAL RESEARCH COUNCIL  
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Board on Environmental Studies and Toxicology

**Committee on Toxicants and Pathogens in Biosolids Applied to Land**

**Thomas A. Burke (chair)**  
Professor  
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Bloomberg School of Public Health  
Johns Hopkins University  
Baltimore

**Lawrence R. Curtis**  
Professor and Head  
Department of Environmental and Molecular Toxicology  
Oregon State University  
Corvallis

**Charles N. Haas**  
L.D. Betz Chair Professor  
School of Environmental Science, Engineering, and Policy  
Drexel University  
Philadelphia

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New Jersey Medical School  
Newark

**Ellen Z. Harrison**  
Director  
Cornell Waste Management Institute  
Center for the Environment  
Cornell University  
Ithaca

**John B. Kaneene**  
Professor of Epidemiology, and  
Director  
Population Medicine Center  
Michigan State University  
East Lansing

**Greg Kester**

Wisconsin State Residuals Coordinator  
Wisconsin Department of Natural Resources  
Bureau of Watershed Management  
Madison

**Stephen P. McGrath**  
Program Leader  
Agriculture and Environment Division  
Institute for Arable Crops Research Rothamsted  
Harpenden, Herts  
United Kingdom

**Thomas E. McKone**  
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Ernest Orlando Lawrence Berkeley National Laboratory  
Division of Environmental Health Sciences  
School of Public Health  
University of California  
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Professor  
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University of Arizona  
Tucson

**Suresh D. Pillai**  
Associate Professor  
Poultry Science Department  
Texas A&M University  
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Department of Civil and Environmental Engineering  
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Berkeley

RESEARCH COUNCIL STAFF

**Susan Martel**  
Study Director

\* Member, National Academy of Engineering

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## POLLUTION

### SOUTHLAND STORMWATER LESSONS

In the Southland they're called SUSMPs — standardized urban stormwater mitigation plans — and their adoption in Los Angeles and San Diego caused quite a stir among local officials, developers and environmentalists. Bay Area proponents favor a less succinct moniker, like "new and redevelopment requirements," but the issue is causing a big fuss around here as well.

The S.F. Regional Water Quality Control Board is in the process of bringing the gist of SUSMP to the Bay Area, as part of the reissuance of Santa Clara County's five-year stormwater discharge permit (NPDES). Enhanced permit requirements will mean cities throughout the county will have to follow the same rules for managing runoff flows.

Previous requirements were more generic, "do what you can where you can," according to Geoff Brosseau of the Bay Area Stormwater Management Agencies Association. The new requirements get more specific about how much runoff must be captured, filtered (through soils, vegetation or actual fabric filters) or treated on a project site — the "start at the source approach" — before it can flow into creeks, ditches and ultimately the ocean. This way, says the S.F. Board's Dale Bowyer, "You get the benefits for the life of the project."

The new requirements also define for the first time what kinds of projects must comply. They don't, however, mandate specific technology, leaving that to a developer's architects and engineers. Some designers incorporate more permeable surface area, such as grassy swales, into their projects; at other times catch basin filters are more appropriate.

Bowyer says this isn't a "snocking new evolution" in regulation, but it does provide more backbone to existing 1990s regulatory guidance. "Rather than use that guidance, some Bay Area cities have pretty much let developers do things that were easy and inexpensive, just enough so they say could say 'we checked off that box,'" he says.

This raises the bar for performance and compliance with stormwater permits, says Brosseau. It forces municipalities to get more serious about stormwater, and to integrate stormwater management more fully into city infrastructure and procedures.

The new Santa Clara requirements build on previous performance standards established in the city's 1997 permit, but also embrace some lessons from Los Angeles County — where the L.A. Regional Board adopted the state's first SUSMP in March 2000. Though 30 of 85 L.A. county cities appealed the new SUSMP regs, the State Board recently upheld most of the L.A. rules.

As a result, some Southland developers are now going all out on stormwater control, according to Jeff Okamoto with the Orange County office of RBF Consulting, a regional engineering firm laying out major subdivisions. Before the local SUSMP came along, everyone just let all the runoff head straight down the storm drain.

### SUSMP CONTINUED

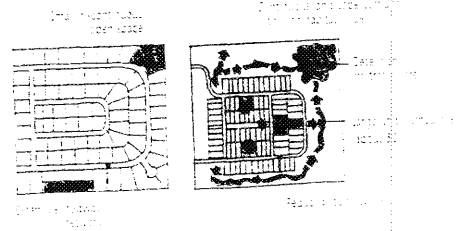
trucks similar to the "honey wagons" serving portable toilets.

Okamoto says several of his firm's clients have directed him to go beyond the minimum requirements and do better on recent projects. "In the current political atmosphere, some of our builders wanted to show the city and interest groups they're willing to do what's right," he says. (Full disclosure: Jeff Okamoto is the editor's brother in law.)

Of course doing all these things can cost more. Adding bioswales or detention basins can take up significant amounts of land, which can be a precious commodity, and some treatment measures are expensive to build and maintain, say developers. City officials worry that the new requirements will make it more difficult to do infill projects and build low income housing. They also argue that the proposed performance standards, which call for catching 85% of peak storm runoff, are too confusing, even for engineers, and they want the board to delay implementation, particularly for smaller projects. Board chief Loretta Barsamian says she "got an earful" from city managers when she met with them earlier this summer, and over thirty speakers lined up at a July public hearing, objecting to various aspects of the permit changes.

he says. Now RBF's projects include dozens of runoff pollution reduction measures, among them streetsweeping, catch basins equipped with special "trash baskets" and filters to clean up the first flush of urban runoff and something Okamoto calls "summer slobber" — soaps, brake dust and fertilizer from car washing, driving and lawn watering; and other stormwater collection units with holding tanks cleaned out by

### CLUSTERED INFILL DEVELOPMENT IMPROVEMENT



BayKeeper's Jonathan Kaplan says he's disappointed with the city officials' lobbying. "What's being proposed is in a lot of respects weaker than what was approved in Los Angeles and San Diego." He wants to see a strong regional approach.

Amy Glad of the Home Builders Association of Northern California says that a one size fits all approach won't work because of localized variations in terrain and rainfall. "Some standardization is useful, but you need to recognize regional differences. That issue will loom large in the near future. The NPDES permits of several other Bay Area counties, including Alameda, will likely be amended to include similar new stormwater provisions soon, says Bowyer.

At press time, the staff was putting the final touches on a revised version of the requirements, aiming for an August 15 release. That will begin a five week comment period, during which the Board will hold multiple meetings with stakeholders and tweak the permit details one more time. The full Board is scheduled to vote on the issue at its October meeting (see calendar). "I'm sure we'll be going through a painful and protracted process of denial about SUSMP, says Brosseau, "But the reward is getting credit for good front end site design, and then not having to treat so much stormwater." Contact: Jan O'Hara (510)622-5681 OG & ARO

W.P.  
2/7/2002

### EPA Review Cites 'Gaps' In Research on Sludge

Four million tons of recycled sewage is being spread on suburban and rural fields across the country each year, and the government has done too little research to ensure humans are safe from the viruses, bacteria and toxins in the sludge, an internal review concludes.

The investigation by the inspector general of the Environmental Protection Agency cites "gaps in the science" used to approve sludge recycling in the 1990s and says the agency has cut money, staff and oversight since then despite growing safety worries.

"The agency can neither investigate nor keep track of all of the complaints of adverse health affects that are reported," the internal watchdog wrote in a draft report.

The EPA said it has asked the National Research Council to study any possible health concerns related to the sludge recycling.

## Valley counties fight use of sewage sludge

9/4/2000  
Orange County and Los Angeles sue Kern County over ordinance.

[BYLINE]By Lewis Griswold <MC>THE FRESNO BEE

Valley counties, concerned with possible contamination from germs and heavy metals, are telling Los Angeles to stop trucking treated sewage sludge north to spread on farmland.

But Los Angeles says sludge has been around as long as human history and is good for the soil.

Kern County last year passed an ordinance all but banning the practice of putting "biosolids" on farmland, and a similar ordinance was enacted a year earlier in Tulare County.

Kings County is considering imposing regulations, and Fresno County supervisors two weeks ago told their staff to write a proposal limiting or banning the practice. Madera County also has restrictions.

Orange County and Los Angeles, which bring thousands of tons of treated sewage sludge to farmland in Kern County and other places each year, sued Kern

Please see SLUDGE Page 316

## Sludge: Effect of 'biosolids' remains in dispute

Continued from Page A1  
to have the ordinance overturned.

Valley farmers, elected officials, farm bureaus and agricultural commissioners are watching the case with interest because pressure to accept the treated sludge has been building ever since the federal government told Los Angeles 10 years ago to stop discharging sewer waste into the ocean.

"We're just trying to protect the environment," said Deputy Tulare County Agricultural Commissioner Gary Kunkel.

Last week, Tulare County Judge Paul Vortmann, assigned to hear the case after Kern County judges recused themselves, issued a nonbinding advance ruling in favor of Kern County and against an assortment of Southern California sanitation districts.

At an all-day hearing in Visalia, lawyers for Orange County, Los Angeles County and the city of Los Angeles argued to Vortmann that he should reverse his ruling in favor of the Southland municipalities.

"It comes to us seven days a week, 52 weeks a year, whether we want it or not," said Los Angeles deputy attorney Christopher Westhoff, referring to waste water from 4 million Los Angeles residents. "Biosolids are not new. They've been around since

to do something with it."

Los Angeles will appeal the decision if the judge — who has 90 days to make his decision — rules against the sanitation districts, Westhoff said.

The legal issue involves whether Kern County should have prepared an environmental impact report before passing its ordinance banning most biosolids.

But the larger issue is what to do with treated sewage sludge and whether it's harmful or beneficial to farmland. Critics say it's possibly loaded with pathogens — microorganisms that can cause disease — and heavy metals that could harm the environment.

The Kern ordinance bans Class B biosolids on farmland after 2003. But Class A biosolids of "exceptional quality" would be allowed.

Use of any biosolids on farmland growing food for human consumption is barred.

Critics say that Class B biosolids still have pathogens, or germs and harmful organisms. But advocates say that 97% to 99% of the pathogens are destroyed at the plant and any remaining germs die when exposed to ultraviolet light.

Class A biosolids are heated to kill the pathogens. Los Angeles lawyers argued that it's unnecessary to heat biosolids to achieve Class A "exceptional quality" status and that generating the

heat has its own environmental impacts. Furthermore, heating degrades the useful nitrogen content of biosolids, they say.

Another issue involves the possible concentration of lead, zinc, cadmium and other heavy metals harmful to wildlife, humans and growing of crops.

"This isn't the stuff of a 100 years ago. It includes industrial wastes," said Bob Joyce, a lawyer representing Kern County farmers who oppose biosolids on farmland.

The sanitation districts respond that heavy metals were once a problem in sewage because of heavy industry pouring substances into the waste stream, but regulation is keeping the waste stream free of heavy metal.

Some farmers seem to like it. At least three farmers in Kern County apply the treated sewage sludge to marginal farmland.

But a who's who of Kern County farmers including Pandol and Sons, Sunworld Inc., M. Caratan Inc. and Giumarra Vineyards intervened in the suit on behalf of Kern County.

"It's the proverbial case of nobody wants it," said Kern County Counsel Bernard C. Barman Sr. "Biosolids is a [public relations] term. I don't use it. It's sewage sludge."

Los Angeles has gone so far as to buy 5,000 acres in Kern County south of Bakersfield to apply

the material, and Orange County has an option on 4,000 acres.

Properly treated biosolids have some nitrogen and lots of organic matter that farmers like, said Lew Nelson, utilities engineer for the city of Visalia. The city applies Class A equivalent biosolids to farmland that the city owns around its airport and leases out to a farmer, he said.

"This year we weren't going to apply it, but the farmer called us and asked for it," Nelson said.

Sanitation districts believe that Valley counties fear not the sludge but the image of sludge said Richard Dowd, a Hanford lawyer who argued the case for the Southern California Association of Publicly-Owned Treatment Works.

"It's a farmer vs. farmer issue," Dowd said. "Some farmers believe this could possibly give a taint to products. Perception is like concrete; facts are like putty."

But the whole issue of imposing controls on biosolids may be taken away from the counties.

Sen. Richard Polanco, D-Lo Angeles, sponsored legislation this year that would have barred counties from imposing restrictions on biosolids greater than state and federal regulations. The bill was pulled, but Polanco said it remains alive and would be brought back to the legislature for more consideration.

W.P.  
2/7/2002

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Valley farmers, elected officials, farm bureaus and agricultural commissioners are watching the case with interest because pressure to accept the treated sludge has been building ever since the federal government told Los Angeles 10 years ago to stop discharging sewer waste into the ocean.

"We're just trying to protect the environment," said Deputy Tulare County Agricultural Commissioner Gary Kunkel.

Last week, Tulare County Judge Paul Vortmann, assigned to hear the case after Kern County judges recused themselves, issued a nonbinding advance ruling in favor of Kern County and against an assortment of Southern California sanitation districts.

At an all-day hearing in Visalia, lawyers for Orange County, Los Angeles County and the city of Los Angeles argued to Vortmann that he should reverse his ruling in favor of the Southland municipalities.

"It comes to us seven days a week, 52 weeks a year, whether we want it or not," said Los Angeles deputy attorney Christopher Westhoff, referring to waste water from 4 million Los Angeles residents. "Biosolids are not new. They've been around since

to do something with it."

Los Angeles will appeal the decision if the judge — who has 90 days to make his decision — rules against the sanitation districts, Westhoff said.

The legal issue involves whether Kern County should have prepared an environmental impact report before passing its ordinance banning most biosolids.

But the larger issue is what to do with treated sewage sludge and whether it's harmful or beneficial to farmland. Critics say it's possibly loaded with pathogens — microorganisms that can cause disease — and heavy metals that could harm the environment.

The Kern ordinance bans Class B biosolids on farmland after 2003. But Class A biosolids of "exceptional quality" would be allowed.

Use of any biosolids on farmland growing food for human consumption is barred.

Critics say that Class B biosolids still have pathogens, or germs and harmful organisms. But advocates say that 97% to 99% of the pathogens are destroyed at the plant and any remaining germs die when exposed to ultraviolet light.

Class A biosolids are heated to kill the pathogens. Los Angeles lawyers argued that it's unnecessary to heat biosolids to achieve Class A "exceptional quality" status and that generating the

heat has its own environmental impacts. Furthermore, heating degrades the useful nitrogen content of biosolids, they say.

Another issue involves the possible concentration of lead, zinc, cadmium and other heavy metals harmful to wildlife, humans and growing of crops.

"This isn't the stuff of a 100 years ago. It includes industrial wastes," said Bob Joyce, a lawyer representing Kern County farmers who oppose biosolids on farmland.

The sanitation districts respond that heavy metals were once a problem in sewage because of heavy industry pouring substances into the waste stream, but regulation is keeping the waste stream free of heavy metal.

Some farmers seem to like it. At least three farmers in Kern County apply the treated sewage sludge to marginal farmland.

But a who's who of Kern County farmers including Pandol and Sons, Sunworld Inc., M. Caratan Inc. and Giumarra Vineyards intervened in the suit on behalf of Kern County.

"It's the proverbial case of nobody wants it," said Kern County Counsel Bernard C. Barman Sr. "Biosolids is a [public relations] term. I don't use it. It's sewage sludge."

Los Angeles has gone so far as to buy 5,000 acres in Kern County south of Bakersfield to apply

the material, and Orange County has an option on 4,000 acres.

Properly treated biosolids have some nitrogen and lots of organic matter that farmers like, said Lew Nelson, utilities engineer for the city of Visalia. The city applies Class A equivalent biosolids to farmland that the city owns around its airport and leases out to a farmer, he said.

"This year we weren't going to apply it, but the farmer called us and asked for it," Nelson said.

Sanitation districts believe that Valley counties fear not the sludge but the image of sludge said Richard Dowd, a Hanford lawyer who argued the case for the Southern California Association of Publicly-Owned Treatment Works.

"It's a farmer vs. farmer issue," Dowd said. "Some farmers believe this could possibly give a taint to products. Perception is like concrete; facts are like putty."

But the whole issue of imposing controls on biosolids may be taken away from the counties.

Sen. Richard Polanco, D-Lo Angeles, sponsored legislation this year that would have barred counties from imposing restrictions on biosolids greater than state and federal regulations. The bill was pulled, but Polanco said it remains alive and would be brought back to the legislature for more consideration.



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

RESOLUTION NO. 82-036

WAIVING WASTE DISCHARGE REQUIREMENTS  
FOR SPECIFIC TYPES OF DISCHARGE

WHEREAS, Water Code Section 13260(a) requires that any person discharging wastes or proposing to discharge wastes within the region, other than to a community sewer system, that could affect the quality of the waters of the state, shall file a report of waste discharge; and

WHEREAS, the Regional Water Quality Control Board, Central Valley Region, (hereafter Board), has a statutory obligation to prescribe waste discharge requirements except where a waiver is not against the public interest; and

WHEREAS, waiving requirements for certain specific type of waste discharge is not against the public interest because it avoids unnecessary expenditures of Board resources; and

WHEREAS, many types of waste discharges have no adverse effect on the waters of the state; and

WHEREAS, many waste dischargers are willing to self-regulate their discharges and thereby protect the waters of the state; and

WHEREAS, many waste dischargers are effectively regulated by local government or other state agencies; and

WHEREAS, state-of-the-art makes significant improvements in specific types of discharges unreasonable; and

WHEREAS, staff has prepared a Negative Declaration in accordance with the California Environmental Quality Act and appropriate regulations and finds that there are no significant adverse water quality impacts; and

WHEREAS, the Board has reviewed the Negative Declaration and concurs with the staff findings; and

WHEREAS, the Board, on 26 March 1982, held a hearing in Bakersfield, California and considered all evidence concerning this matter: Therefore be it

RESOLVED, That the California Regional Water Quality Board, Central Valley Region, waives waste discharge requirements for the following specific types of waste discharges except for those dischargers for which waste discharge requirements have been adopted; and be it further

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

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RESOLUTION NO. 82-036  
WAIVING WASTE DISCHARGE REQUIREMENTS  
FOR SPECIFIC TYPES OF DISCHARGE

-2-

RESOLVED, That this action waiving waste discharge requirements is conditional and may be terminated for any type of discharge or any specific discharger at any time.

<u>Type of Waste Discharge</u>	<u>Limitations</u>
1. Air conditioner, cooling and elevated temperature waters	Small volumes which will not change temperature of receiving water more than 1°C.
2. Drilling muds	Discharged to sump with two feet of freeboard. Sump must be dried by evaporation or pumping. Drill-mud may remain in sump only if discharger demonstrates that it is nontoxic. Sump area shall be restored to pre-construction state within 60 days of completion or abandonment of well.
3. Clean oil containing no toxic materials	Used for beneficial purposes such as dust control, weed control and mosquito abatement where it cannot reach state waters.
4. Minor dredger operations	When spoil is nontoxic and discharged to land.
5. Group 3 solid wastes	Good disposal practices.
6. Test pumpings of fresh water wells	When assurances are provided that pollutants are neither present nor added.
7. Storm water runoff	Where no water quality problems are contemplated and no federal NPDES permit is required.
8. Erosion from development	Where Best Management Practices (BMP) plans have been formulated and implemented.
9. Pesticide rinse waters from applicators	Where discharger complies with Board guidelines.
10. Confined animal wastes	Where discharger complies with Board guidelines.

RESOLUTION NO. 82-036  
WAIVING WASTE DISCHARGE REQUIREMENTS  
FOR SPECIFIC TYPES OF DISCHARGE

-3-

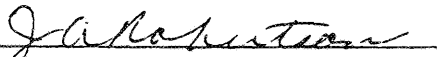
<u>Type of Waste Discharge</u>	<u>Limitations</u>
11. Minor stream channel alterations and suction dredging	Where regulated by Department of Fish and Game agreements.
12. Small, short-term sand and gravel operations	All operations and wash waters confined to land.
13. Small metals mining operations	All operations confined to land, no toxic materials utilized in recovery operations.
14. Swimming pool discharges	Where adequate dilution exists or where beneficial uses are not affected.
15. Food processing wastes spread on land	Where an operating/maintenance plan has been approved.
16. Construction	Where BMPs used.
17. Agricultural commodity wastes	Small, seasonal and confined to land.
18. Industrial wastes utilized for soil amendments	Where industry certifies its nontoxic content and BMP Ag applications used.
19. Timber harvesting	Operating under approved plan.
20. Minor hydro projects	Operating under water rights permit from State Water Resources Control Board or Fish and Game agreement and no water quality impacts anticipated.
21. Irrigation return water	Operating to minimize sediment to meet Basin Plan turbidity objectives and to prevent concentrations of materials toxic to fish or wildlife.
22. Projects where application for Water Quality Certification is required	Where project (normally minor construction) is not expected to have a significant water quality effect and project complies with Fish and Game agreements.

RESOLUTION NO. 82-036  
WAIVING WASTE DISCHARGE REQUIREMENTS  
FOR SPECIFIC TYPES OF DISCHARGE

-4-

<u>Type of Waste Discharge</u>	<u>Limitations</u>
23. Septic tank/leachfield systems	Where project has county permit and county uses Board Guidelines.

I, JAMES A. ROBERTSON, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, Central Valley Region, on 26 March 1982.

  
\_\_\_\_\_  
JAMES A. ROBERTSON, Executive Officer

Amended 26 March 1982

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

GUIDELINES FOR WASTE DISPOSAL FROM LAND DEVELOPMENTS\*

In its June 1971 Interim Water Quality Control Plan, the Board included Guidelines for Land Development Planning. These Guidelines were substantially modified on 15 December 1972 and retitled Guidelines for Waste Disposal From Land Developments. The Guidelines that follow are substantially the same as those adopted in 1972 but contain changes based upon experience gained from working closely with local governmental agencies in the development of individual waste disposal ordinances.

Section 13260 of the Porter-Cologne Water Quality Control Act requires any person discharging waste or proposing to discharge waste to file a report of the discharge containing such information as may be required by the Board. In the early 1950's, the Board waived the filing of reports for discharges from individual sewage disposal systems in those counties having satisfactory ordinances or regulations. Traditionally, these individual discharges have been treated by septic tank-leaching systems.

The Water Quality Control Act requires local governmental agencies to notify the Board of the filing of tentative subdivision maps or applications for building permits involving six or more family units except where the waste is discharged to a community sewer system.

The Board believes that control of individual waste treatment and disposal systems can best be accomplished by local County Environmental Health Departments if these departments are strictly enforcing an ordinance that is designed to provide complete protection to ground and surface waters and to the public health.

The following principles and policies will be applied by the Board in review of water quality factors related to land developments and waste disposal from septic tank-leaching systems:

1. There are great differences in the geology, hydrology, geography, and meteorology of the 40 counties which lie partially or wholly within the Central Valley. The criteria contained herein are considered to be applicable to the Central Valley and pertain to: (a) all tentative maps filed after 15 December 1972, (b) all divisions of land made after 15 December 1972, and (c) all final maps for which tentative maps were filed prior to 15 December 1971. Local agencies and the Board may adopt and enforce more stringent regulations which recognize particular local conditions that may be limiting to wastewater treatment and disposal.
2. The Board does not intend to preempt local authority and will support local authority to the fullest extent possible. Where local authority

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\*Excerpt from the Water Quality Control Plan, Sacramento River Basin (5A), Sacramento-San Joaquin Delta Basin (5B), San Joaquin Basin (5C), and Tulare Lake Basin (5D), adopted by the Regional Board on 25 July 1975.

demonstrates the inability or unwillingness to adopt an ordinance compatible with these guidelines, the Board intends to withdraw its waiver concerning waste disposal from individual systems and will require each and every party proposing to discharge waste within that county to submit a Report of Waste Discharge as required by Section 13260 of the Porter-Cologne Water Quality Act.

3. Evaluation of the capability of individual waste treatment systems to achieve continuous safe disposal of wastes requires detailed local knowledge of the area involved. The experience and recommendations of local agencies will, therefore, be an important input to the information upon which the Board will base its decision.
4. There are many areas within the Central Valley that are not conducive to individual waste treatment and disposal systems. In these areas, connection to an adequate community sewerage system is the most satisfactory method of disposing of sewage. The Board believes that individual disposal systems should not be used where community systems are available and that every effort should be made to secure public sewer extensions, particularly in urban areas. Where connection to a public sewer is not feasible and a number of residences are to be served, due consideration should be given to construction of a community sewage treatment and disposal system.
5. The installation of individual disposal systems, especially in large numbers, creates discrete discharges which must be considered on an individual basis. The life of such disposal system may be quite limited. Failures, once they begin in an area, generally will occur on an areawide basis. Further, regular maintenance is important to successful operation of individual disposal systems. To assure continued protection of water quality, to prevent water pollution and to avoid the creation of public health hazards and nuisance conditions, a public entity <sup>1/</sup> shall be formed with powers and responsibilities defined herein for all subdivisions having 100 lots or more. Subdivisions with less than 100 lots which threaten to cause water quality or public health problems will also be required to form a public entity.

<sup>1/</sup> Public Entity - A local agency, as defined in the State of California Government Section 53090 et seq., which is empowered to plan, design, finance, construct, operate, maintain, and to abandon, if necessary, any sewerage system or the expansion of any sewerage system and sewage treatment facilities serving a land development. In addition, the entity shall be empowered to provide permits and to have supervision over the location, design, construction, operation, maintenance, and abandonment of individual sewage disposal systems within a land development, and shall be empowered to design, finance, construct, operate, and maintain any facilities necessary for the disposal of wastes pumped from individual sewage disposal systems and to conduct any monitoring or surveillance programs required for water quality control purposes. (Unless there is an existing public entity performing these tasks.)

CRITERIA FOR SEPTIC TANK - LEACHING SYSTEMS

The following criteria will be applied to assure continued preservation and enhancement of state waters for all present and anticipated beneficial uses, prevention of water pollution, health hazards, and nuisance conditions. These criteria prescribe conditions for waste disposal from septic tank-leaching systems for single family residential units or the equivalent and do not preclude the establishment of more stringent criteria by local agencies or the Board. The Board may prohibit the discharge from septic tank-leaching systems which do not conform to these criteria. Systems which cannot meet the following criteria may be allowed in selected areas if they are individually designed. The criteria may not be applicable in all cases to commercial or industrial developments.

The septic tank, absorption systems, and disposal area requirements for other than single family residential units shall be based upon the current edition of the "Manual of Septic Tank Practice" or in accordance with methods approved by the Executive Officer. An adequate replacement area equivalent to at least the initial disposal area shall be required at the time of design of the initial installation and incompatible uses of the replacement area shall be prohibited.

Minimum Distances

The Board has determined the following minimum distances should be followed in order to provide protection to water quality and/or public health:

Distance in Feet

Facility	Domestic Well	Public Well	Flowing Stream <sup>1</sup>	Drainage Course Or Ephemeral Stream <sup>2</sup>	Cut Or Fill Bank <sup>3</sup>	Property Line <sup>4</sup>	Lake or Reservoir <sup>5</sup>
Septic tank or sewer line	50	100	50	25	10	25	50
Leaching field	100	100	100	50	4h	50	200
Seepage pit	150	150	100	50	4h	75	200

- 1 - As measured from the line which defines the limit of a 10-year frequency flood.
- 2 - As measured from the edge of the drainage course or stream.
- 3 - Distance in feet equals four times the vertical height of the cut or fill bank. Distance is measured from the top edge of the bank.
- 4 - This distance shall be maintained when individual wells are to be installed and the minimum distance between waste disposal and wells cannot be assured.
- 5 - As measured from the high water line.



Guidelines For Waste Disposal  
From Land Developments (continued)

-4-

Minimum Criteria

1. The percolation rate<sup>2/</sup> in the disposal area shall not be slower than 60 minutes per inch, OR not slower than 30 minutes per inch if seepage pits are proposed. The percolation rate shall not be faster than 5 minutes per inch unless it can be shown that a sufficient distance of soil is available to assure proper filtration.
2. Soil depth below the bottom of the leaching trench shall not be less than 5 feet nor less than 10 feet below the bottom of a seepage pit.
3. Depth to anticipated highest level of groundwater below the bottom of the leaching trench shall not be less than 5 feet nor less than 10 feet below the bottom of a seepage pit. Greater depths are required if soils do not provide adequate filtration.
4. Ground slope in the disposal area shall not be greater than 30 percent.
5. The minimum disposal area shall conform to the following:

<u>Percolation Rate</u> <u>(minutes/inch)</u>	<u>Minimum Usable Disposal</u> <u>Area (ft<sup>2</sup>)</u>
41-60	12,000
21-40	10,000
11-20	8,000
Less than 10	6,000

6. Areas that are within the minimum distances that are necessary to provide protection to water quality and/or public health shall not be used for waste disposal. The following areas are also considered unsuitable for the location of disposal systems or replacement area:
  - a. Areas within any easement that is dedicated for surface or subsurface improvement.
  - b. Paved areas.
  - c. Areas not owned or controlled by property owners unless said area is dedicated for waste disposal purposes.
  - d. Areas occupied or to be occupied by structures.

<sup>2/</sup> Determined in accordance with procedures contained in current U. S. Department of Health, Education, and Welfare "Manual of Septic Tank Practice" or a method approved by the Executive Officer.

Implementation

1. The Board will review local ordinances for the control of individual waste disposal systems and will request local agencies to adopt criteria that are compatible with or more stringent than these guidelines.
2. In those counties which have adopted an ordinance compatible with these guidelines, the Board will pursue the following course of action for discharges from individual septic tank-leaching systems.
  - a. Land developments consisting of less than 100 lots will be processed entirely by the county. Tentative maps for subdivisions involving six or more family units shall be transmitted to the Board along with sufficient information <sup>3/</sup> to clearly determine that the proposed development will meet the approved county ordinance. The Board, or the appropriate local authority, may require a public entity if potential water quality or public health problems are anticipated.
  - b. Tentative maps for land developments containing 100 lots or more shall be transmitted to the Board. The map shall be accompanied by a Report of Waste Discharge and sufficient information to clearly demonstrate that the proposed development will meet these guidelines or the approved county ordinance. A public entity is required prior to any discharge of waste.
3. The Board will prohibit the discharge of wastes from land developments which threaten to cause water pollution, quality degradation, or the creation of health hazards or nuisance conditions. These guidelines will be used to evaluate potential water quality or health problems. In certain locations and under special circumstances, the Board's Executive Officer may waive individual criteria or he may waive the formation of a public entity. Land developers are to be aware that a waiver by the Executive Officer is not binding on any local entity.

Examples of these special circumstances would be:

- a. Short time, interim use of individual septic tank-leaching systems may be acceptable in areas that do not meet these guidelines if sufficient, dependable funding of community collection, treatment, and disposal is demonstrated and a plan and time schedule for implementation is being followed.

<sup>3/</sup> The Board's staff has developed a document entitled "Information Needs for Waste Disposal from Land Developments." This document discusses the necessary reports, maps, etc., that must be submitted in order to evaluate proposed land developments.

- b. A failure to meet the minimum criteria could be negated by other favorable conditions. For example, the installation of individual septic tank-leaching systems may be allowed in areas that cannot meet the minimum criteria in these guidelines if the disposal area is increased sufficiently to allow for special design systems <sup>4/</sup> that have been shown to be effective in similar areas.
4. Severe impact on water quality has resulted from improper storm drainage and erosion control. Land developers must provide plans for the control of such runoff from initial construction up to complete build-out of the development.
5. The disposal of solid waste can have an impact on water quality and public health. Land developers must submit a plan which conforms to the regional or county master plan and contains adequate provisions for solid waste disposal for complete build-out of the development.
6. The disposal of septic tank sludge is an important part of any area-wide master plan for waste disposal. Land developers must submit a plan that conforms to the regional or county master plan and contains adequate provisions for septic tank sludge disposal for complete build-out of the development.
7. The responsibility for the timely submittal of information necessary for the Board or the appropriate local authority to determine compliance with these guidelines rests with persons submitting proposals for development or discharge. For those developments that are to be submitted to the Board, the Porter-Cologne Water Quality Control Act provides that no person shall initiate any new discharges of wastes prior to filing a Report of Waste Discharge and prior to (1) issuance of waste discharge requirements, (2) the expiration of 120 days after submittal of an adequate Report of Waste Discharge, or (3) the issuance of a waiver by the Regional Board.
8. A Report of Waste Discharge that does not provide the information required by these guidelines is an inadequate report. The 120 day time period does not begin until an adequate report has been submitted. Thus, to avoid extensive delay, every effort should be made to comply with these guidelines at the earliest possible date during formulation of proposals.

<sup>4/</sup> Special design systems will be accepted for review from registered engineers, geologists, or sanitarians who are knowledgeable and experienced in the field of septic tank-leaching system design and installation. These systems will include at least a 100% replacement disposal area. These systems shall be installed under the supervision of the designer, the public entity responsible, and the local health department.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

3443 Router Road, Suite A  
Sacramento, CA 95827-3098  
PHONE: (916) 255-3000  
FAX: (916) 255-3015



30 August 1996

Mr. Ron Duncan, Director  
El Dorado County Environmental Management Department  
2850 Fair Lane Court  
Placerville, CA 95667

**SEPTIC TANKS**

At the Board's 9 August 1996 meeting in Sacramento, Mr. Steven Proe indicated to the Board that El Dorado County was allowing septic tanks to be installed in areas with poor soils. We informed Mr. Proe that we have no staff available to work on septic tanks and, therefore, he should present his concerns to the County of El Dorado. The Board did ask that I send you information we had on appropriate soils for septic tank/leaching systems.

As you know, our Septic Tank Guidelines, which are clearly out of date, contain no definition of appropriate soil. The Basin Plan for the North Coast Regional Board does contain the following generic definition:

"Soil. The unconsolidated material on the surface of the earth that exhibits properties and characteristics that are a product of the combined factors of parent material, climate, living organisms, topography, and time."

Although this definition, for example, may include highly weathered rock, such "soils" must satisfy other requirements of their "Policy", i.e., acceptable textural analysis or percolation rate.

The "Model Ordinance" that was drafted by the committee formed by the California Council of Directors of Environmental Health contains the following definition for soil:

"Soil: The unconsolidated material over bedrock, in which particles >2 mm shall not exceed 50% by volume (dry)."

The committee felt that this definition would assist regulators in prohibiting the placement of on-site systems in materials that were predominantly rock or cemented materials that may perc within accepted rates but do not contain sufficient "fines" to provide adequate removal of pathogens.

The recently adopted On-Site Ordinance for the Town of Paradise contains a generic definition similar to the North Coast Region, but includes the following statement that applies to saprolite (highly weathered rock):

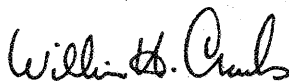
"Soil underlain by saprolite: Saprolite is material that can be textured, crushed, or broken with hand pressure.... Where the material does not meet the above criteria, it shall be treated as fractured bedrock."

Mr. Ron Duncan

-2-

30 August 1996

We would be glad to discuss this matter further if you wish, but we do not have resources in the foreseeable future to revise our Basin Plan Septic Tank Guidelines.

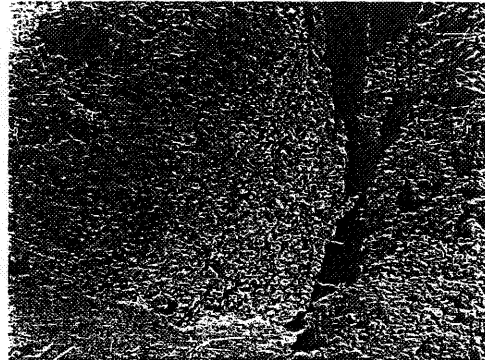


WILLIAM H. CROOKS  
Executive Officer

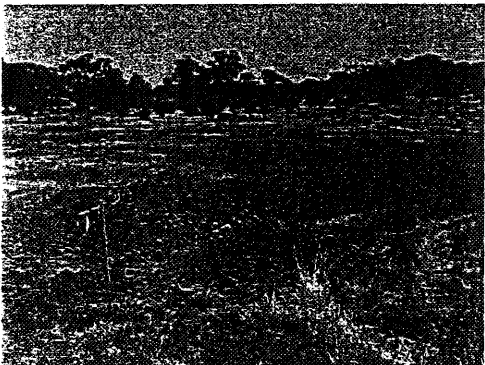
cc: Mr. Steven Proe, Greenwood



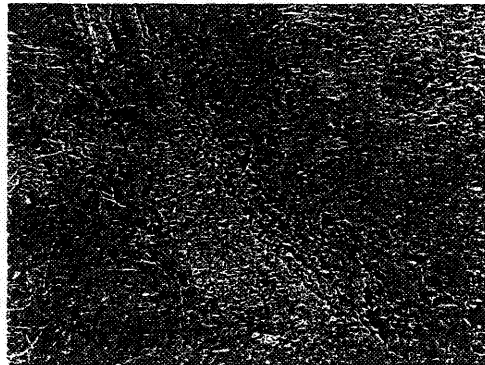
46 Soil mantle #7 excavation pile similar to #1.



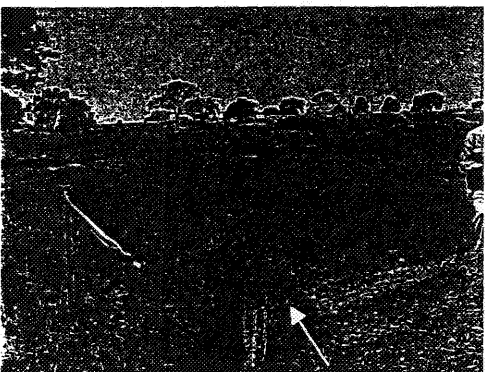
47 #7 excavation sidewalls similar to #1 oxidation due to high groundwater observed at 5-6 feet



48 Soil mantle #8 excavation pile similar to #1.



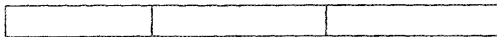
21 #8 excavation sidewalls similar to #1



22 Note one foot of red clay soil on top of the rock in the #8 excavation. Transition identified by arrow.



23 Close up look at the rock material removed from the Excavation, notice Fe oxidation on fracture facies indicating seasonal water table.



## U.S. Environmental Protection Agency



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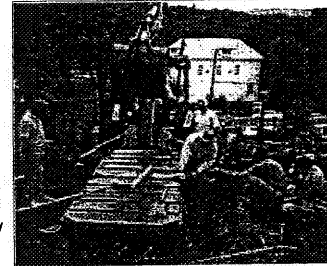
[EPA Home](#) > [EPA Newsroom](#) > EPA Provides Tools to City and County Public Health Officials to Improve Septic System Management

# EPA Provides Tools to City and County Public Health Officials to Improve Septic System Management

## Local Education Key to Stopping Pollution from Septic Tanks

March 3, 2003

Stressing the environmental importance of proper septic tank management to prevent pollution from entering the nation's rivers, lakes, coasts, and groundwater, EPA is providing approximately 4,000 city and county public health officials with materials to continue efforts to educate citizens about proper septic system management. Failing and improperly managed septic systems are a significant source of water pollution, potentially causing contamination of drinking water wells or restricting shellfish harvest. Septic systems serve approximately 25 percent of U.S. households, and one in every three new homes built today uses these systems – making proper maintenance essential for protecting America's waters.



"Public education is the key to improving septic system management. Citizens need to better understand the potential harm improperly managed septic systems can have on the environment and public health and what they can do to help," said EPA Assistant Administrator for Water G. Tracy Mehan, III.

As part of EPA's year-long celebration of the 30th anniversary of the Clean Water Act, the Agency has developed a CD-based kit that communities can use to reach out to citizens. Using the CD, communities can inexpensively produce customized versions of brochures, utility bill inserts, and other useful information. Each document contains space where communities can add local information, so citizens will know how to obtain additional information.

To order copies of the Wastewater Month CD or hard copies of these materials, visit the Wastewater Month website at [www.epa.gov/npdes/wastewatermonth](http://www.epa.gov/npdes/wastewatermonth) or contact Nikos Singelis, of the Office of Wastewater Management, at [singelis.nikos@epa.gov](mailto:singelis.nikos@epa.gov).

This page originally created: Tuesday, March 4, 2003

# POLLUTION

## SOUTHLAND STORMWATER LESSONS

In the Southland they're called SUSMPs — standardized urban stormwater mitigation plans — and their adoption in Los Angeles and San Diego caused quite a stir among local officials, developers and environmentalists. Bay Area proponents favor a less succinct moniker, like "new and redevelopment requirements," but the issue is causing a big fuss around here as well.

The S.F. Regional Water Quality Control Board is in the process of bringing the gist of SUSMP to the Bay Area, as part of the resubmittal of Santa Clara County's five-year stormwater discharge permit (NPDES). Enhanced permit requirements will mean cities throughout the county will have to follow the same rules for managing runoff flows.

Previous requirements were more generic, "do what you can where you can," according to Geoff Brosseau of the Bay Area Stormwater Management Agencies Association. The new requirements get more specific about how much runoff must be captured, filtered (through soils, vegetation or actual fabric filters) or treated on a project site — the "start at the source approach" — before it can flow into creeks, bays and ultimately the ocean. This way, says the S.F. Board's Dale Bowyer, "You get the benefits for the life of the project."

The new requirements also define for the first time what kinds of projects must comply. They don't, however, mandate specific technology, leaving that to a developer's architects and engineers. Some designers incorporate more permeable surface area, such as grassy swales, into their projects; at other times catch basin filters are more appropriate.

Bowyer says this isn't a "shocking new evolution" in regulation, but it does provide more backbone to existing 1990s regulatory guidance. "Rather than use that guidance, some Bay Area cities have pretty much let developers do things that were easy and inexpensive, just enough so they say could say 'we checked off that box,'" he says.

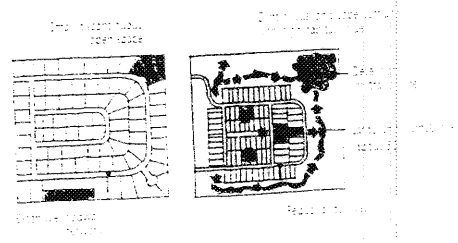
This raises the bar for performance and compliance with stormwater permits, says Brosseau. It forces municipalities to get more serious about stormwater, and to integrate stormwater management more fully into city infrastructure and procedures.

The new Santa Clara requirements build on previous performance standards established in the city's 1997 permit, but also embrace some lessons from Los Angeles County — where the L.A. Regional Board adopted the state's first SUSMP in March 2000. Though 30 of 85 L.A. county cities appealed the new SUSMP regs, the State Board recently upheld most of the L.A. rules.

As a result, some Southland developers are now going all out on stormwater control, according to Jeff Okamoto with the Orange County office of RBF Consulting, a regional engineering firm laying out major subdivisions. Before the local SUSMP came along, everyone just let all the runoff head straight down the storm drain.

he says. Now RBF's projects include dozens of runoff pollution reduction measures, among them streetsweeping, catch basins equipped with special grass baskets, and filters to clean up the first flush of urban runoff and something Okamoto calls "summer slobber" — soaps, brake dust and fertilizer from car washing, driving and lawn watering, and other stormwater collection units with holding tanks cleaned out by

## CLUSTERED INFILL DEVELOPMENT IMPROVEMENT



## SUSMP CONTINUED

trucks similar to the "honey wagons" serving portable toilets.

Okamoto says several of his firm's clients have directed him to go beyond the minimum requirements and do better on recent projects. "In the current political atmosphere, some of our builders wanted to show the city and interest groups they're willing to do what's right," he says. (Full disclosure: Jeff Okamoto is the editor's brother-in-law).

Of course doing all these things can cost more. Adding bioswales or detention basins can take up significant amounts of land, which can be a precious commodity, and some treatment measures are expensive to build and maintain, say developers. City officials worry that the new requirements will make it more difficult to do infill projects and build low income housing. They also argue that the proposed performance standards, which call for catching 85% of peak storm runoff, are too confusing, even for engineers, and they want the board to delay implementation, particularly for smaller projects. Board chief Loretta Barsamian says she "got an earful" from city managers when she met with them earlier this summer, and over thirty speakers lined up at a July public hearing, objecting to various aspects of the permit changes.

BayKeeper's Jonathan Kaplan says he's disappointed with the city officials lobbying. "What's being proposed is in a lot of respects weaker than what was approved in Los Angeles and San Diego." He wants to see a strong regional approach.

Amy Glad of the Home Builders Association of Northern California says that a one size fits all approach won't work because of localized variations in terrain and rainfall. "Some standardization is useful, but you need to recognize regional differences. That issue will loom large in the near future. The NPDES permits of several other Bay Area counties, including Alameda, will likely be amended to include similar new stormwater provisions soon, says Bowyer.

At press time, the staff was putting the final touches on a revised version of the requirements, aiming for an August 15 release. That will begin a five week comment period, during which the Board will hold multiple meetings with stakeholders and tweak the permit details one more time. The full Board is scheduled to vote on the issue at its October meeting (see calendar). "I'm sure we'll be going through a painful and protracted process of denial about SUSMP," says Brosseau, "but the reward is getting credit for good front end site design, and then not having to treat so much stormwater." Contact: Jan O'Hara (510)622-5681 OB & ARO





## 5.6 Utilities

### STORMWATER SYSTEMS

*"The two major changes that result from urbanization are changes in stream hydrology and an increase in pollutant loading. Changes in stream hydrology resulting from urbanization include: increased peak discharges; increased total volume of runoff; decreased time needed for runoff to reach the stream; increased frequency and severity of flooding; changes in streamflow during dry periods due to reduced level of infiltration in the water shed; and greater runoff velocity during storms. Ample evidence also exists about the pollutants that are entrained in urban runoff. The pollutants include sediment, nutrients, oxygen-demanding substances, road salts, heavy metals, petroleum hydrocarbons, pathogenic bacteria, viruses, and pesticides."*

281-215

*—The Report of the Technical Advisory Committee on Urban Runoff to the State Water Resources Control Board (Urban Runoff TAC Report), Nov 1994.*

See also Section 5.5, Water Resources, relative to water quality (NPDES permits are also discussed there); and Section 5.8, Human Health and Safety, relative to "100-year floods" (despite the fact that the National Flood Insurance Program and the maps are discussed in Section 5.6 utilities).

• Please also see our scoping comments beginning on p. 54 relative to Water Quality and respond to unanswered questions.

The DEIR states (p. 5.6-1) that "developed drainage infrastructure" exists in 10 listed drainage basins.

• Please describe in the FEIR what this "infrastructure" consists of. How long has it been in place? On p. 5.6-2, drainage facilities are said to be in the form of "roadways, storm drains, and natural creeks and rivers". So defined, the entire County would have infrastructure in place! Surely "infrastructure" doesn't include "natural creeks and rivers"?

281-216

On p. 5.6-3 the DEIR states that the County expects to obtain a permit to administer the Phase II NPDES permit program directed at smaller operators. We are then referred to more complete discussion on p. 5.5-97, where we learn that a Tentative Storm Water Management Plan (SWMP) for the west slope was sent by the County to the Regional Water Quality Control Board in March 2003. But it apparently applies only to those seeking grading, building, or other development permits, and not to ministerial projects. On the other hand, on p. 5.6-5, the DEIR states that the County does review ministerial projects under the Grading Ordinance.

281-217

• Because of the high volume/area requirements for needing a grading permit, what ministerial projects are likely to be covered?

It would appear that these high volume/area requirements for needing a grading permit specifically omit the very situations of which the writer has personal knowledge where, this past rainy season, the Regional Board had to invoke its authority to prevent soil erosion when the County failed to do so.

281-218

• See our comments under Geology, Soils, and Mineral Resources re the threshold for needing a grading permit. See this issue also under Human Health and Safety relative to grading on asbestos-containing substrates.

• We asked in scoping comments, under Section 5.9 herein, and ask again here that an analysis be performed of different thresholds for invoking need for a grading permit. Whatever one is chosen needs to be justified. In the Tahoe Basin, it is 3 cu yd. Mitigation Measure 5.9-4(c) in the DEIR calls for an acre (43,560 sq ft) for agricultural activities and 10,000 sq ft or 250 cu yds for non-agricultural activities. No difference is set forth depending upon the nature of the substrate (i.d., the same threshold for asbestos-bearing substrate?).

281-219

Certain drainage basin studies are apparently being conducted under the auspices of the Department of Transportation, as described on p. 5.6-6, with those for Carson Creek, New York Creek, and Deer Creek having been completed. Conclusions reached, assuming approximately 1996 general plan construction potential, were:

281-220

- Carson Creek: minor downstream impacts in Sacramento County; negligible increase over existing flood inundation areas
- New York Creek Basin: improvements needed at eight road crossings of the creek and tributary to "minimize overtopping of roadways" during 100-year peak flow condition
- upper Deer Creek: improvements needed at 16 road crossings to preclude overtopping during a 100-year peak flow condition.

Impact 5.6-1: Localized Flooding Hazards Caused by Increased Runoff from New Development.

Development clearly increases the area of impervious and poorly pervious surfaces. Yet County policy now supposedly requires all discretionary development to include features that meet the requirement that post-development runoff does not exceed pre-development runoff, as administered by DOT. Yet please refer to the photograph of Deer Creek in late 1996 near the Deer Creek Wastewater Treatment Plant. (See References.) We have difficulty understanding the contradiction inherent in attributing increased downstream flooding to development in view of the requirement that it not do so. Presumably this requirement has not been met and will not be met in the future either.

281-221

- Please discuss this situation and the reasons therefor.

281-222

• If County policies "to ensure sufficient runoff control and infrastructure for discretionary and ministerial projects" have failed in the past, as seems apparent from the three drainage studies and their prognostications, what reason is there to feel that the effects of increased development are less than significant relative to increased flooding?

281-223

The discussion in this part of the DEIR seems predicated upon the "100-year floodplain" concept inherent in FEMA maps. Yet flood professionals know this approach is seriously flawed:

*What is most disturbing is that many communities actually promote colonization of the edge of the 100-year floodplain, permitting concentrated development right up to the line in the sand as if this line will somehow protect the inhabitants. This approach to planning is a tragedy in the making.*

—Jeffrey Mount, *California Rivers and Streams*, 1995.

*Floods, or flows in excess of bankfull, are relatively common. Most rivers, on the average, experience discharges in excess of bankfull capacity approximately 2 or 3 times a year.*

—Luna Leopold, *Water, a Primer*, 1974.

281-224

*"My place isn't supposed to flood but once every hundred years, and I've been flooded three times," said one victim quoted in the Business Journal for the week of 16 Jan 1995.*

Moreover, FEMA's maps are often outdated; this is true for El Dorado County and, in view of the fast-growing western part, is a serious problem for fast-developing communities such as western El Dorado County. (See References.) Not all areas have ever been mapped; the effort was concentrated in developed areas. Subsequent development may have already overtaken mapping. In comments on the 1994 DEIR for the 1996 General Plan (to which please refer; incorporated by reference), Quality Growth referred to instances of flooding in Cameron Park, El Dorado Hills, and Cool, documented by newspaper articles and photographs in the 1995 time frame. A car was washed downstream in Knickerbocker Creek, an unmapped area. See also our comments herein under Human Health and Safety.

281-225

• We disagree that the middle paragraph on p. 5.6-10 properly defines the baseline condition for the analysis, as many of the buildings in question do not yet exist, approved or not, and as there is evidence that existing County policies are either inadequate, or inadequately enforced, to meet the "no downstream increase in runoff" criterion. Future building does not constitute present baseline conditions. This comment applies to arguments presented in discussion of impacts relative to all alternatives. In view of the apparent inadequacies, we disagree that any alternative mitigates this impact to less than significant.

281-226

‡ We suggest that the adopted plan incorporate into discretionary development several design features to reduce impervious surfaces, such as use of porous paving materials, narrower streets, compact building footprints, and so-called "green infrastructure" (vegetated drainage swales and constructed wetlands). The County could require developers to landscape model homes with native drought-resistant plants rather than ubiquitous lawns, which are themselves poorly permeable, a measure that, if it led to inspiring subsequent homeowners, would also conserve water. (See References.)

281-227

These various measures would also contribute to improved groundwater recharge and cleaner runoff through natural filtering of pollutants by vegetation and soil.

281-228

#### SOLID WASTE AND HAZARDOUS WASTE DISPOSAL

Impact 5.6-2: Potential for Inadequate Landfill Capacity p. 5.6-21

Impact 5.6-3: Potential Noncompliance with State-Mandated Diversion Rate p. 5.6-26

• Please refer to our scoping comments, p. 38, under Garbage for the numerous questions still unanswered by the DEIR.

281-229

The DEIR says (p. 5.6-15) that 61.5% of the solid waste stream from the unincorporated part of the County is generated by residential land uses and sets the figure at about 2.2 pounds per capita per day. State law requires the County to divert 50% of the waste stream from landfills by 2000 but has not succeeded in doing so. The DEIR refers to an Integrated Waste Management Plan that includes both a Source Reduction and Recycling Element and a household Hazardous Waste Element (the latter topic is treated under Human Health and Safety). In furtherance of its implementation, regional Material Recovery Facilities (MRF) have been built. Wastes are brought to these facilities for sorting out of recyclables, which are diverted to be reclaimed. Household hazardous wastes are collected "periodically", stored at one of the three permanent facilities now in operation. The MRFs "are implementing waste acceptance control programs and recycling exchange programs" and the Environmental Management Department "is also implementing numerous public education and information programs".

281-230

• How are the MRF programs and EMD programs being publicized?

281-231

- An additional MRF on the Georgetown Divide is contemplated. What is its status?

281-232

‡ If additional MRFs are likely to be needed (e.g., p. 5.6-28) their sites should be selected as early as possible to avoid conflicts in land use.

Waste remaining after processing at MRFs is transported to Lockwood Regional Landfill in Nevada (DEIR, p. 5.6-20). Lockwood has, however, been faulted for lack of an effective liner to prevent groundwater and soil contamination and this may at some time present liability problems for users, including the County. Trucking refuse there also involves a long roundtrip and thus is vulnerable to both temporary spikes in fuel costs from basically political reasons and from shortages as global production of oil peaks and declines, an event predicted to commence prior to the planning horizon of 2025 (Deffeyes. *Hubbert's Peak : The Impending World Oil Shortage*, Princeton University Press, 2001; Association for the Study of Peak Oil, website: [www.peakoil.net](http://www.peakoil.net)). (See References.)

281-233

- What is the cost of this disposal method and what is its sensitivity to transportation costs?

Several newspaper articles in 2001 and 2002 referred to the County's exploring German technology to improve recycling rates. It would appear from mention of planning for a Tahoe facility in the DEIR (p. 5.6-28) that this technology will be on line within another year or so.

281-234

- What is involved in this technology? Will it reduce need for long-distance trucking of residue to Lockwood?

The DEIR also mentions (p. 5.6-21) disposal of some of the County's garbage at the Potrero Hills Landfill in Solano County "up until 2 years ago".

281-235

- Why was this landfill used by the County? For a particular kind of garbage? Is the use likely to recur, as suggested by its mention in the DEIR, and, if so, why? Compare transportation costs with those related to the Lockwood Landfill. It is closer, which would suggest the cost is less. If so, why is the County using Lockwood?

281-236

‡ Another technology the County might look into is that announced by the Idaho National Engineering and Environmental laboratory in January 2002 (see References). The cost of further reduction of the wastestream residue within El Dorado County might compare favorably with the cost of transportation to Lockwood.

In *The Waste Crisis: Landfills, Incinerators, and the Search for a Sustainable Future* (Oxford University Press, 1999), Hans Tammemagi, in a thorough treatment of all aspects of waste, emphasizes the need for understanding the constitution of the waste stream to approach ways of improving rates of diversion therefrom. The University of Arizona's Garbage Project found that typical municipal landfills consisted of 50% paper waste, 19% miscellaneous (including construction and demolition debris), 13% organic materials (including wood, yard waste, and food scraps), 10% plastics, 6% metals, 1% glass, and 1% hazardous materials. El Dorado County might differ, however, in that it is largely residential, though with a very active building industry.

281-237

- How does an analysis of the components of the El Dorado County waste stream compare with the foregoing figures? How is the constitution of the waste stream expected to change as construction tapers off with approaching buildout? What about with increased economic activity—are the sorts of activity anticipated to grow likely to change the constitution of the waste stream to any appreciable degree?

The National Association of Home Builders puts construction waste at about 40% of the nation's solid waste. Given the active construction industry in the County, this part of the waste stream must be considerable. It has been estimated at ca. 4 lbs/sq ft. "Researchers at Cornell University found that construction of a single four-bedroom house produced 1,338 pounds of wood waste, including 46 pounds of sawdust," according to *Inner Voice* (Nov/Dec 1997)(see References). In the same article, it was said that "[a]ccording to industry estimates, if builders cut the amount of waste produced in residential construction in half, they would free up enough material to build one additional house for every 20 built." Kaufman and Broad, which handled demolition of old housing at Mather Field, recycled much of the waste: 725,000 tons of concrete were reused on-site as road base; 20 tons of wood waste was recycled into particle board. Presumably the techniques applied to wood waste could be used for either construction or demolition waste.

281-238

• What portion of the non-residential 38.5% of the waste stream in the unincorporated part of the County is generated by construction activities?

Discussion of recycling of construction waste may be found in the attached "Sustainable Building Sourcebook", as well as at the website for Topical Reports: Green Construction (see References).

281-239

‡ We strongly support proposed mitigation 5.6-3 (5.6-27) to Adopt a Construction and Demolition Debris Diversion Ordinance, for all Alternatives. Most construction waste is wood and drywall, with corrugated cardboard the third largest category. All three are recyclable or can be remanufactured, as we noted in scoping comments. However, we are losing current opportunities by years of failure to move forward on requiring such an approach while building activity is so great.

Impact 5.6-4: Potential for Insufficient Facilities/Mechanisms to Dispose of Hazardous Waste.

We are aware of occasional advertisements for tire-collection days and other purposes in the Mountain Democrat, but in comparison with the Sacramento Bee, that paper has comparatively few readers in the County, especially in the westernmost-parts. If such notices have appeared in the Bee, we haven't noticed them. Moreover, a sizable number of people get their "news" from television, where "if it bleeds, it leads" rules the roost. The collection site for tires has always been (for the writer) inconveniently far away and with limited hours such that other considerations (like a single-purpose trip and sensitivity to air pollution) discourage its use.

281-240

• How are the hazardous-waste collection programs publicized? What other means of communication besides advertisements in the Mountain Democrat have been used? If there are permanent locations of hazardous-waste drop-off sites, what are they?

‡ We suggest that the various waste-collection franchisees be required to distribute this sort of information occasionally to customers at pick-up time, just as they now drop off appropriate information to new customers.

281-241

The DEIR (p. 5.6-35) identifies 235 Small and Large Quantity Generators known in the County as of October 2002.

281-242

• Please describe the general nature of these enterprises in the FEIR. We do not believe the identification preceding this statement in the same paragraph does so adequately (are there any pharmaceutical companies and/or chemical manufacturers in the County?).

• If the County "has established several programs" to deal with the types of materials listed on p. 5.6-35, how does the average citizen participate, for instance, relative to computer monitors, fluorescent bulbs, and household batteries? What portion of household batteries is estimated to be captured by such a program as opposed to those that are merely added to household garbage? Are they sorted out at the MRFs?

281-243

Please also see treatment of hazardous waste under Health and Human Safety.

281-244

**NEW IMPACT: Potential for Increase in Illegal Dumping. This appears to be an unidentified impact.**

Areas covered by franchised collection services are mapped in Exhibit 5.6-2, but collection is mandatory only in areas where ca. 40% of the population lives. Illegal dumping appears to be treated in the DEIR only relative to hazardous materials in Section 5.8 on Human Health and Safety, yet there is evidence that it is a problem in many places. (See References.) The Forest Service encounters it on their lands (e.g., at the Stumpy Meadows campground); it is a problem for the El Dorado Irrigation District at its Sly Park recreational facility; county residents complain about it in letters to the editors. As a problem it has increased dramatically in Placer County with burgeoning growth. We recall the rebuff our questions about illegal dumping encountered in comments on the DEIR for the 1996 General Plan: that it was no problem because the penalties were so severe. Clearly that answer was unsupportable.

281-245

• Although we are aware that illegal dumpers may travel a considerable distance from their own homes, it could be instructive to compare the amount of illegal dumping in areas where collection is mandatory and areas where collection is not mandatory. Is there a correlation?

281-246

‡ If so, that would indicate consideration of expanding mandatory collection to improve the situation.

281-247

• Who enforces the law against illegal dumping? To what extent does that activity take place? Exactly what are the penalties? How many cases are prosecuted relative to those reported? Is there an estimate of how many cases are not reported?

281-248

• The topic of junk vehicles is omitted from the DEIR. (See References.) Please discuss this issue. How is it currently handled and at what cost to the County? How is the program funded? What trends have been displayed as the County's population has grown? As the vehicles concerned presumably are on record with the Department of Motor Vehicles, how has law enforcement responded to the problem?

281-249

In February 2002, the Sacramento Bee reported that recycling had "more than doubled" in the Sacramento area with the introduction of both separate cans for commingled recyclables and new sorting technology. Tammemagi (op. cit.) reports a study (Platt, Doherty, Broughton, and Morris, *Beyond 40%: Record-Setting Recycling and Composting Programs*, Institute for Local Self-Reliance/Island Press, 1991) of 17 communities with successful recycling programs that found high diversion rates were correlated with a number of important factors: mandatory participation in recycling, comprehensive composting programs, recovery of materials from apartments and commercial and institutional establishments as well as from residences, targeting a wide range of materials for recovery, providing economic incentives for materials recovery such as increased tipping fees for non-separated refuse, weekly pick-up of all materials, provision of adequate containers for recyclable materials, and implementing education and publicity programs.

281-250

• Discuss the means and extent by which each of the foregoing factors is operational in El Dorado County.

281-250

• How often do the County's contracts with franchisees come up for renewal? Has the County ever at renewal time endeavored to change contracts to require curbside pickup of additional materials?

281-251

In January 2003, a newspaper reported cases in the County where recyclables had been sent to landfills rather than diverted for recycling. In July 2002, the County had "issued a notice of default fo Waste Management for failing to operate the Diamond Springs transfer station and material recovery facility in accordance with its franchise agreement with the county to achieve maximum recycling".

281-252

• To what extent has this been an ongoing problem? How does the County monitor the situation and respond?

The DEIR fails to discuss here former dump sites scattered throughout the County. We have heard rumors of properties where old batteries had been dumped in the past, where shooting activity had resulted in contamination with lead, where septic tank sludge had been illicitly dumped, etc.

281-253

• Please discuss this problem. Are records kept of known old dump sites? How many such sites are known? How complete does the County believe such a list, if any, is? Is there a method by which potential property owners can be informed of possible problems? Are such sites ever known to be contaminated and in need of remediation? If so, who enforces such remediation?

POWER SUPPLY SYSTEMS

281-254

The reference to PG&E's ownership of Forebay Reservoir on p. 5.6-45 should be corrected. Project 184 is now owned by the El Dorado Irrigation District. On this same page and paragraph, reference is made to the possibility of an additional PG&E substation in the vicinity of Pine Hill.

281-255

• Please clarify whether this will in any way affect the gabbro-soil rare plants.

The service area for natural gas is described (p. 5.6-46). It is supplied to El Dorado Hills and the Business Park. Gas users elsewhere in the County must use propane, the storage and distribution system for which is described on pp. 5.6-46 and 47. On p. 5.6-52, Possible expansion of PG&E's natural-gas distribution system to the Cameron Park/Shingle Springs/Rescue area and even to Latrobe is mentioned.

281-256

• Please supply more information on this possibility.

• Home propane tanks are now reputed to be capable of underground installation. Please evaluate the merits/demerits of requiring this in home installations. Discuss the merits of mandating this in areas of high fire hazard.

281-257

Impact 5.6-6: Potential for Land Use Incompatibility and Other Impacts of New and Expanded Energy Supply Infrastructure.

Discussion of new sources of electrical generating capacity is found on p. 5.6-52. However, it appears to consider only the mix of large and small plants typical of the current system, rather than the mix of small, localized plants of the so-called "distributed" system of the future. Distributed

281-258



energy is considered inherently much more stable and also avoids the considerable losses associated with long-distance transmission and the need for high voltage, which can have implications for human health and safety. (See References.)

↑ 281-258

‡ With distributed energy in mind (and especially in view of the coming decline of oil and associated products mentioned earlier), the County should be thinking about changes to zoning ordinances that might be needed to allow residential fuel cell installations, solar energy installations, and small neighborhood generating facilities. They are coming.

] 281-259

• Please discuss the California Community Choice Law (AB 117, signed into law in September 2002) that would allow the County (and its cities, should they wish) to exercise local control over electrical services and offer better rates by joining the purchasing power of residents, businesses, and public agencies into a single contract. Over 60 California cities, towns, and counties are now pursuing this possibility.

] 281-260

• Because of recent publicity given to a plot to sabotage a large propane storage tank south of Sacramento, please discuss what possible hazard these tanks might pose for those nearby in event of an explosion, as well as the likelihood of success of such an attempt.

] 281-261

• Please discuss the vulnerability of large centralized storage tanks to vandalism via gunshot and the implications for siting new ones.

] 281-262

COMMUNICATION SYSTEMS

Impact 5.6-7: Potential for Impacts Associated with New and Expanded Communications Infrastructure.

] 281-263

For discussion of the siting of Communication Towers, used by wireless phone service providers, please see Section 5.3, Visual Resources, herein. See also Section 5.8, Human Health and Safety. The County's ability to regulate these towers is not quite as limited as is often believed, and implications for health and safety are ambiguous. Hence many jurisdictions recommend the "Prudence Principle".

Hard-wired phone and cable service is required to be undergrounded in new construction. In older areas, wires strung from poles present recurring conflict with poorly trained tree trimmers who use, on behalf of the utility company, methods detrimental to the long-term health of the tree. "Telephone" poles also present hazards to drinking and reckless drivers, conduits for lightning, and fire sources when lines fall or sag with heat and brush against flammable vegetation, or transformers explode.

] 281-264

• The FEIR should discuss the regulatory environment relative to progressive undergrounding of existing infrastructure. There is, we believe, a mandatory (but very slow!) provision for this under the California Public Utilities Commission. What opportunity, if any, does the County have for energizing this program on behalf of its residents? If it has one, it should take it.

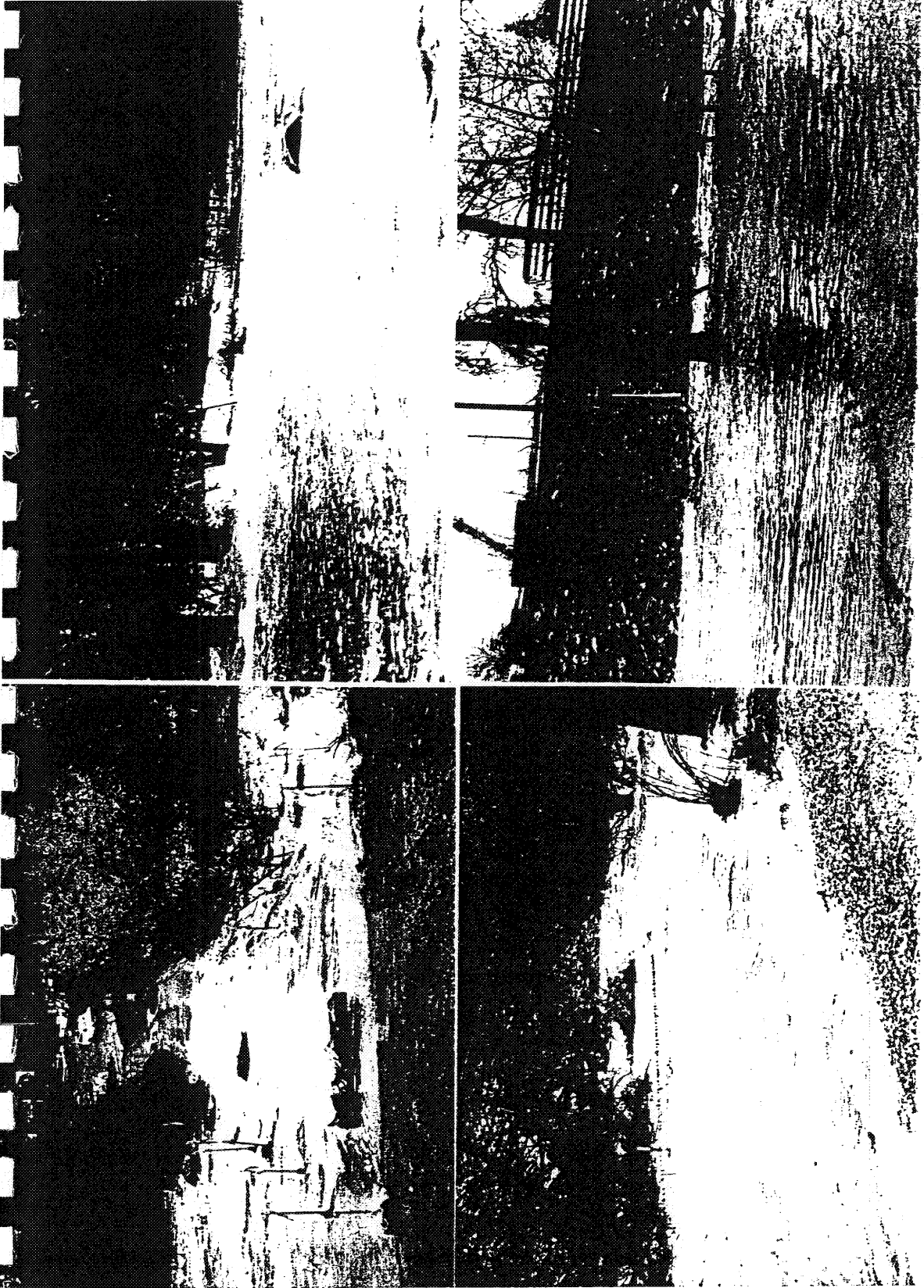
] 281-265

• Many members of the public would be interested in extension of DSL to the more rural areas of the County where it is now unavailable and what the County can do to assist getting this service. Please discuss this in the FEIR.

] 281-266

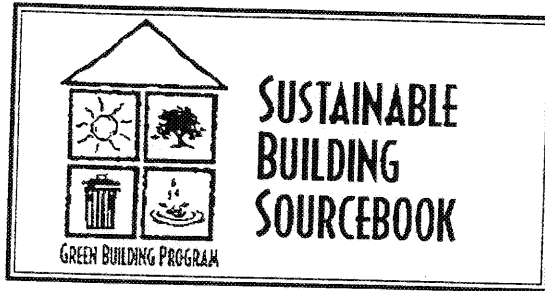
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DEER CREEK, DEC 1996, VIC. ACCESS ROAD TO WWTTP

*Garbage*



## Construction Waste

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### Construction Waste Contents:

CSI NUMBERS  
DEFINITION  
CONSIDERATIONS  
COMMERCIAL STATUS  
IMPLEMENTATION ISSUES  
GUIDELINES

- 1) What to Recycle
- 2) Materials Separation
- 3) Recycling and Waste Minimization Guidelines

### RESOURCES

PROFESSIONAL ASSISTANCE  
COMPONENTS / MATERIALS / SYSTEMS  
GENERAL ASSISTANCE  
INTERNET RESOURCES

### CSI Numbers:

Division 1 General Requirements  
01710 Cleaning

### DEFINITION:

<http://www.greenbuilder.com/sourcebook/ConstructionWaste.html>

1/14/2001

Construction waste recycling is the separation and recycling of recoverable waste materials generated during construction and remodeling. Packaging, new material scraps and old materials and debris all constitute potentially recoverable materials. In renovation, appliances, masonry materials, doors and windows are recyclable.

8,000 lbs of waste are typically thrown into the landfill during the construction of a 2,000 square foot home.

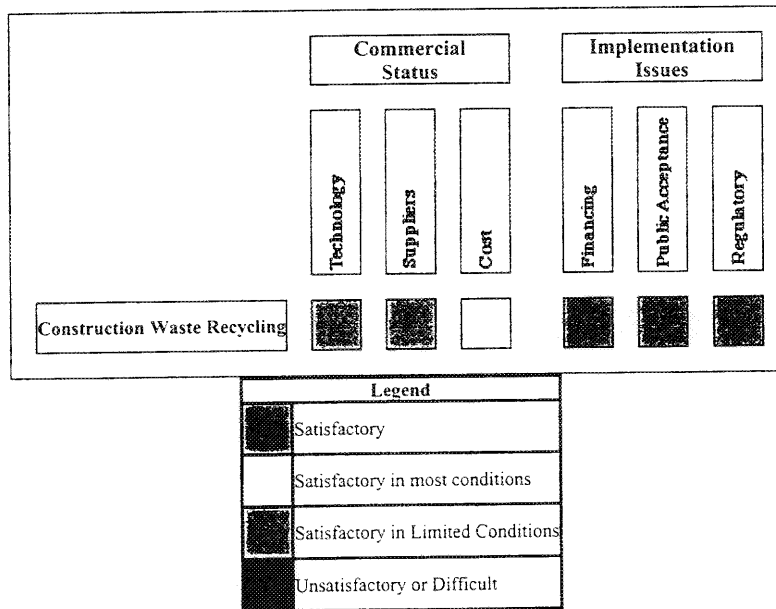
**CONSIDERATIONS:**

Most construction waste goes into landfills, increasing the burden on landfill loading and operation. Waste from sources such as solvents or chemically treated wood can result in soil and water pollution.

Some materials can be recycled directly into the same product for re-use. Others can be reconstituted into other usable products. Unfortunately, recycling that requires reprocessing is not usually economically feasible unless a facility using recycled resources is located near the material source. Many construction waste materials that are still usable can be donated to non-profit organizations. This keeps the material out of the landfill and supports a good cause.

The most important step for recycling of construction waste is on-site separation. Initially, this will take some extra effort and training of construction personnel. Once separation habits are established, on-site separation can be done at little or no additional cost.

The initial step in a construction waste reduction strategy is good planning. Design should be based on standard sizes and materials should be ordered accurately. Additionally, using high quality materials such as engineered products reduces rejects. This approach can reduce the amount of material needing to be recycled and bolster profitability and economy for the builder and customer.



**COMMERCIAL STATUS**

**TECHNOLOGY:**

Technology is quickly developing for recycling of materials into reconstituted building materials. (See sections on reconstituted materials.) However, few new technologies are available locally. Recycling of many waste materials that can be reused requires only some additional effort and coordination with a salvage company or non-profit organization.

**SUPPLIERS:**

There are salvage companies and non-profit organizations in the Austin area that can recycle some of the construction waste generated on site.

**COST:**

There is some additional cost involved in recycling construction material waste until an established procedure is developed. Cost savings can be realized with donations to non-profit organizations that specialize in construction waste recycling resulting in tax deductions. Cost savings are also realized through the efficient design and use of materials minimizing waste. However, transportation costs and the lack of local companies using recycled resources make recycling of many materials that are not directly reusable too expensive to be feasible at the present time.

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**IMPLEMENTATION ISSUES**

**FINANCING:**

Available.

No financing issues.

**PUBLIC ACCEPTANCE:**

The public's wide belief in recycling gives the builder who recycles a positive image with the client.

**REGULATORY:**

Building codes prevent the use of used materials (i.e. reused studs) as structural members. Non-structural materials such as trim or siding are not regulated.

---

**GUIDELINES**

• **1.0 What to Recycle**

Before recycling construction waste, identify who will accept it. This is important in designating type of waste to separate, and in making arrangements for drop-off or delivery of materials. In Austin, materials that can be recycled include:

- Appliances and fixtures
- Brush and Trees
- Cardboard and Paper
- Lumber and Plywood (in reusable form)
- Masonry (in reusable form or as fill)
- Metals
- Plastics - numbered containers, bags and sheeting
- Roofing (in reusable form)
- Windows and Doors

• **2.0 Materials Separation**

Containers for material recycling must be set up on site and clearly labeled. Construction personnel must be trained in material sorting policy, and bins must be monitored periodically to prevent waste mixing as a result of crews or passersby throwing trash into the bins.

Some materials will require bins or storage that protect from rain. Other bins may be locked to prevent tampering.

- **3.0 Recycling and Waste Minimization Guidelines**

(The following information is adapted from the Environmental Building News, Nov/Dec 1992. See Resources.)

- **3.1 Lumber**

Optimize building dimensions to correspond to standard lumber dimensions.

Modify framing details to optimize lumber use and reduce waste and inform framing contractor of your plan.

Develop detailed framing layouts to avoid waste when ordering lumber.

Store lumber on level blocking under cover to minimize warping, twisting and waste.

Set aside lumber and plywood/OSB cut-offs that can be used later as fire blocking, spacers in header construction, etc.

In remodeling, evaluate whether salvaging used lumber is possible.

Save small wood scraps to use as kindling for clients or crew members (no treated wood).

Larger pieces of leftover lumber (6' or more in length) can be donated to Habitat for Humanity. (See Resources.)

Save clean sawdust for use in compost piles or around gardens. Avoid sawdust that might contain painted or treated wood. This should be bagged separately. Untreated bagged sawdust may be donated to Austin Community Gardens. (See Resources.)

- **3.2 Drywall**

Order drywall in optimal dimensions to minimize cut-off waste. Drywall is available in different lengths, and designed dimensions should correspond to standard sizes.

Large drywall scraps can be set aside during hanging for use as filler pieces in areas such as closets.

Technology exists, although it is not available in Austin at this time, for recycling drywall into textured wall sprays, acoustical coatings, gypsum stucco, fire barriers, or agricultural products. Large pieces of drywall (full to half sheets) can be donated to Habitat for Humanity (see Resources).

Reuse joint compound buckets for tool or material storage by clients or crews.

- **3.3 Masonry**

Estimate masonry material needs carefully to avoid waste.

During construction, collect, stack and cover brick and other masonry materials to prevent soiling or loss.

Clean concrete chunks, old brick, broken blocks, and other masonry rubble can be buried on-site during foundation back-filling.

Salvage usable bricks, blocks, slate shingles, tile and other masonry materials from remodeling and construction. Store for future jobs or divert to salvage operations. (See Resources.)

Check to see if your masonry supplier will accept the return of materials in good condition.

- **3.4 Metals and Appliances**

During remodeling, separate metal radiators, grates, piping, aluminum siding, and old appliances for salvage or recycling.

Consider a front yard sale of usable items during the construction process.

During construction, separate metals for recycling, including copper piping, wire and flashing; aluminum siding, flashing and guttering; iron and steel banding from bundles, nails and fasteners, galvanized flashing and roofing, and rebar; and lead chimney flashing. It is critical to keep lead out of landfills because it could leach into groundwater.

The Ecology Action Diversion Center at the city landfill will accept all metals and appliances.

- 3.5 Cardboard and Paper

Avoid excessively packaged materials and supplies. However, be sure packaging is adequate to prevent damage and waste.

Separate cardboard waste, bundle, and store in a dry place. Recycle through Ecology Action (see Resources).

Minimize the number of blueprints and reproductions necessary during the design and construction process.

- 3.6 Insulation

Install left-over insulation in interior wall cavities or on top of installed attic insulation if it can not be used on another job.

- 3.7 Asphalt Roofing

Left over bundled shingles can be donated.

Technology exists, although it is not available in Austin at this time, to recycle asphalt roofing into road paving or patching material.

- 3.8 Plastic and Vinyl

Minimize waste of vinyl siding, flooring and countertop materials by ordering only quantity needed.

Trash bags and plastic sheeting can be recycled through Ecology Action (see Resources).

- 3.9 Paints, Stains, Solvents and Sealants

Donate unused portions to Habitat for Humanity Thrift Center. They accept any quantity of white latex paint and full gallons of other paints (see Resources).

Save unused portions for your next job.

Any other unused materials should be taken to a hazardous waste collection facility. (Note that the City of Austin operates a household hazardous waste collection facility. See Resources.)

- 3.10 Miscellaneous

Branches and trees from brush clearing can be stored separately and chipped at the city's landfill facility, or a chipper can be used on site to create landscaping mulch.

Old nickel cadmium batteries from portable power tools should be disposed of at a hazardous waste collection facility.

Cabinets, light fixtures, bathtubs, sinks, mortar mix, hardware, nails, screws and plumbing fittings and supplies are all accepted by Habitat for Humanity (see Resources).

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## RESOURCES

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## PROFESSIONAL ASSISTANCE

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Ask for architects and builders who are aware of waste minimization and construction materials recycling practices.

Jim Walker  
3102 Breeze Terrace  
Austin, TX 78722  
(512) 499-0526  
consultant

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## COMPONENTS / MATERIALS / SYSTEMS

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See "Building Materials - Used" in Yellow Pages for salvage companies.

Austin Community Gardens  
4814 Sunshine Drive  
Austin, TX  
Hours: 10-6, Tuesday - Saturday  
(512) 458-2009  
Accepts bagged, untreated sawdust.

Habitat for Humanity Building Materials Thrift Center  
Corner of 4th & Comal  
Hours: 8:30-5:30, Tuesday thru Saturday  
(512) 478-2165  
Non-profit organization, takes donations and re-sells many construction and salvage materials, Warehouse sales operation open to the public.

Ecology Action  
707 E. 9th St.  
Austin, TX 78701  
512-322-0000  
www.ecology-action.org  
recycle@ecology-action.org  
Accepts corrugated cardboard, brown and office paper, plastic containers with recycling number, plastic bags, garbage bags, sheet plastic; metals; appliances; operates Diversion Center at City Landfill.

Rick Ramones  
Texas Natural Resources Conservation Commission  
P.O. Box 13087  
Austin, Texas 78711  
(512) 239-6816  
rramones@trcc.state.tx.us  
Waste reduction assistance

Austin Landfill Diversion Inc  
Austin, TX  
(512) 243-1899  
Operates Diversion Center at City Landfill.  
Scrap metal, old appliances. Call in advance for current information on materials accepted.

Austin Wood Recycling  
4950 FM 1431  
Leander, TX 78641  
(512) 259-7430  
large scale on-site land clearing and mulching

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**GENERAL ASSISTANCE:**

City of Austin Solid Waste Services  
(512)472-0500  
Information on recycling

City of Austin Hazardous Materials Recycling Program  
(512) 416-8998  
Information on where to take hazardous materials.

Environmental Building News  
RR 1  
Box 161  
Brattleboro, VT 05301  
(802) 257-7300

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**Internet Resources:**

Article on potential uses for construction and demolition waste from the North Carolina Green Building Council.

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return to



Water



Energy



Building  
Materials



Solid Waste



Sustainable Sources is proud of its  
public-private partnership with  
Austin's Green Building Program.  
We put the Sustainable Building  
Sourcebook online in 1994!



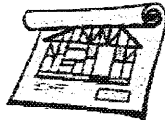
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This file last updated on Monday, December 11, 2000



## Topical Reports Green Construction

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### Demolition and Construction Management

An essential link in the design chain is to plan the demolition and construction process to maximize reuse of materials and facilitate recycling of materials that will not be reused on site.

#### Questions to Consider

- What opportunities are available for reducing and recycling demolition waste and construction debris?
- How can the construction job be managed to efficiently sort and collect waste and debris for reuse or recycling?
- How can stormwater runoff be minimized during site construction?

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### GREEN CONTRACTORS

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#### Green Pages

Northwest EcoBuilding Guild's Directory of green construction consultants, builders, and contractors

<http://www.ecobuilding.org>

Also see [Consultants](#)

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### RESOURCES

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#### National Association of Demolition Contractors

This trade group has addressed critical issues and opportunities in deconstruction and has published conclusions and case studies in "Demolition: The First Step of Reconstruction".

<http://www.demolitionassociation.com>

#### Construction Materials Recycling Association

Devoted exclusively to the needs of the rapidly expanding construction waste & demolition debris processing and recycling industry. Specialty areas include: Information exchange, resources and support on current issues and technology; and promotion for acceptance and use of recycled construction materials including concrete, asphalt, wood, gypsum, and other materials.

<http://www.cdrecycling.org/>

**Waste Prevention And Recycled Building Materials Design and Construction and Demolition Waste Management**

Contact: City of Seattle Technical Assistance 206-389-7281

<http://www.ci.seattle.wa.us/util/RESCONS/default.htm>

**Residential Construction Waste Management: A Builder's Field Guide**

<http://www.nahbrc.org/builders/green/WASTEPUB.htm>

**Setting up Waste Management Plans for Job-Sites – King County Department of Natural Resources – Solid Waste Division**

Provides a typical construction work schedule and various opportunities for each of the work phases: programming, schematic design & development, and build-out.

[http://dnr.metrokc.gov/swd/bizprog/sus\\_build/a\\_plan.htm](http://dnr.metrokc.gov/swd/bizprog/sus_build/a_plan.htm)

Publications available in .pdf format on this site include:

- 2000 Construction, Demolition, and Landclearing Materials Recycling, and
- 2000 Contractor's Guide to Preventing Waste and Recycling  
[http://dnr.metrokc.gov/swd/bizprog/sus\\_build/how\\_others.htm](http://dnr.metrokc.gov/swd/bizprog/sus_build/how_others.htm)

**Article: "The Economics of Deconstruction"**

Resource Recycling, February 2000

**Article: Checklist for Building Deconstruction**

Environmental Building News, May 2000, p 1, by Peter Yost.

Guidance for designers, owners and demolition contractors interested in maximizing deconstruction's potential, including discussions on these topics and more:

- Existing buildings as resources
- Design new buildings to utilize salvage
- Design for disassembly
- Selecting demolition firms
- Using contract language to maximize reuse potential
- Maintaining environmental and energy standards

**Waste Management Publications**

Offered by the National Association of Home Builders Research Center

<http://www.nahbrc.org/builders/green/WASTEPUB.htm>

**Building Savings: Strategies for Waste Reduction of Debris from Buildings**

Offered by the Institute for Local Self Reliance and EPA. Document number EPA-530-F-00-001.

<http://www.ilsr.org/recycling/buildingdebris.pdf>

**Environmental Handbooks for Oregon Construction Contractors - Best Pollution Prevention Practices.** November 1994. Oregon Department of Environmental Quality.

Contact: 800-452-4011

**Construction Works - Metro King County**

Factsheets and information on recycling various construction materials in the greater Seattle area.

[http://dnr.metrokc.gov/greenworks/sus\\_build/susbuild.htm](http://dnr.metrokc.gov/greenworks/sus_build/susbuild.htm)

**Recycling Plus Manual - Clean Washington Center**

<http://www.CWC.org>

(Go to "Construction")

**Contractors' Guide to Preventing Waste and Recycling**

Scottsdale, Arizona's Greenbuilding Program

<http://www.ci.scottsdale.az.us/greenbuilding/ConstRecycle.asp>

**Annotated Bibliography for Gypsum Recycling**

Lists over 300 references on gypsum recycling opportunities, including fertilizer, soil treatment, odor control agent, a feedstock in cement, and more.

Contact: John Reindl, Recycling Manager, Dane County, WI - 608-267-8815

**Stormwater, Grading and Drainage Code: Amendments 2000 - Seattle Department of Construction and Land Use**

Amendments to the "Stormwater, Grading and Drainage Code" to minimize runoff from sites during construction and operation, the new requirements will further protect Seattle's urban creeks and other aquatic habitat from large storms, and keep pollutants and excess sediment out of Seattle's lakes and bays.

<http://www.ci.seattle.wa.us/dclu/Codes/>

**National Wood Recycling Directory**

Published by American Forest and Paper Association

<http://www.afandpa.org/recycling/recycling.html>

 [Continue to the Green Building Initiatives Section](#)

 [Go Back to the Table of Contents](#)



© 1999, Pacific Northwest Pollution Prevention Resource Center  
phone: 206-352-2050, e-mail: [office@pprc.org](mailto:office@pprc.org), web: [www.pprc.org](http://www.pprc.org)  
[how to use this site](#)  
[feedback](#)

## Household trash being dumped in Stumpy Meadows dumpster

10/11/2001  
by Ginny Diehl <sup>of town</sup> <sub>Gay</sub>

Managers Ed and Loretta Reiss at Stumpy Meadows campground have reported that they are experiencing a problem with finding increasing amounts of household trash being placed in the dumpster in the parking lot.

The dumpster is placed there as a courtesy for the users of the Stumpy Meadows complex, such as picnic-

ers, boaters, campers and day-use visitors. Lately, the managers have been finding items such as tires, batteries, bed frames, couches and containers of household trash, placed in the dumpster.

The Stumpy Meadows complex is on US Forest Service property, but is contracted to American Land and Leisure to oversee its operation. Last year the fee to empty the dumpster was about \$89.

This year the cost has risen to \$135. For normal visitor use, the dumpster

*continued  
on page 12*

### Stumpy Meadows trash . . . from page 1

should only need to be emptied about every two to three weeks. With the increased amount of dumping of household garbage, it has been necessary to empty it weekly.

At the present time, all day use of the picnic facilities, parking lot and the boat ramp are provided at no cost to the public. However, due to increased costs of operation, some recreation areas have been forced to start charging fees for these services. For instance, there is now a \$3 charge to launch

boats at Sugar Pine.

If visitors are observed placing household garbage within the dumpster, or the garbage can be identified and linked to the person or persons who placed it there, they can be subject to prosecution. Visitors are asked to please respect the rules for use of the dumpster at Stumpy Meadows, so that we may all continue to enjoy the facilities at no cost.



Democrat photo by Joanne McCubrey

TRASH THAT WAS dumped in front of George Moreno's property on French Creek Road is an eyesore.

## Blight of junkers irks county residents

By NOEL STACK  
Staff writer  
2/24/2003

A ghastly surprise greeted Debi Moreno when she returned to her quiet home on French Creek Road after a brief trip to San Diego in mid-January. A broken down trailer was sitting right in front of her property.

"We're talking about an open trailer full of junk and garbage," she said.

Held together with garden hose and scarcely covered with a shredded blue tarp, the green and brown trailer holds old tires, car parts, and household trash. Garbage spills over the side and old Budweiser boxes and a deflated basketball lay on Moreno's property.

Angry and determined to get the safety hazard out of the area, Moreno started making



Democrat photo by Noel Stack  
A HEAP OF ABATED VEHICLES SIT at the Hangtown Tow yard before they are sold for parts and metal. Most vehicles, or the various parts, end up at the Pick-N-Pull in Rancho Cordova.

phone calls. First she called the California Highway Patrol.

"He said 'you mean that ugly green one?'" Moreno

said, shaking her head.

Unable to help, the CHP employee told Moreno, a 21-year county resident, to call the El Dorado County

Sheriff's Office. Her frustration mounted when Sheriff's Deputy Lee Baker, vehicle abatement officer, also acknowledged his familiarity with the trailer.

"He knew about it too," she said.

With a backlog at the Sheriff's Office, Baker told Moreno 30 to 90 days would pass before anything would be done, regardless of the contents of the trailer.

Baker, an abatement officer for two years, said all requests for junk-vehicle pick up must be handled in the order received unless the vehicle is classified as an immediate hazard. Every day, he said, his office gets 20 to 45 calls from people all over the county. So far in 2003, over 250 aban-

see TRASH, page A-8

## TRASH

doned vehicles have been abated.

"I don't foresee not ever having a backlog here," said Baker. "When the weather turns nice they (abandoned vehicles) are everywhere. They kind of bud like flowers."

The Sheriff's Office contracts out with Hangtown Tow for all abatement pick ups and Baker is the only deputy involved. Officers can call for another company to pick up an abandoned vehicle if, and only if, they see it as a hazard. Those other towing companies don't get paid but Hangtown Tow will retrieve the towed vehicle from the other's lots.

Baker said abandoned vehicles are taken from public and private property. The Sheriff's Office doesn't need permission to tow on private land but, Baker added, he doesn't see why people can't remove junk from their own property, especially if they own the vehicle. In cases where people call to get their own junk taken away, he added, they're just taking advantage of the service.

"It's free and everybody wants it," he said.

"Why can't private property owners tow themselves?" Baker asked. "Instead the taxpayers are footing the bill."

Moreno worried she would have to remove the scrapped trailer herself if it was determined the trailer sat on her property.

"At first I wasn't sure," Moreno said but after some research, and to her relief, it was discovered the county owned the property.

To make matters worse, the trailer started to spill out more of its contents and lean onto Moreno's property. The axle was broken and the tongue was bent, preventing quick, easy removal.

Also, kids getting on and off the bus at a stop near the dilapidated trailer started taking things out and throwing them on nearby property.

To prevent the children from getting hurt, Moreno tried to accelerate the process of



Photo by Don Berry

### VEHICLES LITTER THE side of Omo Ranch Road, awaiting pickup.

removal by calling Hangtown Tow Service, which she was told was the company that worked with the Sheriff's Office.

They had no report of the trailer.

"The frustrating part is that we pay a tax," said Moreno,

referring to the \$1 DMV fee placed on vehicles less than 10 years old that goes for abatement services. "I got the feeling that they don't care."

That \$1, according to Baker, doesn't stretch very far. Sending out one letter to an abandoned vehicle owner costs \$4. Towing each vehicle costs the county at least \$35, for a total of \$7,000 a month, and because the price of scrap metal is so low, Baker added, the towing company can't recover its loss either.

"Because that is not enough money to do it, the county is also kicking money in," he said. "There's not enough funding for two deputies to do this. There are much more important things going on than junk in the road."

Currently, the Sheriff's Office is trying to set up a fee schedule to be approved by the Board of Supervisors later this year to collect revenue from abated

vehicle owners. To pick up some of the slack, Baker added, the abatement program relies heavily on STAR volunteers.

"If it hadn't been for the STAR volunteers, we would've sunk," Baker added.

The volunteers complete the stack of paperwork necessary for each vehicle and take calls from concerned residents about new and reoccurring dump cases and sites.

Moreno and her husband George didn't stop calling and soon neighbors got involved and put more calls into the Sheriff's Office. Moreno also placed an ad in the Gold Panner, promising anonymity to anyone who had information.

Unfortunately the owner of the trailer didn't call but Moreno did get an eye-witness account and more information on other dump sites.

Two people saw a newer white pickup with one person with the trailer but they didn't get a plate number or further description of the vehicle, she said. Another resident, who wished to remain anonymous, said she saw a trail of trash leading to the trailer from a nearby street and suspects someone who lives in that area is respon-

sible for the mess.

More calls came in describing another site though, according to Moreno, dumping doesn't occur often in the area.

"On Old French Town Road, there was a dryer dumped," she said, adding that a witness saw a person just push it out of the truck and drive away. The witness did get a plate number and notified the Sheriff but, according to the witness, an independent citizen finally took the dryer to the dump.

Familiar with the area, Baker said a lot more dumping occurs than people like to admit and tracking down perpetrators is difficult and time consuming.

"Most cars we're dealing with, people don't want," said Baker. "You never know what you're going to find."

The deputy has had some luck though. The District Attorney's

office is pursuing criminal prosecution against a 50-foot home trailer owner who tried to dump it, according to Baker. He has also found several stolen vehicles abandoned in the county but most, he added, are just broken down, junkers nobody wants.

A prime example is the nest of cars abandoned at least six



months ago. Drivers on Omo Ranch Road pass by and, according to area residents, nothing has moved. Some of the cars have Sheriff's tags on the windshields and according to Baker, are slated for pick up in the next few weeks.

On Indian Diggings Road an abandoned trailer home has also sat for over a month and one resident took it upon himself to tag the vehicle, pleading the Sheriff's Office to take it away.

Baker said he just did a sweep over Georgetown and removed about 30 vehicles but inevitably more will appear. As soon as we leave an area, he said, people think it's open season for dumping again.

Meanwhile, Moreno waits for a sweep in her area, hoping to rid her neighborhood of the eye sore.

"Nobody's ever come by and tagged it," she said, adding that she has never seen any official out in her area looking at the trailer.

"It doesn't have to be tagged," said Baker, adding that the open trailer is on his list. "A tag doesn't mean anything."

continued from A-1

In Moreno's case, a Vehicle Identification Number was stamped on the tongue and given to Baker. However, Baker was unable to locate an owner through DMV and the only purpose for a tag is to notify an owner that their vehicle will be towed unless moved.

The only thing he can offer Moreno and others who find themselves waiting for this free service, he said, is an urge to be patient.

"Things work on a different pace up here," he said, adding that doesn't necessarily mean it's not important. "We have to prioritize calls and resources."

Fortunately for Moreno, her priority number came up with Environmental Management.

Greg Stanton of Environmental Management, notified last week of the trailer. had people come out to the area Friday and although they couldn't move it, they removed the 2,000 pounds of trash inside.

Empty or full, Moreno said the whole trailer is a risk as it has no reflectors and sits close to a narrow street. An unaware

driver could sideswipe the stationary trailer and that could be a huge liability for the county since it sits on county property.

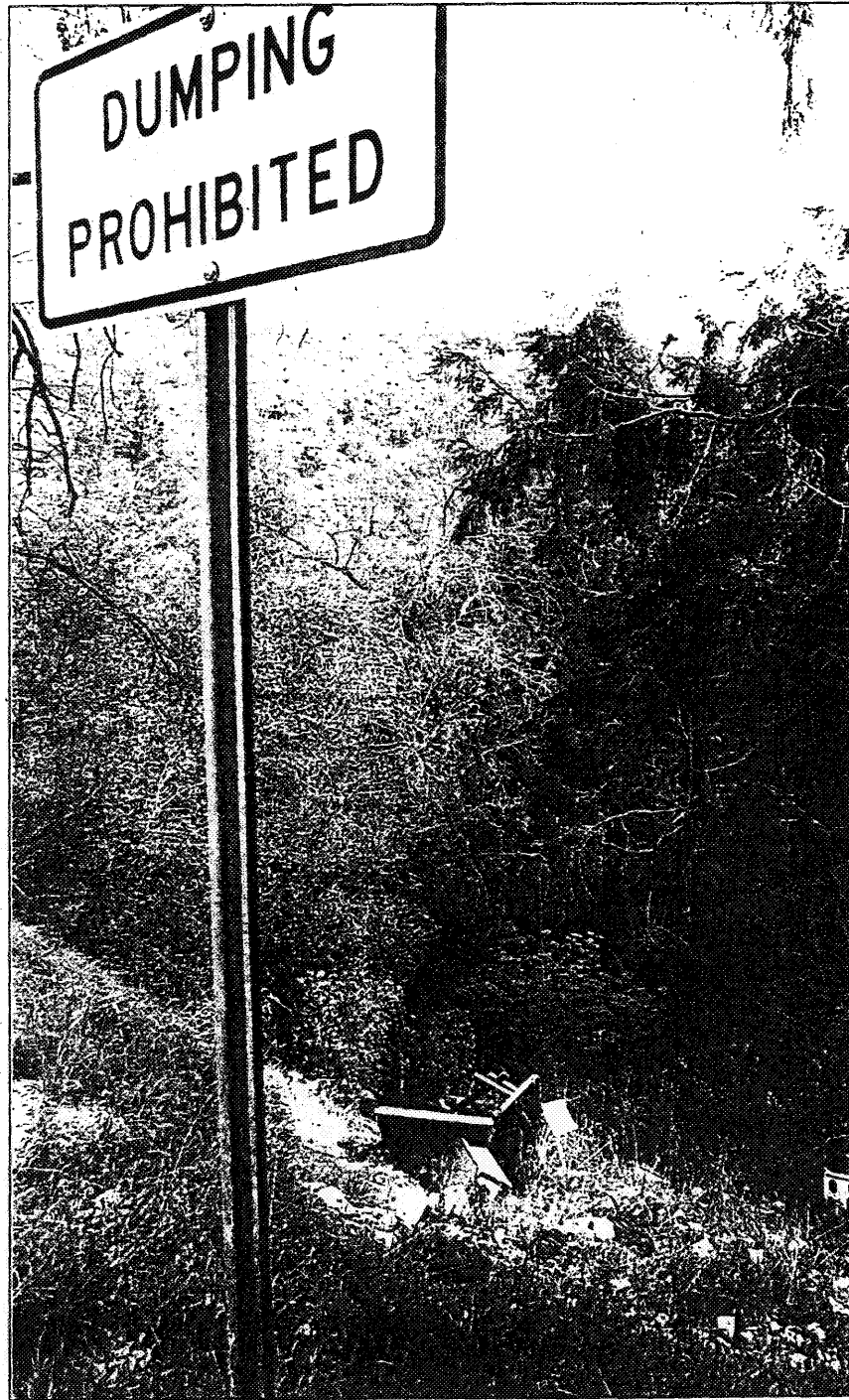
Not aware of any such case in which that has happened, Baker said Moreno's troubles will end soon. Her trailer is scheduled for pick up this week, providing the tow service isn't inundated with other priorities and/or emergency jobs.

"You have to prioritize," he said. "We try to do what we can for them but we can't always do it right now."

You can reach Noel Stack at [nstack@midemocrat.net](mailto:nstack@midemocrat.net)

Refuse(ing) to read

3/25/2003



Democrat photo by Joanne McCubrey  
PROVING THAT THE LITERACY rate in the county isn't quite as high as it could be some area residents chose this spot along Mosquito Road as a good place to dispose of some rubbish.

# Junker patrol cleans up abandoned vehicles

*Handwritten: 3/29/2002*  
By OLIVIA LOY  
Staff writer

Though at one time in their lives they might have been ultimate driving machines, unwanted vehicles, abandoned all over El Dorado County, are keeping officials running, jumping, and towing.

Removing 150 years worth of abandoned vehicles from Sacramento, Amador, and Placer counties is the task in front of El Dorado County Sheriff's Deputy Lee Baker, who is in charge of the county's vehicle abatement program.

"The program is designed to remove abandoned vehicles that pose a hazard or public nuisance," according to the Sheriff's Department Web site.

Baker took over the vehicle abatement department two years ago not realizing "the mess (he) was getting into."

Almost every morning Baker arrives at work, his message box is full of requests from disgruntled property owners, neighbors and Realtors to remove junk cars from their line of sight.

Though most of the perpetrators are what Baker calls "backyard mechanics," he said, "this is El Dorado County, everybody's got to have a yard car. Some are avid collectors," said Baker.

Last month, 150 vehicles were towed at an \$8,000 county-expense. This year, to date, the county has abated over 260 vehicles, while an equal number have been taken care of by the automobile's owner.

Financing such efforts, though written in the county ordinance to be the responsibility of the car owner, is taken care of by an annual \$1 state DMV fee, paid by residents who own cars less than 10 years old.

Up until now, the county has not cracked down on holding vehicle owners responsible for the costs incurred in taking care of the problem, but that's about to change, said Baker, as the county has officially entered into financially stringent times.

The Placerville Police Department, South Lake Tahoe Police Department and the county Sheriff's Department share the revenue and cost of removing the unwanted vehicles.

The first step in the removal process begins when someone calls in with a request or a complaint of an abandoned, stripped, or unsightly vehicle.

Baker then checks and tags the specified vehicle, after verifying the Vehicle Identification Number.

Owners of abandoned vehicles will



Democrat photo by Olivia Loy  
ABANDONED CARS wait in a holding lot in El Dorado, owned by Hangtown Tow, before being shipped to scrap yards in the Sacramento area.

sometimes strip and torch the car to eradicate the VIN so the car cannot be traced, but these efforts are usually futile since most automobiles have many hidden VINs.

The car's age can also make it hard to trace.

A car may be removed after sitting three

see JUNKER, page A-15

## JUNKER

consecutive days in violation of the county ordinance, which includes such offenses as being an attractive nuisance, and posing hazardous conditions, among many others.

Motor homes, mobile homes, and travel trailers are not included in the vehicle abatement program.

STAR volunteers also play a crucial role in the process as they do much of the tagging, said Baker.

The county's first approach with the problem car's owner is a friendly one, said Baker, but sometimes a court order is necessary if the violators are uncooperative or the county wishes to put a lien on the owner's property to receive compensa-

tion.

Before a car is towed, and if it can be traced back to a previous owner, the county sends him or her a letter of notification and contacts the Department of Motor Vehicles.

Once a vehicle is tagged, a contracted tow company removes the vehicle.

After the car has been towed, subsequent notification is given and the owner has 10 days to claim their vehicle before they lose it. "Losing it" essentially means that Schnitzer's Steel scrap yards in Rancho Cordova, take possession of the unwanted vehicle.

The officer also checks to see if the vehicle is stolen. Out of a few thousand cars removed last

year, only five were identified as stolen, according to Baker.

The county contracts with Hangtown Tow, which changed ownership recently to Roy Johnston, to remove the cars. The company has equipment capable of removing up to seven or eight vehicles at one time, said Baker, enhancing the efficiency and timeliness of cleaning up contentious areas.

"He who tows the most, gets the most," is the interoffice mantra, according to Baker.

The tow company receives \$33 for every car it removes within a five-mile radius of Placerville. For every mile traveled outside the radius, an extra dollar is tacked on to the base fee.

The time of year makes a difference in abatement productivity, since wet winter months make accessing many cars difficult, according to Baker. Tow trucks trying to compete with mud, might end up needing a tow themselves.

Areas where children dwell, such as bus stop areas, are given priority attention.

A new task force, referred to as the Multi-Agency Abatement Team unit, has formed to address enforcement of the county ordinance, including vehicle abatement procedures. Representatives from the El Dorado County Planning Department, the Department of Transportation, Environmental Management, and the Sheriff's

Department will work for MAAT, bringing agencies together to better tackle problems with multiple fronts.

Often, in the abatement process, when the property under scrutiny contains multiple cars, the owner is running an unlicensed scrap yard business on the side, which requires the expertise of the Planning Department.

Environmental Management Department is included in the process also, because the car in question may be leaking excess amounts of oil or creating other biohazardous conditions.

To report vehicles for abatement leave a message for the vehicle abatement officer at 621-6573.

Hangtown Towing 626-6573  
Olivia Loy can be contacted  
at oloy@mtdemocrat.net.



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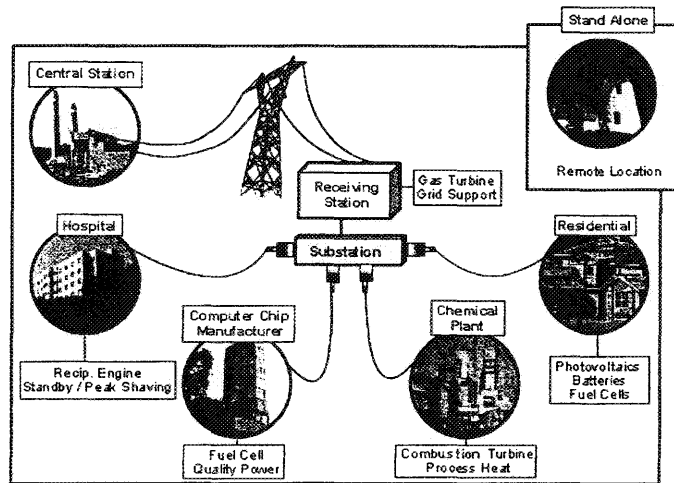
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## California Distributed Energy Resource guide

Distributed energy resources (DER) are parallel and stand-alone electric generation units located within the electric distribution system at or near the end user. DER can be beneficial to both electricity consumers and if the integration is properly engineered, the energy utility.



It is generally accepted that centralized electric power plants will remain the major source of electric power supply for the near future. DER, however, can complement central power by providing incremental capacity to the utility grid or to an end user. Installing DER at or near the end user can also in some cases benefit the electric utility by avoiding or reducing the cost of transmission and distribution system upgrades.

For the consumer the potential lower cost, higher service reliability, high power quality, increased energy efficiency, and energy independence are all reasons for interest in DER. The use of renewable distributed energy generation and "green power" such as wind, photovoltaic, geothermal or hydroelectric power, and can also provide a significant environmental benefit.

Some of the primary applications for DER include:

- Premium power - reduced frequency variations, voltage transients, surges, dips or other disruptions
- Standby power - used in the event of an outage, as a back-up to the electric grid
- Peak shaving - the use of DER during times when electric use and demand charges are high
- Low-cost energy - the use of DER as baseload or primary power that is less expensive to produce locally than it is to purchase from the electric utility
- Combined heat and power (cogeneration) - increases the efficiency of on-site power generation by using the waste heat for existing thermal process

Users of DER have different power needs. Hospitals need high reliability (back-up power) and power quality (premium power) due to the sensitivity of equipment. Industrial plants typically have high energy bills, long production hours, and thermal processes, and would therefore seek DER applications that include low-cost energy and combined heat and power. Computer data centers require steady, high-quality, uninterrupted power (premium power). DER technologies are either available now or are being developed to meet these needs.

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CALIFORNIA  
ENERGY  
COMMISSION

# Distributed Generation Strategic Plan

June 2002  
P700-02-002



Gray Davis, Governor

## INTRODUCTION

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*We are at the threshold of reinventing the electric power system.<sup>1</sup>*

The distributed generation industry is at a crossroads: it can emerge from its infancy to become a major contributor to California's electric system or it can remain on the sidelines, serving niche markets for remote, emergency, or other special power needs. When the state teetered on the verge of rolling blackouts last year, consumers became more aware of the need for peak-load reduction, increased power quality and grid reliability, which are key features offered by distributed generators. At present, more than 2,000 megawatts of distributed generation facilities have been installed in California, with an expected 300-400 megawatts in small-scale projects to be added on an annual basis in the near term.<sup>2</sup>

As the number of distributed generation projects grows in California and optimism increases about the potential benefits that these technologies could provide, so do concerns about the impact that wide-scale deployment of distributed generation might have on the future performance of the California energy system and the environment. This strategic plan is based on the fundamental hypothesis that distributed generation technologies can be deployed to benefit California's electric grid, energy consumers, and the environment. Initial research and assessments — included in this strategic plan — are being conducted or will be conducted to determine the validity of this hypothesis. The results of this analytical work will be used to update the contents of this plan, as needed.

This document articulates the Energy Commission's vision of the future relating to distributed generation, identifies issues and opportunities affecting the likelihood of that vision being realized, and addresses the role that government can play in this process. It considers potential roles for the Energy Commission and provides guidance to other State agencies about policies and programs within their respective jurisdictions which would contribute to helping the Energy Commission realize its vision for distributed generation.

Before presenting the elements of the strategic plan, this document presents the following, relevant background information on distributed generation: definition of DG, overview of DG technologies and enterprises, current DG issues, and possible roles for government to address the issues and opportunities. The elements of the plan are its vision, mission and principles statements, strategies, goals, activities, and guidance to other State agencies.

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<sup>1</sup> Deblasio, Richard D. and Basso, Thomas S. *Status on Developing IEEE Standard P1547 for Distributed Power Resources and Electric Power Systems Interconnection*, March 2002.

<sup>2</sup> See California Energy Commission. *Five-Year Investment Plan, 2002 Through 2006 for the Public Interest Energy Research Program*, P.600-01-004b, March 2001.

# Fuel cells' potential extends to homes

By Rick Popely  
CHICAGO TRIBUNE

General Motors, Ford and other auto companies may wind up in the same business as your local utility — generating electricity to run homes and businesses.

As car companies develop fuel cells to power cars and light trucks of the future, they see other possibilities besides their traditional business.

Fuel cells mix hydrogen with air to create pollution-free electricity, and once a fuel cell is installed in a vehicle, there is no reason it can't generate electricity while it is parked in a driveway or garage.

"Once you get that technology small enough to fit into a car, you can change the world," said Ingo Hermann, an engineer who works on GM's fuel-cell program.

While fuel-cell vehicles are parked overnight, they can generate enough power to provide a family's electricity needs. Instead of running electric motors that drive the front wheels of a car, the fuel cell could run televisions, computers and refrigerators.

"My vision is to drive up to my house, plug in the fuel cell and power everything in my house," Hermann said.

GM hopes to be the first manufacturer to sell 1 million fuel-cell vehicles. Though that is 10 or more years away, Byron McCormick, co-director of GM's global alternative propulsion research, said that 1

million fuel-cell vehicles would have more electrical generating power than all of California's utilities.

"This is not just a replacement for the internal-combustion engine," McCormick said. "The boundaries between industries begin to get blurred."

Indeed, GM's plans go beyond putting fuel cells in vehicles. The automaker recently unveiled a stationary unit that generates enough electricity to run a house and said it could build more-powerful units capable of running subdivisions and factories. A GM-designed fuel reformer extracts hydrogen from natural gas to run the stationary fuel cell.

"This allows us to consider other markets," said Larry Burns, GM's head of research and development. He indicated that GM may license its technology to energy companies.

"We are currently exploring the right path to take," he said.

Burns said that GM could be ready to sell stationary fuel cells by the middle of this decade. "We think we can get the stationary technology to where it's very comparable to the peak electricity rates you pay."

► FUEL CELLS, page G4

The Sacramento Bee • Friday, August 17, 2001

## Fuel cells: Technology's potential is 'revolutionary'

► CONTINUED FROM G1

Other automakers have yet to announce plans to expand into electric power generation as a revenue source, but others see that possibility — and not just for car companies.

Michael Krumpelt, manager of fuel-cell technology at Argonne National Laboratory outside Chicago, said fuel cells have the potential to "revolutionize our industrial structure and landscape." Krumpelt said it is easier to use fuel cells in homes and businesses than in vehicles, which have space and weight limitations and more-demanding operating conditions.

"It's a given" that stationary fuel cells will be commercially viable before fuel-cell vehicles are, he said. Because fuel cells are small generating stations, they may replace large, central power plants fired by coal or nuclear

power.

"You can have your own power generator in your backyard and be self-sufficient," Krumpelt said.

Linking dozens of small fuel cells into a network of generating stations would be similar to linking personal computers — a process that created the Internet.

One company that sees that future is H Power, a Clifton, N.J.-based manufacturer of stationary fuel cells. H Power is beta testing a fuel cell in the U.S., Japan and Europe that generates a steady 4.5 kilowatts, enough electricity for a 2,500-square-foot house.

The cube-shaped fuel cell is about four feet tall and wide — larger than a washing machine and about the size of an industrial air conditioning unit. It runs on natural gas or propane.

H Power Chief Executive Frank Gibbard said the company plans to start selling the unit next year and that the price would be \$5,000 to \$6,000 once full-scale production is reached.

"It will be the cost of a major appliance," Gibbard said. "Any place that has expensive electricity or an unreliable electricity supply, this will be more reliable, and it also can be cheaper."

He said that within five years, consumers will be able to buy miniature fuel-cell cartridges that will replace batteries in laptop computers, cell phones, power tools and other small devices and last up to 20 times longer. Naturally, this application could be expanded to include motor vehicles.

"They're going to change the way we power everything," Gibbard said. "Fuel cells really have the potential to be revolutionary."

Sacto Bee

8/17/2001



# Flood maps don't hold water

Property owners learn the hard way that FEMA maps often are outdated.

BY DIANE MASTRULL  
AND ANTHONY R. WOOD  
PHILADELPHIA INQUIRER

**PHILADELPHIA** — When it comes to buying, building and insuring their homes, Americans have put their faith for the last 30 years in a mammoth set of U.S. government maps identifying flood-prone neighborhoods in 20,000 communities.

But as many are learning at great cost, the aging maps have been outdated by development and no longer can be trusted to keep them out of harm's way.

Tom and Emily Nicholas had no idea that their ranch in Upper Moreland Township, near Philadelphia, is in a high-risk flood plain.

According to the federal map, it isn't. Two creeks, the Mill and the Pennypack, pass within a mile, but the Nicholases believed they had nothing to fear.

Nothing to fear in the 1970s, when creek overflow routinely submerged an intersection 130 yards away during heavy rain. Or in the 1980s, when water began lapping at neighbors' yards.

Nothing to fear in 1999, when Hurricane Floyd so swelled the streams that the two houses next door were inundated.

Nothing even in 2001, when Tropical Storm Allison hit a year ago.

Six people in a nearby apartment complex died and dozens of houses were damaged — including the Nicholases', where a foot of water destroyed furnishings and appliances worth \$20,000.

Last week, having determined that the couple almost surely will be flooded again, the government agreed to buy their home — which on the map, and only on the map, still sits safely in the lowest-risk zone.

Flooding is the nation's costliest natural disaster, causing an annual average of \$5.9 billion in property damage. Yet at least two-thirds of the flood maps kept by the Federal Emergency Management Agency, or FEMA — and relied on by home buyers, developers, insurers and lenders — are more than 10 years old. One-third are more than 15 years old.

FEMA acknowledges it has not kept up, and it posts the equivalent of a surgeon general's warning on its maps:

"After publication of the map, flood hazards may change significantly in areas experiencing urban growth."

For \$800 million, the problem could be solved, says FEMA spokesman Mark Stevens. The entire map inventory could be updated, then digitized for easier public access. Between the Army Corps of Engineers and private firms, every waterway would be re-evaluated.

Stevens estimates that fully modernized maps could prevent \$48 billion in property damage over the next 50 years.

In its 2003 budget, the Bush administration has proposed \$300 million for remapping. Stevens calls that "a dent."

"It's more than a dent — it's an excellent down payment," countered U.S. Rep. Joseph Hoeffel, D.-Pa., who backs the project as an "important investment for the federal government."

"Flooding in urban and suburban areas," he added, "is a huge problem [that is] so expensive to taxpayers."

Saving money was the whole point when Congress created the National Flood Insurance Program in 1968.

Until then, flood coverage had been unavailable for 40 years; private insurers had bailed out of the business after a catastrophic flood along the Mississippi River in 1927. Taxpayers were left to cover damages through government disaster relief.

Under the new program, in theory at least, property owners would foot the bills with their own premiums on federal flood policies, turning the U.S. government into one of the nation's largest insurance companies.

Public interest was underwhelming. After Hurricane Agnes racked up record losses of life and property in June 1972, Congress decided to make National Flood Insurance mandatory. To determine who would have to subscribe and to set rates, the government needed to identify every flood hazard.

So began one of the biggest map projects in world history.

Given the immensity of the task (more than 100,000 map panels), the pace of development and the expense of updating, FEMA promptly fell behind. It has never caught up.

"I don't think there was due consideration given to maintenance of the product," said Mike Buckley, a FEMA map specialist.

Not all FEMA maps date back to the 20th century. For example, most in Chester County are stamped 2002.

FEMA says it puts its remapping ef-

forts into areas of most rapid development.

Sometimes, though, new charts are drawn at the request of communities taking steps to lower flood risks. That can cut residents' insurance rates — and open more land to development.

A recent date, however, is not necessarily an assurance of freshness.

Tom and Emily Nicholas don't think much of FEMA's Upper Moreland map. Yet thanks to it, they have caught an absurd break.

Eight months after Allison ripped through, they bought their first federal flood insurance. Although the government had put them on its list of potential buyouts by then, their annual premium was \$236 — the rate for FEMA's supposedly safe "Zone X."

On an accurate map, their ranch would appear in the high-risk "Zone A." The premium would be \$959.

"It's really kind of dumb," Tom Nicholas said.

But that could soon be water under the bridge in that neighborhood.

Of the homes damaged by Allison, 34 already have been approved for buyouts; three are in FEMA's Zone X.

Where homes are razed, there will be preserved open space.

Township manager Brian Mook wonders how many more residents sit, unaware, in the high-risk flood plain. He is not waiting for FEMA to tell him.

Shortly after Allison, he and officials of a half-dozen other flood-prone communities along the Pennypack turned to Temple University for help. Specifically, to the Center for Sustainable Communities, created two years ago to help municipalities manage growth.

Its director, Jeff Featherstone, met the concerns of Mook and company with a plan to study the 56-square-mile Pennypack watershed.

The project is expected to take two years and cost more than \$500,000 — and come up with ideas for lowering the flood risk in the 11 municipalities within the watershed, which runs from Philadelphia to Upper Southampton, Bucks County.

Tom and Emily Nicholas will be long gone from Lancaster Place by then.

They are awaiting the government's fair-market offer on the home they bought in 1961 for \$14,500. They are not sure where they'll go afterward, except that they won't be relying on a FEMA map to keep dry.

"I want to stay in the area," Emily Nicholas said, "away from water."

washingtonpost.com

## Architects and Urban Planners Can Help Solve Flood, Drought and Water Pollution Problems

By Roger K. Lewis

Saturday, September 7, 2002; Page H05

Management of the earth's water resources was among the issues discussed at the politically charged United Nations World Summit on Sustainable Development, which concluded this week in Johannesburg. But I wonder whether there was any discussion about the relationship between managing water resources and architecture and urban design.

You didn't have to attend the conference to know that dealing intelligently with water is a critical, worldwide challenge. Here and elsewhere in the United States, brown lawns, parched foliage, dry streams and water rationing have been constant reminders of this summer's drought conditions. Catastrophic flooding in Central and Eastern Europe, dramatized by images of the inundated historic heart of Prague, underscored the challenge.

Water poses three critical sustainability problems: having too little where and when it's needed for habitation, industry and agriculture; having too much where and when it's not wanted; and maintaining water quality to protect and preserve natural ecosystems and wildlife habitats.

Architecture and urban design can't stop fertilizers and pesticides from washing off farmland into rivers and bays, change the jet stream or modify rainfall patterns. But they can help in addressing and mitigating water problems. What and how we build directly influences a region's water supply as well as the quality of the region's streams, rivers, lakes, bays and coastal waters.

The essence of the mitigation-by-design strategy is simple: Reduce or minimize the amount of land covered by materials that prevent rain from falling directly onto the soil.

Most rain falling on the ground is absorbed. Soil acts as a natural filter and cleanses the water percolating down. The naturally filtered water eventually reaches underground aquifers or, downhill from where the rain fell, reaches the surface again to feed a spring or stream.

Because the surfaces of roads and parking lots and the roofs of buildings are impervious, virtually all the rain falling on these surfaces runs off. If it is dumped on the ground, some of it is absorbed. But in urbanized areas, most runoff is collected by storm drains and catch basins. These channel the water into networks of culverts and underground pipes, eventually leading to outfalls at streams, bayous, rivers, lakes or the sea.

Rainwater washing across roofs, roadways and parking lots picks up and retains pollutants -- hydrocarbons deposited by vehicles, industrially produced chemicals, decaying microorganisms and just plain dirt. Most of these materials remain in the water and are there when it reaches outfalls. Thus, increasing the amount of impervious surface within a region worsens pollution in the region's waters.

Adding impervious construction to a region's landscape has another unwanted consequence: It substantially reduces the amount of water reaching and recharging the region's underground aquifers, often a critical source of potable well water as well as a source of water for recharging streams and rivers.

The most obvious negative consequence of paving and roofing the natural landscape is the one that structured drainage systems traditionally seek to prevent -- flooding. Eventually a storm always comes along to overload the system, no matter how well it has been engineered. That's especially true in areas that are flat, abut flood plains or lie in valleys where cresting rivers have no place to go except through towns.

Since the 1960s, stricter environmental standards have resulted in storm-water systems designed not only to prevent flooding but also to improve water quality. In many suburbs, runoff is piped or channeled to retention ponds where sediment can settle out before the water leaves the pond.

Yet no matter how effective newer systems are in temporarily managing storm water, covering the landscape with impervious materials -- roofing and paving -- still alters the environment.

What does all this have to do with architecture?

When designing a building or a community, architects, planners, engineers and their clients can make several intelligent choices to reduce damage.

- Site development plans and road networks can be configured as efficiently as possible, with streets no wider than absolutely necessary. Reducing the curb-to-curb width of a street from 40 feet to 36 feet, still enough for two lanes and curbside parking, reduces paved surface area and runoff by 10 percent. It also helps calm traffic by slowing down cars.

- Most sidewalks and parking lots are paved and impervious, but many could be surfaced with more porous paving materials to accommodate vehicles while still allowing rain to seep through. In more densely urbanized areas, placing parking under buildings, in parking garages or even on building roofs eliminates undesirable runoff from surface parking lots, which are ugly anyway.

- Geometrically compact buildings reduce roof area and site coverage while increasing usable, pervious open space. Putting a given amount of floor space in a two-story rather than a one-story building reduces the roof and footprint area by half. Going from two stories to three stories reduces site coverage and roof runoff by one-third. Compact buildings offer other sustainability benefits: more compact foundations, less exterior wall surface, less energy consumption for heating and air conditioning, and usually lower construction and operating costs.

- Site development plans can incorporate more "green infrastructure," such as networks of vegetated swales and constructed wetlands, to disperse and retain storm water on-site and allow more of it to soak naturally into the ground instead of being piped away.

In the short run, the effects of such design actions, considered project by project, may seem marginal. But in the long run, and in the aggregate, they will make a measurable difference. For a sustainable future, we need to undertake these design actions now.

*Roger K. Lewis is a practicing architect and a professor of architecture at the University of Maryland.*

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# POROUS PAVEMENT

**REDUCING RUNOFF**

**PHOTOS**

**PRODUCT**

**CASE STUD**

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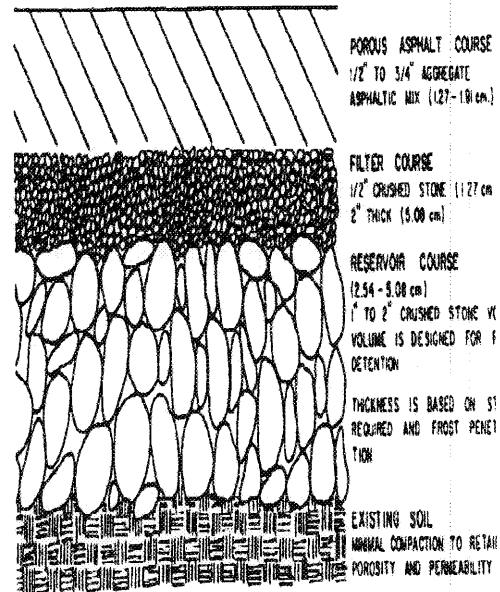
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Porous pavement is fundamentally the same as asphalt but it does not contain the fine particles that asphalt does and porous pavement is not sealed to be waterproof. Porous pavement is designed to allow the filtration of water which eliminates the surface runoff that normal asphalt creates.

## Some possible advantages or benefits from porous asphalt

- Substantial reduction of runoff rate and volume from impervious surfaces
- Erosion control on unprotected overland flow and channel areas
- Water quality enhancement
- The need for curbs or storm sewer installation or expansion may be avoided
- Natural drainage boundaries and patterns can be maintained
- The nuisance factor to pedestrians and motorists arising from standing puddles in parking lots, streets, and detention basins will not be a problem
- Natural vegetation and drainage patterns can be retained by the use of porous pavement
- Groundwater recharge may be possible with porous asphalt paving
- Improvement of wet pavement skid resistance

Taken from EPA-600/2-80-135; August 1980



click on the picture to enlarge



## Reducing the Impacts of Urban Runoff with Alternative Site Design Approaches

NIPC Bulletin - May 1997

### *How to Get the Full Report:*

*This topic is covered in much greater detail in a report titled Reducing the Impacts of Urban Runoff: The Advantages of Alternative Site Design Approaches. This report, which includes extensive references, is available from NIPC's Publications Department (312-454-0400 extension 210).*

### **The Problem**

Conventional urban development dramatically increases the amount of stormwater runoff generated by the landscape. The principal causes of this effect are *impervious surfaces* -- streets, parking lots, and buildings -- and compaction of the soil due to construction activities. Instead of soaking into the ground, rainfall is converted quickly to runoff and is then eliminated from the site via sewers and man made channels.

Some common site development standards may actually worsen stormwater runoff problems. For example, modern standards which require wide streets, expansive parking lots, and artificial drainage systems produce even more runoff than similar developments of 40 to 50 years ago.

In recognition of the effect that increased runoff has had on flooding, new development often incorporates stormwater detention to slow the release to downstream rivers. Unfortunately, this still leaves several runoff-related problems inadequately addressed.

- Stormwater runoff is contaminated with various water pollutants which are byproducts of urban activities such as automobile use, lawn care, and industrial fallout. If unchecked, these pollutants will damage the aquatic life, including fish, in downstream lakes, streams, and wetlands.
- Water which runs off of urban landscapes can no longer recharge groundwater supplies. For communities which depend on locally recharged aquifers, resultant water shortages could limit future development and necessitate sprinkling bans and other restrictions.
- Urban runoff causes instability in the drainage system by 1) increasing the high flows, which can cause streams to rapidly erode and 2) decreasing the low flows (or *baseflows*), which literally causes small streams and lakes to dry up and concentrates pollutants to damaging levels.
- While stormwater detention can effectively reduce runoff *rates*, thereby controlling localized flooding, it does little to control the increased *volume* of runoff caused by urbanization. As a consequence, flooding continues to worsen on larger drainage systems, such as the Des Plaines and Fox rivers.

### **A Solution -- Alternative Site Designs**

Fortunately, there are development options involving alternative stormwater drainage and site design approaches which can substantially reduce the identified impacts. These alternative development techniques, commonly called *best management practices*, or *BMPs*, involve measures which accomplish two basic objectives:

- reduce the amount of impervious surface area, thereby reducing runoff and

- utilize the landscape to naturally filter and infiltrate runoff before it leaves the development site.

Interestingly, the recommended alternatives reflect both old and new design philosophies. Some mirror a design philosophy which existed prior to the 1950s-1960s when "modern" subdivisions began to spread across the landscape. Older developments, for example, often utilized natural drainage approaches and narrower street widths. In other instances the alternative approaches, such as landscaping with native vegetation, emulate conditions prior to the arrival of European settlers. Also recommended are innovative planning approaches, such as cluster developments, which have not yet been widely implemented in this region.

### Recommended Site Design Alternatives

- **Natural drainage measures:** Use of drainage swales, vegetated filter strips, and other natural drainage approaches -- in contrast to storm sewers, lined channels, and curbs and gutters -- will reduce runoff volumes and greatly enhance the removal of pollutants from runoff water.
- **Natural detention basin designs:** Natural detention designs incorporate features of natural wetland and lake systems, such as gradual shoreline slopes, a border of wetland vegetation, and areas of open water -- in contrast to conventional designs which feature dry bottoms or riprap-edged wet basins. Natural designs are much more effective in removing stormwater pollutants than conventional wet and dry bottom basins.
- **Infiltration practices:** Where soils are sufficiently permeable, infiltration trenches and basins dramatically reduce surface runoff volumes and naturally recharge groundwater.
- **Permeable paving:** The use of permeable paving blocks is a recommended alternative for low traffic parking areas, emergency access roads, and driveways to reduce runoff volumes and pollutant loads.
- **Natural landscaping:** Natural landscaping approaches utilize native plants, particularly wildflowers, prairie grasses, and wetland species, as an alternative to conventional turf grass and ornamental plants, to reduce stormwater runoff and to reduce the maintenance needs of conventional turf grass landscaping.
- **Reduced imperviousness via alternative residential streetscapes:** The area of impervious surfaces in a residential development can be reduced in several ways: utilizing narrower streets; reducing setbacks between streets and homes, thereby reducing the length of driveways; and by reducing sidewalk widths.
- **Reduced imperviousness via alternative parking lot designs:** Impervious surfaces also can be reduced in parking lots by downsizing individual parking stalls, sharing parking between adjacent users, adjusting peak demand assumptions, and/or banking parking until it is needed.
- **Cluster development/PUDs:** Cluster development increases densities on portions of a development site to preserve natural land amenities and common open space, resulting in substantially less overall impervious area. Planned unit developments (PUDs) provide for greater flexibility in the site planning process, allowing the inclusion of many of the site design alternatives described above.

### Summary of Benefits

When used in combination on a development site, these techniques can remarkably reduce both stormwater-related impacts and construction costs. Based on assessments of case studies in northeastern Illinois and other parts of the country, it is estimated that alternative site design approaches can:

- reduce stormwater runoff volumes by 20 to 70 percent (in comparison to conventional development);
- reduce runoff pollutant loads by 60 to 90 percent;
- reduce site development costs by \$1,000 to over \$4,000 per lot for residential developments and by \$4,000 to \$10,000 per acre for commercial/industrial developments.

Other documented benefits of these approaches include reduced infrastructure maintenance and replacement costs, improved protection of sensitive natural areas, enhanced site aesthetics, improved property values, and greater flexibility of site design.

### Tradeoffs

Clearly, not all of the recommended site design approaches are applicable on all development sites. While the recommended alternatives have obvious documented benefits, they also may have some disadvantages. From a developer's perspective, some of these approaches may entail a more difficult and time consuming local government approval process. From a local government perspective, acceptance of some of these approaches will require education of local residents and still might result in complaints from some residents about "standing water" or "weedy conditions." Some local planners or engineers may be hesitant because there is relatively little experience in northeastern Illinois with certain alternative design practices.

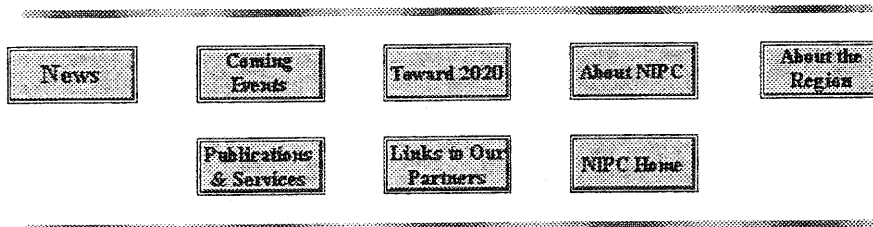
Ultimately, it is hoped that local officials and developers will thoroughly consider the tradeoffs between conventional and alternative site design approaches. In this consideration they should weigh all the relevant factors, including construction costs, maintenance needs, public safety, aesthetics, marketing considerations, as well as the obvious environmental benefits.

### Conclusion

The floods of 1996 and 1997 which caused damage in much of the region, are recent reminders of the need to better control the effects of new development. Experts, both regional and national, are coming to the realization that while engineered solutions are important tools in flood prevention, over-reliance on artificial drainage approaches has serious negative consequences. This truth actually has been known for quite some time as evidenced by the following observation contained in a joint publication of the Urban Land Institute, American Society of Civil Engineers, and National Association of Homebuilders from 1975:

*"Past philosophy sought maximum convenience at an individual site by the most rapid possible elimination of excess surface water after a rainfall and the containment and disposal of that water as quickly as possible through a closed system. The cumulative effects of such approaches have been a major cause of increased frequency of downstream flooding, often accompanied by diminishing groundwater supplies." -- from Residential Storm Water Management*

*This document was prepared using U.S. Environmental Protection Agency funds under Section 604(b) of the Clean Water Act distributed through the Illinois Environmental Protection Agency. The findings and recommendations contained herein are not necessarily those of the funding agencies*



**WATER AGENCY WINS KEY RULING ON URBAN RUNOFF**

Building industry fought pollution regulations

By Terry Rodgers  
UNION-TRIBUNE STAFF WRITER

February 14, 2003

A state water-quality agency won a landmark court ruling yesterday upholding its authority to impose one of the nation's toughest permits to curb urban runoff pollution in San Diego County.

The ruling by San Diego Superior Court Judge Wayne L. Peterson dismissed objections raised by the San Diego Building Industry Association to the storm water control regulations that affect the county's 18 cities, the county and the San Diego Unified Port District.

"This is an important decision and an important milestone," said Jack Minan, chairman of the San Diego Regional Water Quality Control Board, which adopted the stricter urban runoff controls in February 2001.

Minan, who is also a University of San Diego law professor, said the court ruling will affect similar legal challenges pending in Los Angeles, Orange County and elsewhere.

"This decision will be influential for the entire state of California," he said.

Neither officials from the Building Industry Association nor its lawyers from the firm of Latham & Watkins could be reached for comment.

At public hearings, the building industry contended the rules could dramatically increase the cost of new housing and may not actually result in cleaner water. It also said the rules created an unfair burden on new development.

The June 2002 issue of California Builder, the newsletter of the California Building Industry Association, stated: "The results of the San Diego case will likely shape future actions by the state (Water Quality Control) board and set a precedent on how storm-water is regulated in California."

The regulations builders objected to are contained in a 54-page regional storm-water permit that places the primary responsibility on local governments to do a better job of controlling pollutants that enter their storm drains.

Under the new rules, developers are being required to install storm drain filters, silt-removal basins and other so-called "best management practices" intended to reduce bacteria, oils, fine metals and other pollutants from being flushed to the sea by rain or other random sources of water.

The building industry argued in court that the strict requirements conflict with a somewhat vague standard in federal law, which says compliance is achieved when pollution controls are installed "to the maximum extent practicable."

The tougher rules adopted by the San Diego Regional Water Quality Control Board require both cities and developers to demonstrate their pollution-control measures are in fact making the water cleaner.

"This decision means they must implement measures that are actually reducing pollutants," said John Robertus, executive director of the regional board. "That is a huge victory for us."

Marco Gonzalez, an environmental attorney for San Diego Baykeeper, which submitted legal



arguments supporting the state's position, said the decision clears the way for San Diego's storm-water permit to become a national model.

"This case was all about strict compliance with water quality standards," Gonzalez said. "The building industry was trying to protect its profits and make a quick buck at the expense of clean water."

# POLLUTION

## SOUTHLAND STORMWATER LESSONS

In the Southland they're called SUSMPs — standardized urban stormwater mitigation plans — and their adoption in Los Angeles and San Diego caused quite a stir among local officials, developers and environmentalists. Bay Area proponents favor a less succinct moniker, like "new and redevelopment requirements," but the issue is causing a big fuss around here as well.

The S.F. Regional Water Quality Control Board is in the process of bringing the gist of SUSMP to the Bay Area, as part of the reissuance of Santa Clara County's five year stormwater discharge permit (NPDES). Enhanced permit requirements will mean cities throughout the county will have to follow the same rules for managing runoff flows.

Previous requirements were more generic, "do what you can where you can," according to Geoff Brosseau of the Bay Area Stormwater Management Agencies Association. The new requirements get more specific about how much runoff must be captured, filtered (through soils, vegetation or actual fabric filters) or treated on a project site — the "start at the source approach" — before it can flow into creeks, bays and ultimately the ocean. This way, says the S.F. Board's Dale Bowyer, "You get the benefits for the life of the project."

The new requirements also define for the first time what kinds of projects must comply. They don't, however, mandate specific technology, leaving that to a developer's architects and engineers. Some designers incorporate more permeable surface area, such as grassy swales, into their projects: at other times catch basin filters are more appropriate.

Bowyer says this isn't a "shocking new evolution" in regulation, but it does provide more backbone to existing 1990s regulatory guidance. "Rather than use that guidance, some Bay Area cities have pretty much let developers do things that were easy and inexpensive, just enough so they say could say 'we checked off that box'," he says.

"This raises the bar for performance and compliance with stormwater permits," says Brosseau. "It forces municipalities to get more serious about stormwater, and to integrate stormwater management more fully into city infrastructure and procedures."

The new Santa Clara requirements build on previous performance standards established in the city's 1997 permit, but also embrace some lessons from Los Angeles County — where the L.A. Regional Board adopted the state's first SUSMP in March 2000. Though 30 of 85 L.A. county cities appealed the new SUSMP regs, the State Board recently upheld most of the L.A. rules.

As a result, some Southland developers are now going all out on stormwater control, according to Jeff Okamoto with the Orange County office of RBF Consulting, a regional engineering firm laying out major subdivisions. Before the local SUSMP came along, everyone just let all the runoff head straight down the storm drain,

### SUSMP CONTINUED

trucks similar to the "honey wagons" serving portable toilets.

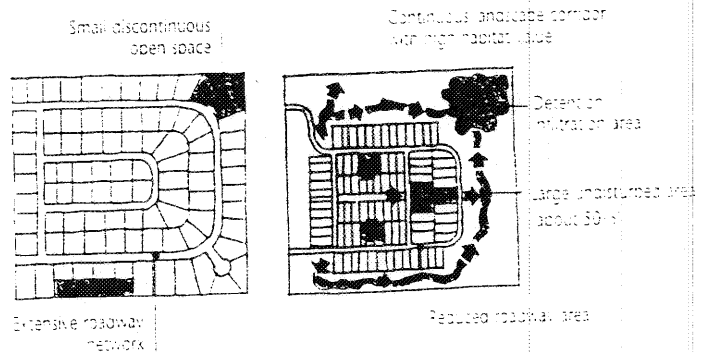
Okamoto says several of his firm's clients have directed him to go beyond the minimum requirements and do better on recent projects. "In the current political atmosphere, some of our builders wanted to show the city and interest groups they're willing to do what's right," he says. (Full disclosure: Jeff Okamoto is the editor's brother in law).

Of course doing all these things can cost more. Adding bioswales or detention basins can take up significant amounts of land, which can be a precious commodity, and some treatment measures are expensive to build and maintain, say developers. City officials worry that the new requirements will make it more difficult to do infill projects and build low income housing. They also argue that the proposed performance standards, which call for catching 85% of peak storm runoff, are too confusing, even for engineers, and they want the board to delay implementation, particularly for smaller projects. Board chief Loretta Barsamian says she "got an earful" from city managers when she met with them earlier this summer, and over thirty speakers lined up at a July public hearing, objecting to various aspects of the permit changes.

he says. Now, RBF's projects include dozens of runoff pollution reduction measures, among them streetsweeping; catch basins equipped with special "trash baskets" and filters to clean up the first flush of urban runoff and something Okamoto calls "summer slobber" — soaps, brake dust and fertilizer from car washing, driving and lawn watering; and other stormwater collection units with holding tanks cleaned out by

*(continued on back page)*

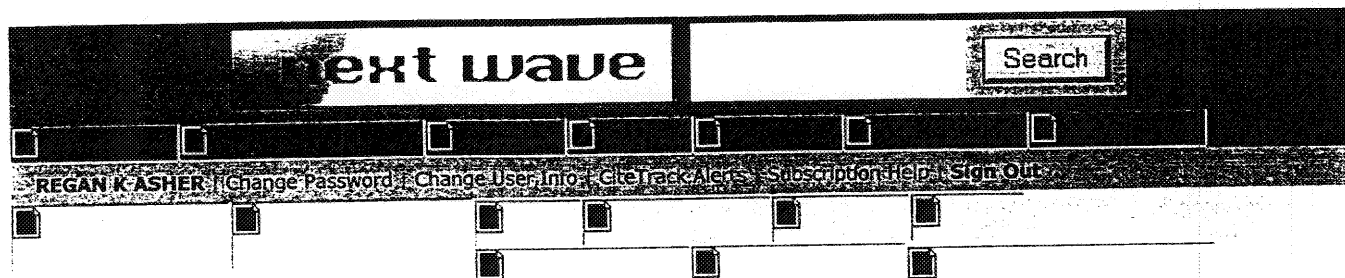
## CLUSTERED INFILL DEVELOPMENT IMPROVEMENT



BayKeeper's Jonathan Kaplan says he's disappointed with the city officials lobbying. "What's being proposed is in a lot of respects weaker than what was approved in Los Angeles and San Diego." He wants to see a strong regional approach.

Amy Glad of the Home Builders Association of Northern California says that a one size fits all approach won't work because of localized variations in terrain and rainfall. "Some standardization is useful, but you need to recognize regional differences." That issue will loom large in the near future. The NPDES permits of several other Bay Area counties, including Alameda, will likely be amended to include similar new stormwater provisions soon, says Bowyer.

At press time, the staff was putting the final touches on a revised version of the requirements, aiming for an August 15 release. That will begin a five week comment period, during which the Board will hold multiple meetings with stakeholders and tweak the permit details one more time. The full Board is scheduled to vote on the issue at its October meeting (see calendar). "I'm sure we'll be going through a painful and protracted process of denial about SUSMP," says Brosseau, "But the reward is getting credit for good front end site design, and then not having to treat so much stormwater." Contact: Jan O'Hara (510)622-5681 OB & ARO



## GEOLOGY:

## The Next Oil Crisis Looms Large--and Perhaps Close

Richard A. Kerr

**Many economists foresee another half-century of cheap oil, but a growing contingent of geologists warns that oil will begin to run out much sooner--perhaps in only 10 years**

Nature took half a billion years to create the world's oil, but observers agree that humankind will consume it all in a 2-century binge of profligate energy use. For now, as we continue to enjoy the geologically brief golden age of oil, the conventional outlook for oil supply is bright: In real dollars, gasoline has never been cheaper at the pump in the United States--and by some estimates there are a hefty trillion barrels of readily extractable oil left in known fields. Thanks to new high-tech tricks for finding and extracting oil, at the moment explorationists are adding to oil reserves far faster than oil is being consumed. So, many who monitor oil resources, especially economists, see production meeting rising demand until about 50 years from now--plenty of time for the development of alternatives.

Comforting thinking--but wrong, according to an increasingly vociferous contingent, mainly geologists. They predict that the world will begin to run short of oil in perhaps only 10 years, 20 at the outside. These pessimists gained a powerful ally this spring when the Paris-based International Energy Agency (IEA) of the Organization for Economic Cooperation and Development (OECD) reported for the first time that the peak of world oil production is in sight. Even taking into account the best efforts of the explorationists and the discovery of new fields in frontier areas like the Caspian Sea (see sidebar on p. 1130), sometime between 2010 and 2020 the gush of oil from wells around the world will peak at 80 million barrels per day, then begin a steady, inevitable decline, the report says.

"From then on," says consulting geologist L. F. Ivanhoe of Novum Corp. in Ojai, California, "there will be less oil available in the next year than there was in the previous year. We're not used to that." Scarce supply, of course, means a higher price, especially because optimists and pessimists alike agree that the Organization of Petroleum Exporting Countries (OPEC), which triggered the oil crises of 1973 and 1979, will once again dominate the world oil market even before world oil production peaks (see sidebar on p. 1129). At the peak and shortly thereafter, as more expensive fuel sources such as hard-to-extract oil deposits, the tarry sands of Canada, and synfuels from coal are brought on line, prices could soar. "In the 5 to 10 years during the switch, there could be some very considerable price fluctuations," says an IEA official. "Then we will plateau out at a higher but not enormous price level." In other words, gas lines like those of the Arab oil embargo 25 years ago could return temporarily, followed by permanently expensive oil.

### The down side of the curve

The debate over just when the end of cheap oil will arrive pivots on an interplay of geology and technology. There's only so much oil in the ground, geologists and technology-loving economists agree, but how much of it

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geologists can find and engineers can extract at a reasonable cost is much in contention. Geologists considering the past record of finding and extracting oil see a fixed, roughly predictable amount left to be produced and put the production peak sooner rather than later. Their case for the past being the best predictor of the future depends heavily on their success in predicting the oil production peak of the lower 48 states of the United States, the only major province whose oil production has already peaked.

For projections of future oil production, many geologists rely on a kind of analysis pioneered by the late geologist M. King Hubbert. In 1956, when he was at Shell Oil Co., he published a paper predicting that, based on the amount and rate of past production, output in the lower 48 states--which was then increasing rapidly from year to year--would peak between 1965 and 1970 and then inexorably decline. "The initial reaction to this conclusion was one of incredulity--'The man must be crazy!' " Hubbert later recalled. But production peaked right on schedule in 1970 and has declined since.

Hubbert based his successful prediction on what seemed to him a fundamental law governing the exploitation of a finite resource--that production will rise, peak, and then fall in a bell-shaped curve. He constructed his curve by noting that extraction of oil begins slowly and then accelerates as exploration finds more of the huge fields that are too big to miss and that hold most of the oil. That's the ascending side of his bell-shaped curve.

After this fast start, production begins to stall. By this point, exploration has turned up most of the easy-to-find huge fields. The smaller fields, although far more numerous, are harder to find, more expensive to drain, and can't match the volume of the big fields. At the same time, the gush of oil from the big fields slows. Oil in a reservoir lies in pores whose surfaces hold onto it like a sponge, so that wells first gush, then slow toward a trickle. The declining rate of oil discoveries and slowing production from big, early finds combine to force overall production to peak--the top of Hubbert's curve--at about the time that half of all the oil that will ever be recovered has been pumped. From then on, production drops as fast as it rose, creating Hubbert's idealized symmetrical bell-shaped curve.

When applied to world oil production, Hubbert's curve traces out a relatively grim future. During the oil crisis of 1979, Hubbert himself made a rough estimate of a turn-of-the-century world peak. At that time, though, geologists were slightly underestimating just how much oil Earth contains, and Hubbert's forecast was too gloomy--but perhaps not by much. In recent years, a half-dozen Hubbert-style estimates have been made, and they all cluster around a world oil production peak near 2010 (see table). Half the world's conventional oil has already been pumped, these geologists say, so the beginning of the end is in sight.

PREDICTED PEAK IN WORLD OIL PRODUCTION	
SOURCE	PEAK DATE
F. Bernabe, ENI SpA (1998)	2000-2005
C. Campbell and J. Laherrère, Petroconsultants (1998)	2000-2010
J. MacKenzie, World Resources Institute (1996)	2007-2014
OECD's International Energy Agency (1998)	2010-2020
J. Edwards, University of Colorado, Boulder (1997)	2020
DoE's Energy Information Administration (1998)	>2020

SOURCE: C. CAMPBELL AND J. LAHERRERE

One of the most pessimistic recent analyses comes from former international oil geologists Colin Campbell and Jean Laherrère, who are associated with Petroconsultants in Geneva; Campbell was an adviser to the IEA on its latest estimate. "Barring a global recession, it seems most likely that world production of conventional [easily

extracted] oil will peak during the first decade of the 21st century," they wrote in the March issue of *Scientific American*.

Campbell and Laherrère's early peak prediction is drawn in part from their low estimates of existing reserves. Of the trillion barrels of oil that countries have reported finding but not yet extracted--their proven reserves--Campbell and Laherrère accept only 850 billion barrels. Much of the rest they view as "political reserves"--overly generous estimates made for political reasons. For example, reserves jumped by 50% to 200% overnight in many OPEC countries in the late 1980s--perhaps because OPEC rules allow countries with more declared reserves to pump more oil and so make more money, says Campbell.

Not all Hubbert-type estimates are quite so pessimistic. "I'm an optimist," says former oil industry geologist John Edwards of the University of Colorado, Boulder. "I think there's a lot more oil to be found. I used optimistic numbers [near the high end of estimated reserves], but I'm still at 2020" for the world production peak. "Conventional oil is an exhaustible resource. That's just the bottom line."

### Technology to the rescue?

But other geologists and many economists put more faith in technology. Oil will eventually run out, these self-described optimists agree, but not so soon. "We're 30, maybe even 40, years before the peak," says oil geologist William Fisher of the University of Texas, Austin. Fisher has lots of support from the latest international energy outlook prepared by the U.S. Department of Energy's Energy Information Administration (EIA). "We don't see the peak happening until after the limit of our outlook," in 2020, says the EIA's Linda Doman. "We think technology and developing Middle East production capacity will provide the oil."

In the optimists' view, it doesn't matter that there are few if any huge new fields left out there to find. What does matter, they say, is how much more oil the industry can find and extract in and around known fields. Even as the world consumes 26 billion barrels a year, in their opinion reserves are growing rapidly. They argue that much of OPEC's reserve growth is real, and that OPEC and others are boosting reserves not so much through the discovery of new fields as through the growth of existing fields--and technology is the key. Technology might double the yield from an established field, they say. "Technology has managed to offset the increasing cost of finding and retrieving new resources," says economist Douglas Bohi of Charles River Associates in Washington, D.C. "The prospect is out there for an amazing increase in the [oil] reserve base."

Three currently used technologies are helping drive this boost in reserves, Bohi and others say. Aided by supercomputers, explorationists are using the latest three-dimensional seismic surveying to identify likely oil-containing geologic structures, yielding a sharp picture of potential oil reservoirs. A second technology involves first drilling down and then sideways, punching horizontally through a reservoir so as to reduce the number of wells needed, and therefore the expense, by a factor of 10. Finally, technology that allows wells to be operated on the sea floor many hundreds of meters down is opening up new areas in the Gulf of Mexico, off West Africa, and in the North Sea.

All these new technologies can slow or delay what Hubbert saw as an inexorable production drop in older fields, the optimists say. Indeed, such technological achievements have already helped arrest the decline of U.S. oil production during the past 3 to 4 years, says Edwards.

But the pessimists are unmoved. "Much of the technology is aimed to increase production rates," says Campbell. "It doesn't do much for the reserves themselves." And what new technology does do for reserves, it has been doing since the oil industry began in the 19th century, he says. New technologies for better drilling equipment and seismic probing have been developed continually rather than in a sudden leap and so have been boosting the Hubbert curves all along. The shape of the curve therefore already incorporates steady technology development, he and other pessimists note.

As a result, they argue that today's technological fixes will make only slight changes to the curve. "All these things the economists talk about are just jiggling in a minor way with the curve," says Albert Bartlett, a physicist at the University of Colorado, Boulder, who calculates a 2004 world peak. "You can get some bumps on the [U.S.] curve by breaking your back, but the trend is down." For example, when oil hit \$40 a barrel in the early 1980s, the U.S. production curve leveled out in response to a drilling frenzy--but it soon went right back down

again. And besides, the pessimists note, when high prices drive increased production, the oil pumped is not cheap oil. Economist Cutler Cleveland of Boston University has found that the price-driven drilling frenzy of the late 1970s and early '80s produced the most expensive oil in the history of the industry. So, such production is a hallmark of the end of the golden age and the beginning of the transition ! stage of expensive oil.

The next few years should put each side's theory to the test. If technology can greatly boost reserves, then the U.S. production curve should at least stabilize, while if the pessimists are right, it will soon resume its steep downward slide. Production from the North Sea should tell how middle-aged oil provinces will fare; pessimists expect it will peak in the next few years. But it is the world production curve that will finally reveal whether the world is due for an imminent shortfall or decades' more of unbounded oil.

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## THE STRAW ALTERNATIVE

By MATT RASMUSSEN

**B**ruce King has heard it before. It's a question that goes with the territory when you earn your living building houses out of straw.

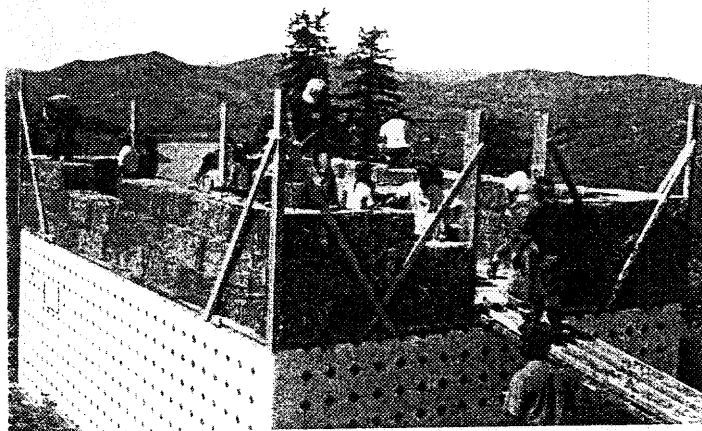
"What about the Three Little Pigs and the Big Bad Wolf?" he repeats, a note of weariness creeping into an upbeat conversation. "We get that a lot. Our usual response is that the real moral of the story is don't let a pig build your house."

King, codirector of the California Straw Building Association, is one of a growing number of builders and designers who believe they've seen the future of American home construction, and it's made of straw. As America's ancient forests disappear and lumber prices go up while quality goes down, these latter-day pioneers point to millions of tons of waste straw as the perfect alternative to wood.

Advocates say straw homes are energy-efficient, affordable, and attractive. And, just as important, they are made with a material that is abundant — so abundant, it's considered waste. Straw, say those on the cutting edge of the movement, has the potential to significantly ease pressures to log forests for construction material bound for new homes.

"There are 141 million tons of straw fiber produced each year in America," says Bill Thompson, a vice president of Agriboard Industries, a firm that fashions construction panels from straw. "And it's lying on the ground just wasting away."

Although living between straw walls might strike modern-day Americans as odd, the practice is not new. Late-19th-century settlers in Nebraska built homes on the prairie from bales of straw left over from harvests. Some of those homes still stand. As the 20th century progressed and American builders grew accustomed to a seemingly endless supply of virgin old-growth timber, the custom faded and nearly disap-



A group works to raise the walls of a straw-bale studio during a workshop in Winthrop, Wash. Advocates of straw as a construction material believe it could significantly reduce the amount of wood that is needed for new homes.

peared altogether. Then, in the 1980s, a handful of progressive builders rediscovered the possibilities of straw. The concept has gained momentum steadily since, and millions of dollars in research and development funds are now being invested in efforts to expand the use of straw in construction.

"Ten years ago, there were maybe a couple dozen straw-bale homes scattered across the country," King says. "Now there are believed to be between 1,000 and 2,000."

Far more than 2,000 straw homes would need to be built to make a real difference on the health of forests. Of the nearly 1.5 million new homes built in the United States last year, the vast majority used traditional wood-frame construction. Nearly 1.2 million of those were single-family homes (the remainder were apartments), each of which claimed an average of 40 to 50 trees. That works out to about 50 million trees cut down to satiate the nation's demand for new wooden houses.

Although the annual number of housing starts has remained rela-

tively stable over the past two decades, the average size of new homes hasn't. Today, a typical home is twice the size of one built in the 1960s.

Straw isn't the only alternative to wood for home construction. Rammed earth, adobe, recycled steel, and even recycled wood salvaged from old structures have all gained popularity in recent years. Each method has its devotees and detractors, and each exacts some environmental toll.

"There are tradeoffs with any building material," says Tracy Mumma, research director for the Center for Resourceful Building Technology in Montana. "If anybody has discovered the perfect material, I haven't seen it."

Others point to another option to save wood in home construction — building smaller houses and cutting down on waste. According to industry estimates, if builders cut the amount of waste produced in residential construction by half, they would free up enough material to build one additional house for every

20 built. Researchers at Cornell University found that construction of a single four-bedroom house produced 1,338 pounds of wood waste, including 46 pounds of sawdust.

Straw-based construction does not entirely eliminate the need for wood in homes. A typical straw-bale home, if there is such a thing, is built like this: Bales weighing perhaps 80 to 100 pounds apiece are stacked in a staggered fashion, like bricks, to form load-bearing walls. Vertical pins, made of reinforcing steel or other rigid material, link the bales together. Then, the walls are covered with plaster or stucco, creating an effect similar to adobe. Frequently, lumber is used for flooring and roofing.

Such homes lessen the need for wood by about a third, although incorporating other alternative materials into the home can cut wood use much further. Also, straw-bale homes are typically smaller than the 2,000-square-foot houses favored by most homeowners.

One of the main attractions of straw-bale homes is the way they look. With thick walls, deeply recessed windows, and subtly undulating plaster surfaces, they exude a sense of attractive comfort and security.

"As a designer, I don't like dead, flat walls," says Ted Butchart, who lives in a straw-bale house in Winthrop, Wash., and is director of the GreenFire Institute, which advocates straw homes. "Straw has a little bit of a roll to it. You get some pleasing curves — it's very sensual."

Building a house with straw bales may cost a bit more than building a wood-framed house if traditional contractors are used. That's largely because it takes more time for professionals such as plumbers and electricians, who are unfamiliar with the material, to do their work. Many people who build with straw bales choose to do much of that work themselves, which can slash construction costs by thousands of dollars. Butchart, for example, says he built his 1,300-square-foot home for just \$28,000.

Straw homes also offer superior insulation and less maintenance than

typical wood houses, which makes them pay off handsomely in the long run, supporters say. Straw is sometimes used as insulation between the wooden studs of traditionally built structures. And despite the straw-

*One of the main attractions of straw-bale homes is the way they look. With thick walls, deeply recessed windows, and subtly undulating plaster surfaces, they exude a sense of attractive comfort and security.*

stuffed scarecrow's legendary fear of fire in the "Wizard of Oz," straw-bale homes are slow to ignite and burn, because the material is so densely packed.

One of the primary challenges that straw builders face is coping

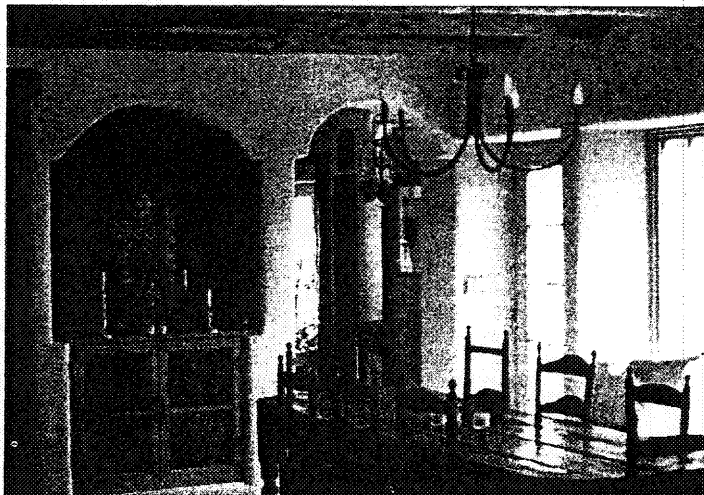
with standardized building codes that are tailored to wood-frame construction. Although some jurisdictions have adopted codes and standards for straw homes, many local building officials remain unfamiliar with straw-bale construction.

More study is needed to evaluate how well straw-bale homes perform in adverse conditions. In California, for example, homes built with straw must incorporate a significant amount of wood in the walls because it's not known how they will hold up in an earthquake.

"The main obstacle in getting straw-bale construction more widely accepted is better data on performance," says Ann V. Edminster, who, with King, is codirector of the California Straw Building Association. "That's one of our main missions."

The association hopes to secure funding to conduct such tests, Edminster says. To the north, in Oregon, tests are already under way to see how straw performs in the rainy Northwest.

South of Eugene, staff members of the Aprovecho Research Center are monitoring the performance of straw bales stacked as insulation between the walls of a wood-framed dormitory. In cooperation with the state



*With wide walls and deep windows, the appearance of straw-bale homes, like this one in Tucson, Ariz., is a key selling point.*

© Ted Butchart, GreenFire Institute



Department of Agriculture and the University of Oregon, the center has placed more than a dozen sensors in the walls to check temperature and relative humidity.

"This place stayed nice and cool in the summertime, even when it was 90 degrees outside," says Meera Subramanian, office manager at Aprovecho, but data have not yet been gathered for a soggy winter. However, Butchart estimates there are more than 100 straw-bale homes in Washington — including many on the state's drippy western side — and they have held up fine in rainy conditions.

Perhaps an even more daunting challenge is garnering acceptance for straw homes among traditional builders and the general public. Many in the building industry say they see little evidence of an impending straw revolution in home construction.

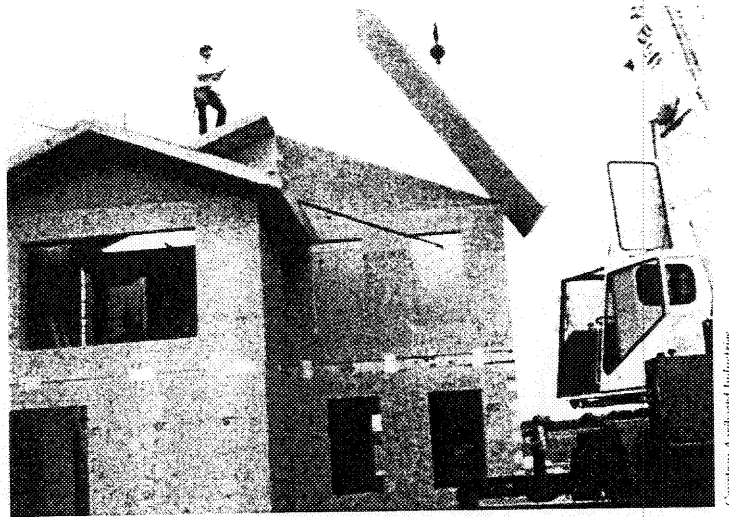
"It's difficult to switch," says Peter Yost, program manager for environmental systems at the National Association of Home Builders Research Center. "A lot of the knowledge among builders is passed on — it's frequently not a formal education. So there's often a high learning curve."

That's one of the reasons some analysts believe that prefabricated building components made of straw, which resemble traditional building materials, hold the most potential for garnering widespread acceptance. Several companies already make such products.

Agriboard Industries, which has its marketing and development headquarters in the Iowa farm belt, uses straw to produce thick, sturdy panels that company officials claim can replace the vast majority of wood used in a structure.

The company buys straw from wheat farmers in Texas and Oklahoma and then manufactures the boards at a north Texas plant. When subjected to heat and pressure, the straw releases lignin, a substance that binds the material together. The panels are 3 1/2 inches thick and can be doubled together to form weight-bearing walls in buildings.

So far, Agriboard has built just one structure other than prototypes,



Straw-based panels produced by Agriboard Industries resemble traditional building materials and require conventional construction methods to install.

a medical manufacturing building in St. Charles, Mo. But Thompson, the company's vice president for marketing and development, says Agriboard has secured \$5.5 million in signed contracts and is laying ambitious expansion plans. Structures that it will soon build with straw panels include a post office in Fort Worth, Texas.

Buildings constructed with the panels can go up in a matter of just a few days, Thompson says, using techniques that are familiar to any carpenter. About 20,000 pounds of straw fiber are needed to build a 2,000-square-foot home, he says, and costs a little less than building a wood-framed home.

"This replaces the need for framing material and insulation, so you can save about 90 percent of the wood in a home," Thompson says. "You could save millions and millions of trees every year by using this instead of framing timber."

Those who are bullish on straw believe several factors are coming together to encourage Americans to make the switch.

One of those factors is an acute need among farmers to find new ways to get rid of straw, which can

harm the fecundity of soil if it is plowed into the field. In the past, a favored method was to burn the straw after the harvest was in. But with more and more Americans living near farmlands and stricter pollution-control laws going into effect, most farmers are losing that option.

"The rice industry in California has a tremendous problem with disposing of much of its straw," Edminster says. "They're under a lot of pressure because there's a lot of people affected by the pollution" created by burning the straw.

A more fundamental factor is the continued depletion of the forests that have supplied the two-by-fours and plywood sheets for America's homebuilders throughout the century. As builders face increasing difficulties finding wood of the quality they are accustomed, they may soon find themselves grasping at straw.

"This doesn't depend on people's green conscience, or people caring about trees," King says. "The market forces are just pushing things in that direction." ▲

Matt Rasmussen is editor of *Inner Voice*.

## 5.7 Public Services

### LAW ENFORCEMENT

The DEIR commences discussion of Law Enforcement on p. 5.7-1 with a description of the County Sheriff's Office, its staffing, satellite stations, jail facilities, and special programs. Both incorporated cities (Placerville and South Lake Tahoe) have their own police departments, which provide secondary response to close-by incidents, as does the California Highway Patrol. In turn, the Sheriff's Office provides secondary response to the cities.

Overall, crime per-capita rates have been fairly stable over the last decade or so, peaking slightly and then decreasing (p. 5.7-2, and Table 5.7-1 on p. 5.7-5). Response times remained similar for all zones in the past two years (Table 5.7-2, p. 5.7-6), averaging ca. 17.5 minutes in 2002.

#### Impact 5.7-1: Potential Land Use Incompatibility Associated with Development and Expansion of Law Enforcement Facilities (p. 5.7-6).

Two mitigation measures are invoked purportedly to reduce this impact to Less Than Significant: 5.1-3(b) (p. 5.1-64) and 5.1-3(d) (p. 5.1-67) for all alternatives (though sometimes with slightly different numbering). Respectively, these are to implement Mitigation Measure 5.1-3(b) and -3(d). The former proposes to require avoidance of land-use incompatible with adjacent lands and extend this requirement to all uses permitted by right. The latter proposes to establish compatibility criteria for siting of Public Facilities.

The Sheriff's Office anticipates that, with population growth, a new satellite office would be needed in the El Dorado Hills/Cameron Park area, along with a larger Placerville facility, additional jail facilities, and more patrol cars and other equipment. Additional staffing (p. 5.7-8) also will be needed. On p. 5.7-11, a facility in the Georgetown Divide area and one in south county are added to this list in the discussion of Alternative 2.

• **A facility on the Georgetown Divide is already under discussion. Won't it be needed under all alternatives? Why wasn't it included on p. 5.7-8?**

Alternatives 2 and 3 contain a number of other policies (sometimes with slightly different numbering) that address siting of public facilities, standards for adequate law enforcement, matters related to Capital Improvement Programs of both the County and other service providers, consistency with CIPs and other long-range plans, evidence of adequate service capacity, standards for emergency response times, and per-capita staffing levels.

All of these measures are worthy, but response times of 17 or more minutes can be far too long in emergency situations, through no fault of the Sheriff's Office. The Sheriff's Office appears to be doing perhaps a better job than might be expected. But sprawl is the problem and its bad effects aren't undone by application of these policies. We disagree that the impact is reduced to Less Than Significant.

‡ **Starting to undo sprawling development patterns would begin to address the problem of long response times.**

‡ **Scanner traffic indicates that identification of both roads and residence numbers can appreciably slow down emergency responders (both law enforcement and medical). Building inspectors should make assurance of such identification part of their inspection routine,**

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• There is a correlation between community design and crime levels (see References). Whole books are available on this topic (e.g., *SafeScape: Creating Safer, More Livable Communities Through Planning and Design*, Al Zelinka and Dean Brennan). In the FEIR evaluate the merits of having the Sheriff's Office review development proposals relative to this issue and, if found worthy, include it in mitigation. For instance, how do emergency responders feel about gated communities? This approach to design might also be useful in diluting some of the opposition to affordable housing and the proliferation of apartments in some communities.

281-270

• The FEIR should also expand these concepts to inter-department cooperation in addressing problems that might exist in already-developed parts of the County that are perceived to have more than their share of law-enforcement problems a la the "Safe Communities Handbook" approach discussed in *Safescape, Creating a Safer Physical Environment* (see References).

281-271

• The court system should be considered part and parcel of Law Enforcement and is in a bad way relative to provision of physical facilities. This topic, too, should be planned for and discussed in the FEIR.

281-272

#### FIRE PROTECTION AND EMERGENCY MEDICAL SERVICES

• Please see our comments herein under Human Health and Safety relative to wildland fire. Much of the discussion there also applies to this section.

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• Please also see our scoping comments, p. 22, on Emergency Medical Services. Some questions therein remain unaddressed.

281-274

Fire protection in developed parts of the County is related to Emergency Medical Services because fire personnel are often the first responders to the latter, as well as to spills of hazardous materials and other kinds of emergencies. Structural fires escalate to a critical point within 4 to 10 minutes of ignition (p. 5.7-15), and this is a concern where structures are sparsely scattered and response to such areas is likely to be by volunteers and delayed.

"Public improvements and equipment for fire protection purposes" are financed by a Fire District Improvement Fee on all new discretionary and ministerial projects per the DEIR. The DEIR doesn't say, in its discussion of Emergency Medical Service (p. 5.7-16), how this service is financed. On p. 5.7-23, however, under the discussion of the County Emergency Medical Services Agency, it mentions special taxes, benefit assessments, property taxes, and fees paid on a per-incident basis by those benefitting.

Mutual aid agreements exist among the U.S. Forest Service, the California Department of Forestry and Fire Protection, and the various fire districts in the County (10 on the west slope). The Forest Service has primary responsibility for the Eldorado National Forest and private lands therein. CDF is responsible for fire protection and medical services in State Responsible Areas (SRAs) and also responds to fires on other lands, including wildland, structural, and vehicle fires.

281-275

The 13 local fire protection districts in the County are mapped on p. 5.7-19 (Exhibit 5.7-2). Response times can be as long as 20 minutes or more in some of the more remote areas. Response times, staffing levels, and Insurance Service Organization ratings are given in Table 5.7-4 (p. 5.7-21). Response times for Emergency Medical Services are given on p. 5.7-25 and range from 10 minutes (or more) in urban areas to 20 minutes (or more) in semirural and rural areas. Wilderness areas are

problematical.

Impact 5.7-2: Potential Land Use Incompatibility Associated with Development and Expansion of Fire Protection and Emergency Medical Services and Facilities (p. 5.7-2).

The DEIR suggest two mitigation measures consisting of implementing MMs 5.1-3(b) (p. 5.1-64) and 5.1-3(d) (p. 5.1-67 ) for all alternatives. The former proposes to require avoidance of land uses incompatible with adjacent lands and extend this requirement to all uses permitted by right. The latter proposes to establish compatibility criteria for siting of Public Facilities.

While we endorse these mitigation measures, it is difficulty to see that they could possible overcome the existing sprawl that contributes to the long response times and dependence upon thinly scattered stations staffed largely by volunteers. We thus disagree that this impact would be reduced to Less Than Significant by imposition of these mitigation measures.

We understand that perhaps 80% of fire district response is to accidents and other medical emergencies and not to fires. One thing to consider, then, is design that reduces the likelihood of accidents. We addressed this in our scoping comments in discussion of Transportation, beginning on p. 11:

"Because pedestrian-friendly streets are not specified in the [engineering] manuals, they are simply not possible, despite all the evidence encouraging their use. ...[R]ather than convincing the engineers to fundamentally rethink their approach, we need only amend the manuals in order to reform the profession. ...The Institute of Transportation Engineers has recently completed a manual entitled *Traditional Neighborhood Development Street Design Guidelines*, which allows narrower roads, tighter corners, and a number of other once-unthinkable modifications to current design criteria."  
—*Suburban Nation*, Andres Duany, Elizabeth Plater-Zyberk, and Jeff Speck, 2000

A few pages later we said:

Highways and arterials are not the only kinds of roads that are of concern. Typical subdivision roads are built for automobiles (and fire-engine access), not for pedestrians (see introductory quotation). **The DEIR should explore the County's applying the concepts contained in the Institute of Transportation Engineers's *Traditional Neighborhood Development Street Design Guidelines*, in conjunction with the Planning Department, in subdivision design.** Benefits would include less impervious paving, reduced "heat-island" effect, more pedestrian-friendly design, and slowing-down of automobile traffic.

*Suburban Nation* (see References) cites a study in Colorado comparing "fire and traffic injuries in residential neighborhoods served by both narrow and wide roads. Over eight years, the study found no increased fire injury risk from narrow streets, primarily because there were no fire injuries. One serious fire and several smaller fires resulted in property damage only. Meanwhile, in the same eight years, there were 227 automotive accidents resulting in injuries, 10 of them fatal. These accidents correlated most closely to street width, with new thirty-six-foot wide streets being about four times as dangerous as traditional twenty-four-foot-wide streets."

- Please in the FEIR respond to the boldface request in the indented paragraph above.

We would, therefore, propose additional mitigation:

- ‡ In new subdivisions, design streets so as to reduce the likelihood of accidents.

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‡ Require use of more fire-resistant materials and construction techniques, especially in high fire-hazard areas and more remote areas with sparse fire protection coverage and mainly volunteer staffing. (See discussion herein under Human Health and Safety, Fire Hazard.)

281-277

‡ Discourage further sprawling development patterns through land-use design. Alternative 12 would begin this reform.

#### SCHOOLS AND CHILDCARE FACILITIES

• Generally, the DEIR here did a much better job of discussing issues raised in our scoping comments, which see, pp. 22 ff., than in some other subject areas. Nevertheless, there are some unanswered questions. Please remedy this in the FEIR.

281-278

The first two paragraphs about Schools and Childcare Facilities (p. 5.7-33) are confusing. The first paragraph says that school-age children (defined as between the ages of 5 and 18) in El Dorado County comprised 20.38% of the population in 2000. The second paragraph gives 18.42%, citing the U.S. Census, 2002. The census took place in 2000.

281-279

• Is the second figure an estimate, based on an estimated total population projected forward from 2000, as well as estimated school-age children?

Children under 5 appear to be declining somewhat in numbers in the County (p. 5.7-34).

The discussion that follows (p. 5.7-34) focuses principally on funding of educational costs. Currently, the larger part of funding is split between local sources (developer fees, amounting to less than half, and which are capped) and state sources (voter-approved bond measures, which are very competitive and have never been sufficient for local needs; they also require a local matching funding source). Community facilities district funding (e.g., Mello-Roos funds) have supplemented other sources but require a two-thirds vote for passage, and local bonds, which, since 2000, have needed only a 55% vote to pass. Additional developer fees may be imposed under certain circumstances.

The several school districts and schools are mapped on Exhibit 5.7-3 (p. 5.7-35). Enrollment in the El Dorado Union High School District, which operates four high schools, at 6,612 students, now exceeds "traditional classroom capacity by 2,218". Additional developer fees are currently being charged to fund construction of a fifth high school. Two more are being planned.

281-280

The Black Oak Mine Unified School District, K-12 only, has experienced declining enrollment in recent years but is nevertheless expected to grow, requiring another elementary school, a new middle school, and expansion of Golden Sierra High School. Additional potential school sites have been identified: Garden Valley park, one at Greenwood, and one in Pilot Hill Ranch.

• We understand that the Garden Valley site was sold recently to the Georgetown Divide Recreation District, and that the Greenwood site has been turned into a wetland and is no longer a candidate for use because of mercury contamination. The Pilot Hill Ranch planned development evaporated a few years ago. Please discuss these issues, verify if true, and update potential school sites in the FEIR. We would be concerned about diverting parkland to school purposes in any event. Advance planning should prevent such diminishing of one need to fulfill another.

• We are also informed that the Black Oak Mine USD is no longer applying developer fees. It would appear that it, perhaps, is no longer anticipating future increased enrollment. Please also discuss this in the FEIR.

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Buckeye Union Elementary School District (p. 5.7-41), which serves Cameron Park, Shingle Springs, and parts of El Dorado Hills, is experiencing rapid growth and will need added capacity for a projected 2,660 students by 2011. "Potential school sites are located within areas designated for development within the El Dorado Hills, Marble Valley, Valley View, and Bass Lake Hills Specific Plan Areas."

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• As tremolite asbestos contamination is a possibility at several, perhaps all, of these general locations, what attention has been paid to this by the school district in identifying possible sites?

The Camino Union School District (p. 5.7-41) is currently operating considerably over capacity and is using "relocatable classrooms". Although land adjacent to the present single school has been purchased, no new school is now being planned.

281-283

• No information is offered as to funding for a new school nor as to why a new school is not being planned for. In view of the current severe overcrowding, please discuss this situation in the FEIR.

Gold Oak Union School District (p. 5.7-42) has experienced declining enrollment, is now under capacity, and has no plans for new schools.

Gold Trail Union School District (p. 5.7-42) is also experiencing declining enrollment and is now under capacity. Renovation will occur, funded by a local bond measure, but no new classrooms are anticipated.

281-284

Indian Diggings School District (p. 5.7-42) operates only one school with a capacity of 27 students and an enrollment (2001-2002) of 38. It anticipates slowly rising enrollment but apparently has no plans for enlarging capacity. Neither does it use "relocatable classrooms".

• This school appears to be operating nearly 41% over capacity. Nothing is said about trends in enrollment, which might begin to justify ignoring this degree of overcrowding. What is going on with this school district that it is tolerating such conditions?

Latrobe Elementary School District (p. 5.7-42) has two schools and has experienced growth in recent years. No information is given about the relation between enrollment and capacity, nor as to plans for more classrooms. As it is imposing Level One development fees, one concludes that construction is anticipated.

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• Please provide the missing information and plans for solving any problems.

Mother Lode Union Elementary School District (p. 5.7-43) has been experiencing declining enrollment, though anticipating the reverse. Currently it is within its capacity. It is imposing Level One development fees, nevertheless.

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• What rationale does this school district offer for imposing Level One development fees despite apparent need?

Pioneer Union elementary School District (p. 5.7-43) anticipates declining enrollment and is now within its capacity.

Placerville Union School District (p. 5.7-43) has been experiencing declining enrollment

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though anticipating the reverse. It is now within its capacity.

Pollock Pines Elementary School District (p. 5.7-43) has been experiencing declining enrollment though anticipating the reverse. It is now within its capacity.

Rescue Union School District (p. 5.7-44) has been growing and is now operating over capacity. A new middle school is under construction. It imposes Level Two development fees, has established a community facilities district, and has local bond money.

Silver Fork School District (p. 5.7-44) is a one-school, one classroom district with current enrollment of 17.

El Dorado County has two community colleges (one in Lake Tahoe), and the private 4-year Chapman University.

Private schools account for about 4.7% of the total K-12 enrollment in the County (p. 5.7-45).

**• Are private schools and homeschooling providers supervised in any way by public school personnel? How are the numbers of those enrolled in these alternative educational tracks expected to change with increasing population? Will more oversight be needed by public school personnel? If so, what will be the funding source? Are development fees needed and, if so, could they be legally imposed for this purpose?**

Several sources provide childcare services, two of which fall under the Superintendent of Schools. Eligibility to participate in these two sources depends upon income level.

**• Presumably only lower income people are eligible? How is this need expected to change with increasing population? If expansion is anticipated, what will be the funding source?**

Impact 5.7-3: Potential Land Use Incompatibility Associated with Development and Expansion of Public School Facilities (p. 5.7-45).

Implementation of Mitigation Measures 5.1-3(b) and -3(d) is proposed to reduce the impacts of the need for new schools. In addition, we would propose the following:

**‡ Utilize the development agreement process to extract land set-asides for school purposes. Land values inflate as a result of the paperwork the developer does and the approval the County gives. The difference in value is a "gift" to the developer by local government. There is no reason the school district should have to pay inflated costs. Rather, the government should extract lesser cost as a public benefit in return for the "gift" to the developer.**

**‡ Schools should not be located in areas that may expose children, teachers, parents, and administrators to asbestiform minerals, in particular tremolite. See the discussion herein under Human Health and Safety.**

**‡ Every effort should be made to site and design schools so as to make possible walking and bicycling to school rather than driving or being bused. This could also result in significant savings relative to the cost of busing children.**

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PUBLIC LIBRARIES

The County Library system is a branch of County government. It consists of a main library in Placerville, two large branches in Cameron Park and South Lake Tahoe, two small branches in Georgetown and Pollock Pines, a shared high school library in El Dorado Hills, and a bookmobile. A new branch is under construction in El Dorado Hills.

Libraries have been undergoing significant change in providing for computer facilities and new formats like video, DVDs, and recorded books in addition to printed format material. There are needs for additional space at several of the libraries. The bookmobile serves the south-county area, which has no other library facility. Library space is already considered inadequate for the present population. This situation will worsen with a growing population.

• Also of concern, and not mentioned in the DEIR, is recent County government talk about moving the present Main Library to elsewhere to expand government offices into that space. Please discuss this proposal and its ramifications for users of the library.

Library funding derives from assessments and the County general fund. Some funding is available from the state when it isn't in a budgetary crisis, and some funding comes from library fines and fees.

Impact 5.7-4: Potential Land Use Incompatibility Associated with Development and Expansion of Library Facilities (p. 5.7-58).

The same mitigation measures are invoked here, too: 5.1-3(b) and -3(d) and are again said to reduce the impact to Less Than Significant.

‡ How has library usage changed with population growth? Please give statistics for the past fifteen years. How has property tax revenue changed over the same time period? Does the library system have any set-aside money to fund increased need for space or does it operate "from hand to mouth"? What consideration has been given to imposition of developer fees to help with funding needs?

‡ Every effort should be made to site and design libraries so as to make possible walking and bicycling to them rather than driving.

PARKS AND OPEN SPACE

• Please see our scoping comments, p. 73, under Parks and Recreation Element for the questions posed therein. Many are answered in the DEIR's treatment, but not all. Please respond to the rest.

The title of this chapter is something of a misnomer; Open Space isn't treated here. It is somewhat dismaying that open space should be lumped with parks when, according to the list provided in Exhibit 5.7-4, the sort of parks treated herein clearly are mostly smaller "neighborhood" parks. Elsewhere in this DEIR (e.g., Policy LU-3n, p. 65 in Land Use) active recreation is deemed incompatible with Natural Resource and Open Space lands.

• Please also refer to our comments under Open Space in the chapter herein of Biological Resources for suggestions to address the problem of incompatibility between some of the uses for

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lands supposedly serving the purpose of open space.

Moreover, the Planning and Zoning Law (Government Code Sec. 65560 ff.) seems to have something else in mind for Open Space:

(1) Open space for the preservation of natural resources including, but not limited to, areas required for the preservation of plant and animal life, including habitat for fish and wildlife species; areas required for ecologic and other scientific study purposes; rivers, streams, bays and estuaries; areas adjacent to military installations, military training routes, and restricted airspace that can provide additional buffer zones to military activities and complement the resource values of the military lands; and coastal beaches, lakeshores, banks of rivers and streams, and watershed lands.

(2) Open space used for the managed production of resources, including but not limited to, forest lands, rangeland, agricultural lands and areas of economic importance for the production of food or fiber; areas required for recharge of ground water basins; bays, estuaries, marshes, rivers and streams which are important for the management of commercial fisheries; and areas containing major mineral deposits, including those in short supply.

(3) Open space for outdoor recreation, including but not limited to, areas of outstanding scenic, historic and cultural value; areas particularly suited for park and recreation purposes, including access to lakeshores, beaches, and rivers and streams; and areas which serve as links between major recreation and open-space reservations, including utility easements, banks of rivers and streams, trails, and scenic highway corridors.

(4) Open space for public health and safety, including, but not limited to, areas which require special management or regulation because of hazardous or special conditions such as earthquake fault zones, unstable soil areas, flood plains, watersheds, areas presenting high fire risks, areas required for the protection of water quality and water reservoirs and areas required for the protection and enhancement of air quality.

The DEIR commences (p. 5.7-63) by noting that many of the County's recreational resources are under the jurisdiction of state and federal agencies. Here, however, treatment will be confined to "parks and open space".

• The El Dorado Irrigation District should be added to the account on p. 5.7-63. Sly Park (soon to transition from Bureau of Reclamation ownership) has long been operated by EID. Recreational opportunities associated with Project 184 are a mix of Forest Service and EID ownership.

County parks are administered through County General Services (p. 5.7-64). Its primary responsibility is said to be "to establish a regional trail system throughout the county; regulate and manage boating use of the South Fork American River; coordinate the development of a regional and community parks system; and to implement the countywide recreation plans." It now has jurisdiction over Bradford Park, Henningsen Lotus Park, and Pioneer Park and proposes three more: Bass Lake Regional Park, Pollock Pines Park, and a park in South Lake Tahoe.

• Quite lacking, however, from the entire treatment of Parks and Open Space in the DEIR is consideration of the trail system, despite mention of master plans administered by General Services. Please see the several questions in our scoping comments (p. 74) and respond in the FEIR to the several questions therein concerning trails.

• A management plan for the old Southern Pacific Right of Way was recently adopted by the County, yet it, too, is absent from any mention in this chapter. Please discuss this rail corridor relative to recreational use.

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‡ Moreover, the General Plan should expressly include policies, to be implemented immediately, to forestall and reverse any further alteration of this ROW that would preclude potential dual use by both heavy (including self-propelled cars) and light rail. It should also recognize that utilization of part of this ROW for a connector road between Missouri Flat and Pleasant Valley roads would be detrimental to future use by rail and would require approval of the Federal Railroad Administration; therefore, the County should determine alternatives to this proposed routing.

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The County Parks and Recreation Commission advises General Services and works with local service providers, generally community service districts, of which the major ones are the El Dorado Hills and Cameron Park CSDs and the Georgetown Divide Recreation District, all of which are non-County public agencies. The two first named have a standard of 5 acres of parkland for every 1,000 persons (both are now below this standard, EDH, at 96.9 acres, by ca. 11%; and CP, at 56.2 acres, by ca. 33%); GDRD has no standard and administers 18.5 acres of parkland.

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• What is the role of the County with respect to these shortages of parkland relative to the County standard of 5 acres per 1000 persons?

On p. 5.7-68 EID's ownership and operation of the Sly Park Recreation Area is acknowledged (actually, it won't own the area until the transfer from the Bureau of Reclamation is completed). It also is said to be planning to develop lands around Bass Lake as a park. The recently issued Notice of Preparation soliciting scoping comments for a Bass Lake Regional Park, however, appears to have the County, not EID, as lead agency.

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• Bald Eagles are known to utilize Bass Lake seasonally. How will they be accommodated in County Plans for a regional park there? What of other considerations relative to wildlife, as disturbance of nocturnal animals?

General Services is responsible (p. 5.7-69) for implementation of three adopted recreational plans: the River Management Plan, the Bikeway Master Plan, and the Hiking and Equestrian Trails Master Plan.

Park and recreation facilities in the western part of the County, both those administered by the County and by local service providers, including the City of Placerville, are listed in Table 5.7-9 (p. 5.7-70).

The County can, under the Quimby Act, provide for parks and recreation through required dedication of land or payment of in lieu fees as a condition of approval of a tentative map or parcel map (pp. 5.7-72-73). The standard, however, is 3 acres per 1,000 residents though if existing park area already exceed this standard, up to 5 acres may be required, per the DEIR. The Quimby Act applies only to *land acquisition*, not to development of park facilities nor to operation and maintenance costs.

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Impact 5.7-5: Deterioration of Existing Park and Recreation Facilities and Need for New Facilities (p. 5.7-74).

Increasing population can be expected to put more pressure upon existing facilities, causing their becoming overcrowded, with resulting deterioration, or, alternatively, creating pressure for more facilities. All alternative general plans include policies to provide for adequate parkland. The needs according to projected population are shown in Table 5.7-10, p. 5.7-75. The DEIR recognizes that ministerial residential development and commercial development can contribute to parkland needs

without contributing toward either dedicated land or in lieu fees.

**• How is this problem proposed to be addressed?**

Additional problems in providing adequate parklands are possible inadequacy of available land, and lack of money to develop new lands and to maintain existing lands. Although Alternatives 2 and 3 would commit the County to developing a Parks Master Plan and Capital Improvement Program, the DEIR appears to recognize that funding problems would nevertheless remain for all alternatives because of potential inadequacy of homeowners' associations and benefit assessment districts to meet the needs. Alternative funding will probably remain needed.

Under Alternatives 2 and 3, the County would, by Implementation Measure PR-A, develop and implement a Parks Master Plan and Capital Improvement Program. Proposed mitigation would expand this measure to Alternatives 1 and 4 and add the concept of additional funding mechanisms through homeowners' associations and benefit assessment districts, as well as a county-wide development fee applicable to *all* new development (p. 5.7-81).

As it is acknowledged in the DEIR that the foregoing measures may, nevertheless, prove inadequate, and additional outside funding will likely be needed, the County further, through IM PR-F commits to seeking alternative funding sources.

**• To what extent has the County used Development Agreements as a means of augmenting parkland shortages, especially in areas where there is now a deficit?**

A funding problem has been identified and no solution offered—seeking alternative funding sources is not money-in-the-hand and possible future mitigation isn't present mitigation. *We thus must disagree that the offered mitigation reduces the impact to Less Than Significant.*

**Impact 5.7-6: Potential Land Use Incompatibility Associated with Development of Park and Recreation Facilities** (p. 5.7-82).

As with the other similar impacts identified in this chapter, the same pair, 5.1-3(b) and 5.3-1(d) are invoked here for all alternatives.

**• How would the proposed Parks Master Plan and Capital Improvement Program make up for the current deficit in parkland? Acquisitions at this point would presumably have to pay inflated land prices resulting from approval of development. How would this plan capture revenue from ministerial and commercial development?**

**‡ In any development of the Bass Lake area as a park and especially so in view of seasonal use of the lake by bald eagles, any sport field lighting should be of the top- and side-shielded variety so as to be minimally intrusive both for neighbors and for wildlife. See our comments in the Visual Resources chapter herein.**

**• Absent from mention in the DEIR is Policy PR-2a, "The County shall protect existing public access points and *encourage new points of public access* [emphasis added] to lakes, rivers, and streams." Unless qualified, such an exhortation could lead to negation of the protective effects of setbacks from waterbodies. Please discuss in the FEIR. We'd suggest wording requiring consultation with the Department of Fish and Game.**

**• To what extent can shared use of school sports fields contribute to provision of adequate**

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recreational needs? What impediments, if any, are there to doing so?

- How has the County used Conditions of Approval and Development Agreements to add to the trails network in the County?

- Please present a list of dedicated trails and easements for trails acquired by the County as a result of discretionary land-use decisions.

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REFERENCES

1. *Proper Design Helps Stem Crime*. Mark A. Kroeker, chief of police, Portland, OR
2. *SafeScape: Creating a Safer Physical Environment*. Dean Brennan.
3. Excerpts from *Suburban Nation*.

**LINKS**

PERIODICAL BOOK

September 2001

# Proper Design Helps Stem Crime

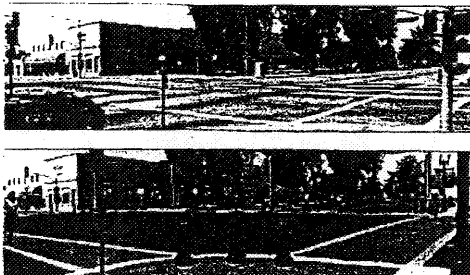


*SafeScape: Creating Safer, More Livable Communities Through Planning And Design*, by Al Zelinka and Dean Brennan. Planners Press, 2001.

By Mark A. Kroeker, chief of police, Portland, OR



I have waited three decades for this book. I watched with enthusiasm as the process behind reports on environmental impact drew developers, homeowners, planners, and architects closer to my expectations of a safe neighborhood. Those of us looking at community policing back then thought that all building designs should be considered in efforts to prevent crime. But CPTED (Crime Prevention Through Environmental Design) was long in coming and the funds to drive it, limited.



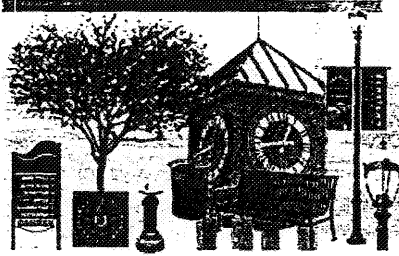
Some street designs say, "I dare you." Some say, "welcome."

Meanwhile, crime was flourishing, fear was spreading, and budgets to fight crime were shrinking. Public agencies like mine were managing more with less; and, as the years passed, our efforts shifted to partnerships, problem solving, and proactive approaches—the tenets of community policing. We coupled these efforts with stringent punishments, such as California's Three Strikes Law and Oregon's Measure 11. We insisted on command accountability with COMSTAT and similar models. But somehow, in the world of house living and house designing, there was a noticeable lack of discussion of environmental impact on crime.

I recall working on problem-solving efforts that included concrete barriers hastily installed across urban streets to limit the passageway of drug traffickers. We knew that gated communities were working, so why not an "urban gateway," so to speak. We coined the verb "cul-de-sacking" to describe an effort that should have been tried years ago in the planning stages of residential developments. But of course, who could have foreseen the effect of crack cocaine on our cities, our residents, our families? Crime accompanied the sprawl of suburbs, even as it took firmer root in the cities.

The discussion of the world of crime and the discussion of the world of environmental impact often continued on two separate tracks. Planners and police officers were rarely at the same discussions. But now, because of SafeScape, we talk and listen at the same table. The authors, Al Zelinka and Dean Brennan, have finally brought us together—cops, architects,

planners, designers, developers, elected officials, and occupants of the built world.



Coordinated furniture contributes to a positive image.

Zelinka and Brennan's careful definition of terms and concepts create for us a common language, a solid base for discussion. Their terms and assumptions give to us an important threshold through which can pass a well-developed model. Their three SafeScape principles of Information and Orientation, Socialization and Interaction, and Stewardship and Ownership construct a solid theoretical framework. The three principles on the implementation side of Land Use and Design, Activity and Programming, and Management and Maintenance map a strategic way forward.

The book thoroughly addresses the recurring theme of fear and its impact on the living environment. Fear is a perception, and perceptions commit us to courses of action. When the fear level is reduced, the possibility is much greater for reasonable crime prevention, or crime reduction, strategies. I sensed that Zelinka and Brennan were teaching us to look beyond the "broken windows" to consider the building of windows that would not be broken.

For those of us who are not planners and who don't speak the language of planners and architects, there is a refreshing simplicity and clarity of expression in this book, which will serve to bring more players to the discussion. One glaring exception was the use of the term "delineating spatial hierarchies." I read this one several times and then gave up.

The excellent essays, such as Phillip Langdon's "Gates or Neighbors, Obtaining Safety Through Community," offer a variety of perspectives on the common theme. The lavish use of photographs and drawings complement the text with attractive examples of points raised. But the strength of the book is in the execution strategies that give it a solid practicality, including case studies of application steps. All of these examples, illustrations, and case studies provide fuel and guidance systems to our planning engines. For more information, contact Chief Mark A. Kroeker, Portland Police Bureau, 1111 SW Second Avenue, Room 1526, Portland, OR 97204. Phone: (503) 823-0000 Fax: (503) 823-0342 E-mail: [Mkroeker@police.ci.portland.or.us](mailto:Mkroeker@police.ci.portland.or.us) To order SafeScape, contact Planners Book Service at 122 S. Michigan Ave., Suite 1600, Chicago, IL 60603. Phone (312) 786-6344 Fax: (312) 431-9985 E-mail: [Bookservice@planning.org](mailto:Bookservice@planning.org) Web site: <http://www.planning.org/bookstore/> Protecting the environment has become an accepted global ideal. SafeScape gives us a refreshing shot at having the built environment protect a precious resource of another kind-neighbors and their children, who will soon become neighbors with children.

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*For more information, contact Chief Mark A. Kroeker, Portland Police Bureau, 1111 SW Second Avenue, Room 1526, Portland, OR 97204. Phone: (503) 823-0000 Fax: (503) 823-0342 E-mail: [Mkroeker@police.ci.portland.or.us](mailto:Mkroeker@police.ci.portland.or.us) To order SafeScape, contact Planners Book Service at 122 S. Michigan Ave., Suite 1600, Chicago, IL 60603. Phone (312) 786-6344 Fax: (312) 431-9985 E-mail: [Bookservice@planning.org](mailto:Bookservice@planning.org) Web site: <http://www.planning.org/bookstore/>*

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## SAFESCAPE: CREATING A SAFER PHYSICAL ENVIRONMENT

By Dean Brennan, AICP

Originally published in Crime Prevention News

SafeScape is a new concept that makes the case that planners and design professionals can do their part to fight crime by making physical environments safer. SafeScape takes the concepts incorporated in the widely accepted CPTED (Crime Prevention Through Environmental Design) principles but goes a step further by placing a greater emphasis on the key role that building community plays in reducing crime.

The basic premise of the SafeScape philosophy is that public safety is a key component of quality of life. One of the primary ways to ensure public safety is through the planning and design of a physical environment that respects the most basic human needs. There are three challenges that must be addressed before this can be achieved:

First, the physical environment must be designed, or retrofitted, to recognize the needs of the user. Second, the long-term management and maintenance of the physical environment must be a priority. Third, and most important, we must focus on creating a "sense of community."

SafeScape is a holistic approach for responding to the issues of crime and personal safety that plague many of our neighborhoods, business districts and communities. The application of the SafeScape Principles requires no special training, only a basic understanding of how to use the principles to determine why people may not feel safe in a given situation and then how to respond to improve the situation.

The Seven SafeScape Principles Human Factor Principles. These help us identify when the physical environment is unsafe.

Principle 1-Information and Orientation-We feel unsafe when we don't know where we are and/or where we are going.

Principle 2-Interaction and Socialization-We feel unsafe when we are alone and there are no other people with whom we can interact.

Principle 3-Ownership and Stewardship-We feel unsafe when the physical environment is not properly cared for and not maintained.

Principle 4-Seeing and Being Seen-We feel unsafe when we can't see other people and they can't see us.

Implementation Principles. These help us identify how to create a sense of safety.

Principle 5-Land Use and Design-Encourages safety and community building through proper design of the physical environment.

Principle 6-Activity and Programming-Facilitates safety and community building by bringing people together in the physical environment.

Principle 7-Management and Maintenance-Sustains safety and community building through the long-term commitment to proper care of the physical environment.

Applying the Principles

In 1997, the Phoenix Planning Department initiated the Safe Communities Program. The program's focus was to create partnerships among city departments that are involved in creating the physical environment. This partnership includes key departments, such as law enforcement, fire, parks and neighborhood services-departments that are involved with safety issues on a daily basis. The partnership also includes departments involved with review of site plans and enforcement of neighborhood-preservation ordinances, and departments responsible for providing housing for

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low-income residents. The purpose was twofold-educate the community (including city staff) and examine city processes (policies, guidelines and ordinances) to determine how they could be modified to better address community safety.

A Safe Communities Handbook was prepared, and the program was officially kicked-off with a workshop for neighborhood groups that featured training by a nationally recognized CPTED expert. To respond to public safety issues in the existing physical environment, "neighborhood safety audits" were conducted. The audits, which focused on the city's designated Fight Back Neighborhoods, involved walking the neighborhood with neighborhood residents, a planner, a law enforcement officer and a city staff person responsible for zoning enforcement. To respond to the need to design a safe physical environment for future development, a team drawing from several different departments was pulled together to consider design issues.

The Planning and Development Services departments initiated the process of updating existing development guidelines in partnership with the police department. During the time the guidelines were being developed, a law enforcement officer was assigned the task of reviewing site plans and making recommendations as to how the site plans could be modified to create a safer physical environment.

Although the law enforcement review process was generally beneficial, the process helped identify one of the major problems associated with the strict application of CPTED. While a valuable tool, CPTED focused heavily on target hardening without enough regard for the importance that building community plays in the long-term success of creating safer communities.

The first design guidelines that were prepared dealt with multifamily communities. In a selected model multifamily community, the property management company had taken a crime-ridden apartment project in one of Phoenix's worst neighborhoods and created a safe physical environment for the residents. This was accomplished through the commitment of the property owners, involvement of the Phoenix Police Department and an ongoing process of management and maintenance to ensure livability for the residents. Particular attention has been paid to providing areas for residents to socialize and interact, such as playgrounds, pool areas and ramadas. These amenities have helped create a sense of community for the residents.

The result: a 60 percent reduction in arrests and a 30-50 percent reduction in police calls to the housing complex.

Planning Department staff has prepared draft design guidelines for other types of land uses including single-family, parks/open space, schools, commercial/retail and employment uses. Copies of these guidelines are available by contacting Dean Brennan, Phoenix Planning Department, 200 W. Washington St., 6th Floor, Phoenix, AZ 85003-1611. Brennan served as program manager for the Safe Communities Program.

The SafeScape Philosophy and the SafeScape Principles are described in the recently published book, *SafeScape: Creating Safer, More Livable Communities through Planning and Design* by Dean Brennan, AICP, and Al Zelinka, AICP, published by the American Planning Association.

May 2002

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# SUBURBAN NATION

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THE RISE OF SPRAWL

AND THE

DECLINE OF THE AMERICAN DREAM

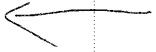
crucial, so its effect on pedestrian safety was never considered.

Of those streets that have somehow escaped the widening influence of the traffic-flow and Cold War hobbies, many are currently falling prey to the access requirements of the fire departments. Their new standards, which shorten emergency-vehicle response time at the expense of all other criteria, are typically designed to accommodate the most ambitious of maneuvers: the jockeying of a pair of high-rise ladder trucks on a dead-end street. As a result, even single-family suburban cul-de-sacs are now typically paved to a width of thirty feet, often with asphalt circles ninety feet across at the ends, all in order that a large truck can turn around without shifting into reverse. • One of the most important aspects of our new towns is being shaped around an extremely unlikely emergency, with the result that they function inadequately in non-emergency situations.

When fire departments are allowed to usurp the role of town

• From Chester E. (the K) Chelman, P.E.'s research into ASSTHO committee reports. As with Napoleon's Paris, it may also be likely that the case of troop movement was a factor. Mr. Chelman is astute in pointing out how architects were equally obsessed with wartime concerns, and how the prospect of an aerial bombardment figured heavily in their designs for the city of the future. In the book *Can Our Cities Survive?*, published by the modernist Congres International d'Architecture Moderne, Jace Lars Sert insisted (correctly) that "some districts offer better targets than others. Based upon the likelihood that a bombardment would be more devastating to an old European city," he is nearly impossible to miss a hit on some overcrowded building." Sert and his colleagues advocated the two alternatives that became the staple of the suburban city: the single-family house and the "tower in the park" (Sert, 69).

• The avoidance of reverse purportedly derives from the fact, now irrelevant, that the earliest fire trucks powered their pumping mechanism with the reverse gear, rendering it impractical. It is ironic that cul-de-sacs, with their image of small-scale domesticity, must be so wide to satisfy fire trucks, but this comes partly because they provide only a single access point for each destination. In a traditional interconnected network of through streets, there is always an alternate path to the fire, and one that rarely has to drive past another. Unfortunately, this distinction is never made in suburban zoning codes, and every type of street must meet the cul-de-sac's thirty-foot street width requirement.



planner, they generally commit two errors. First, they put more weight on fire rescue than on the prevention of injury in general; they try to minimize emergency response time, without considering that the resulting wide streets lead to an increased number of traffic accidents, since people drive faster on them. Fire departments have yet to acknowledge that fire safety is but a small part of a much larger picture that others refer to as *life safety*. The biggest threat to life safety is not fires but car accidents, by a tremendous margin. Since the vast majority of fire department emergencies involve car accidents, it is surprising that fire chiefs have not begun to reconsider response time in this light; if they did, narrow streets would logically become the norm in residential areas. In the meantime, the wider streets that fire departments require are indeed quite effective at providing them with quick access to the accidents they help cause.

The second mistake fire departments make is purchasing oversized trucks, vehicles that have trouble maneuvering through anything but the widest of streets. Sometimes these trucks are required by outdated union regulations, but more often they are simply the result of a town's desire to have the most effective machinery it can afford. • Unfortunately, a part of a truck's effectiveness is its ability to reach the fire in the first place. Once purchased, the truck turns from servant to master, making all but the most wasteful and unpleasant street spaces impossible. When a giant truck is the

• This activity may also be the result of what the fire marshals do when they go to their fire marshal conventions, which is to compare the size of their trucks. Never mind that their entire jurisdiction consists of split-level ranches, these chiefs are not about to be outdone in the hook-and-ladder department. One can only hope that the advent of woman-led fire departments will eventually bring this tendency in check.

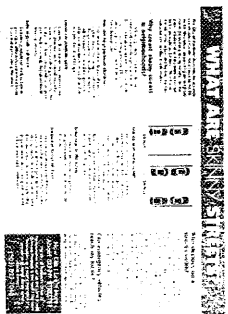
design template, there is no choice but to build streets that are too wide to support pedestrian life.

Citizens who find themselves pitted against fire departments in road-width battles should focus their arguments on the issue of fire safety versus life safety and arm themselves with the statistical evidence. A recent study in Longmont, Colorado, compared fire and traffic injuries in residential neighborhoods served by both narrow and wide roads. Over eight years, the study found no increased fire injury risk from narrow streets; primarily because there were no fire injuries. One serious fire and several smaller fires resulted in property damage only. Meanwhile, in the same eight years, there were 227 automotive accidents resulting in injuries, 10 of them fatal. These accidents correlated most closely to street width, with new thirty-six-foot-wide streets being about four times as dangerous as traditional twenty-four-foot-wide streets.

One community that has seen beyond the false safety promised by wide streets is Portland, Oregon, whose fire chief helped to initiate a new public program called "Skinny Streets." "This program recommends that new local streets in residential areas, with parking on one side, should be only twenty feet wide. These humane streets have their critics, the usual cabal of fence-sitters, who would like to enforce standards ten feet wider. They insist that the numbers don't add up—how can two cars pass each other *and* a parked car in a mere twenty feet of pavement? Of course, the founders of the Skinny Streets program have reason for confidence, since they

• Peter Swift, "Residential Street Typology and Injury Accident Frequency," a interestingly traffic volume was not found to be a major factor, except where a lack of volume made speeding easier. Unsurprisingly, the most lethal streets were those that most closely matched the suburban engineering ideal: narrow straight, long, and wide, with a free flow of light traffic.

A city sees the light: Portland, Oregon, promotes its new (old) street standards



derived their measurements from Portland's existing streets, which continue to work perfectly well in the city's most valuable neighborhoods. The Portland firemen have accepted their new standards, admittedly without much enthusiasm.

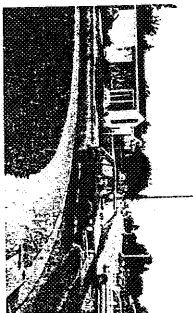
Narrow streets are necessary but not sufficient to ensure a thriving pedestrian life. Curb radius, the amount a roadway flares at an intersection, has a significant impact as well. The image on the right shows what intersections used to look like: the arc of the curb has a radius of only three or four feet. As a result, this twenty-foot-wide street has a crossing that is also twenty feet wide. The modern standard, however, specifies a curb radius of twenty-five feet or more, which means that the actual crossing distance of a twenty-foot-wide street jumps to about forty feet. More significantly, cars approaching such an intersection need not brake as they turn, as indicated by the dramatic post-side list of the car pictured here. In short, the modern curb radius forces the pedestrian to walk twice as far in the path of a car that is traveling twice as fast.

A similar circumstance surrounds another aspect of street design, the minimum center-line radius, which controls how sharply a street is allowed to bend along its trajectory. Under current standards, streets are allowed only to curve loosely, with the result that one finger on the steering wheel and one foot on the gas pedal are all that it takes to maneuver through a residential neighborhood. The intention is to provide greater safety by allowing drivers to see farther in front of them, but the result is that drivers feel comfortable driving at higher speeds, making walking all the more dangerous.

- Indeed, the design of most traffic-calming devices acknowledges this fact. These devices introduce tighter minimum center-line radii for streets that are too straight and too wide, forcing drivers to slow down.



*Pedestrian-friendly geometries: a traditional small curb radius slows cars down and shortens crossing distance.*



*Highway geometries applied to the residential neighborhood: a large curb radius denies both pedestrian crossing distance and automobile speed.*

When it comes to street curvature, like curb radii, what works best for cars hardly works at all for pedestrians.

One would think that, after many years of building such streets and witnessing the results, the engineers—at least some of them—would have added pedestrian- and bicycle-friendly standards to their repertoire. However, Paul Box, the nation's ranking expert on subdivision street design, had this to say when asked how streets might better accommodate bicyclists: "... the purpose of the Subdivision Guidelines is to enhance safety and livability. Any statements encouraging bicycle use would not likely address these objectives."<sup>6</sup> Presumably, we should be grateful that bicycles are still legal.

In truth, a number of engineers have accepted more reasonable design standards, but in most cases there is one thing that prevents them from putting those standards into practice: their manuals. Engineers are exposed to substantial liability in their work. The most surefire way for them to avoid losing a lawsuit is to follow the engineering manuals precisely, no questions asked. Because pedestrian-friendly streets are not specified in the manuals, they are simply not possible, despite all the evidence encouraging their use.

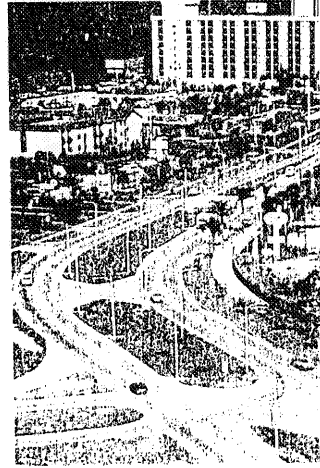
The reaction of most municipalities to speeding has been not to question the standards but simply to post hopeful speed-limit signs,

<sup>6</sup> Paul Box, "Traffic Engineering Consultant," P.E., fellow of the Institute of Traffic Engineers (ITE). Mr. Box has been chairman for several decades of the Committee on Guidelines for Residential Subdivision Street Design. His comment is from a September 1991 letter in response to an inquiry from ITE member Chester Chelham, P.E. Given the current standards of residential roadway design, it is not surprising that, according to *Bicycling* magazine, the number of American bike riders has dropped 23 percent over the past seven years (Peter T. Kilham, "No Work for a Bicycle Thief: Children Pedal Around Less," *Art*).

resulting in some rather ludicrous scenarios. In Toole, Utah, we have driven on straight streets forty-two feet wide with a posted speed limit of 30 mph. These streets were perfectly navigable at 65 mph, since that was their design speed, and that was indeed the speed at which we drove, even though we were in a quiet residential community. Posting speed limits to slow traffic on high-speed roads is futile, because people drive at the speed at which they feel safe—and teenagers drive at the speed at which they feel dangerous. Generally, the only time that people don't speed in modern suburbia is when they are lost, which is, fortunately, quite often.

In addition to narrow streets, another factor that contributes mightily to pedestrian perceptions of safety is on-street parallel parking. Parked cars create a highly effective steel barrier between the street and the sidewalk, so that walkers feel protected from moving traffic. They also slow traffic, because drivers perceive potential conflict with cars pulling in and out. Additionally, parallel parking supports pedestrian life by delivering people to the sidewalk. Since drivers are seldom able to park directly in front of their destination, they often walk past shops or houses other than the one they are visiting. If on-street parking is, for this reason, slightly less convenient, it is one of those small inconveniences that make life more interesting. While many towns and cities have rediscovered parallel parking, it has been on the decline for decades, frowned upon by the same officials who dismiss trees as fixed Hazards Objects. In some states, parallel parking is no longer a required skill on driver's tests.

The misplaced priorities of current traffic engineering criteria are plainly evident in the top image on page 72, taken from the cover of a D.O.T. annual report—a photograph, therefore, that one can



*The street as automotive sewer: Streamform highway geometries sever walking connections and preclude pedestrian life*



*The street as a complex, multipurpose social organism: a boulevard, ideal for driving, parking, walking, and sipping coffee*

presume represents traffic design at its best. What this photograph depicts is indeed an achievement of sorts: a road of only four lanes that, thanks to highway geometries, has managed to eat up over 150 feet in right-of-way width while lowering the property value of everything around it. Due to the behavior of the vehicles on this high-speed road, this area will always be the site of the cheapest housing and least prestigious businesses, hiding behind their walls, berms, and sound-attenuation barriers.

To fully grasp this wastefulness, we need only consult the alternative: the traditional boulevard. Instead of an intimidating four-laner, this boulevard is a ten-laner: six lanes of traffic and four of parking. Yet this roadway is so charming and comfortable, thanks to its avoidance of high-speed geometries, that residents pay good money to sip coffee at curbside cafés—a sight hard to imagine in the preceding photo. The impact of the dumbing down of the engineering manuals could hardly have been more profound. In the early twentieth century, practically every roadway investment resulted in an increase in the value of adjacent properties. But since 1950, roadway investment has often had the opposite effect, robbing neighborhoods of their economic value by degrading the environment.

The engineers' strict adherence to their manuals is actually promising; rather than convincing the engineers to fundamentally rethink their approach, we need only amend the manuals in order to reform the profession. And to their credit, a coalition of forward-thinking engineers is on its way to making this happen. The Institute of Transportation Engineers has recently completed a manual entitled *Traditional Neighborhood Development Street Design Guidelines*, which allows narrower roads, tighter corners, and a number of other once-unthinkable modifications to current design criteria. For

the moment, these modified standards are available only as optional alternatives. Clearly, the next step would be to prohibit the conventional high-speed standards in residential neighborhoods, restricting them to long-distance regional roadways, where they belong.

After speeding automobiles, the greatest threat to pedestrian safety is crime, which is what most people have in mind when they clamor for safer streets. It has been the topic of many design books, and the reigning classic remains *Defensible Space*, by Oscar Newman. It is worth elaborating on one of Mr. Newman's subjects as it pertains to suburbia, and that is the concept of "eyes on the street," a phrase originally coined by Jane Jacobs.

In order to discourage crime, a street space must be watched over by buildings with doors and windows facing it. Walls, fences, and padlocks are all less effective at deterring crime than a simple lit window. Interestingly, no one needs to be standing *in* the window, as the window implies a human presence on its own—at any moment, someone could appear. So it is really the windows, not the occupants, that are the eyes on the street. Traditional urbanism excels at providing them, as buildings sit close to the sidewalk and plainly face forward. Even residential alleys can be well supervised, by placing granny flats above garages.

- In truth, these alternatives are an available option only about half of the time. Even though they have been named a "recommended practice" by the national Institute of Transportation Engineers, they are routinely rejected by local municipal engineers, many of whom still believe that wider is safer.
- *Defensible Space* was written in 1979, and the efficacy of many of its ideas has been well demonstrated. These ideas are now promulgated under a new imprimatur, CIP111D Crime Prevention Through Environmental Design. More information on the subject can be found in the book *Safe Cities: Guidelines for Planning, Design, and Management* by Cecilia Wakefield and Carolyn Whitman, or at the National Crime Prevention Institute at the University of Louisville, Kentucky.

## 5.8 Human Health and Safety

We are inclined to agree with those who argue that suburban life itself is a health hazard (and that life in front of a computer screen formulating comments on these documents, too, is a health hazard because physical exercise would be better than the mental exercise).

Says Phillip J. Longman, "On a statistical basis, what's most likely to get you killed in the next year: (A) living in Israel during the Intifada; (B) living in crime-ridden inner-city Baltimore, Chicago, Dallas, Houston, Milwaukee, Minneapolis-St. Paul, Philadelphia, or Pittsburgh; or (C) living in the bucolic outer suburbs of those cities? The answer is overwhelmingly C." (See References.)

Longman cites a recent study by William H. Lucy of the University of Virginia. He found "that Americans' migration into sprawling outer suburbs is actually a huge cause of premature death." A reduction in crime-related death was more than offset by the likelihood of dying in an automobile accident. Also, "metro areas marked by sprawling development and a high degree of auto dependency...are the most dangerous regions to walk in." And auto-dependency "also discourages routine exercise. ...Sprawl does not fully account for our increasingly sedentary lives, but it is a major factor, and therefore a leading cause of premature death."

Longman goes on to say, "The good news is that reducing subsidies for sprawl is among the biggest policy levers available to improve public health. This includes reforming gas taxes that are currently nowhere near high enough to recoup the environmental costs of driving, let alone to compensate for the losses to the economy caused by auto-related deaths and injuries. And it includes ending overinvestment in new roads and highways, and directing more toward mass transit, bike trails, and sidewalks."

**Human health and safety thus present another strong argument for turning the tide away from the development patterns of the past in El Dorado County. This would also have a profound beneficial effect on the public pocketbook. See also comments under Transportation and Circulation.**

### HAZARDOUS MATERIALS

• Please refer to our scoping comments, incorporated herein by reference, on Hazardous Materials, p. 52, for questions posed there that went unanswered in the DEIR.

Please also see the discussion herein under Utilities.

According to the DEIR (p. 5.8-2) there were, as of January 2003, 130 businesses and government locations in the County registered as hazardous waste handlers. Nine of these were Large Quantity Generators and 106 Small Quantity Generators.

• Those two numbers don't add to 130. What accounts for the rest? How do the EPA's criteria for being registered differ from the County's, whose list numbers 235 (p. 5.8-2)?

• In scoping comments we asked for locations of known business activities using hazardous materials that might, through upset, endanger nearby citizens. We repeat that question. We believe this information should be known by both planners and citizens.

Per the DEIR, collection sites for hazardous wastes include the two MRFs, the El Dorado

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Hills Fire Department, and "21 public waste oil collections sites" that in addition accept certain other substances, such as pesticides and solvents.

• No addresses are given for any of these. How are they and their locations publicized so as to facilitate public use?

‡ Waste franchisees could occasionally distribute with bills to customers addresses and hours of operation for sites where hazardous wastes may be dropped off, as well as addresses and hours of operation for dropping off recyclables not accepted for curbside pickup. This feature could be added to franchisees' contracts at renewal time.

• Table 5.8-1 shows a steady increase in amount of household hazardous waste collected except for 2002. To what is the drop attributed? (The second footnote 3 should be corrected to 4.)

For discussion of illegal dumping, please see Utilities, wherein the DEIR treats Solid Waste and Hazardous Waste Disposal, as well as here under Human Health and Safety.

We note with interest that the County's *Hazardous Waste Management Plan* estimated in 1986 that 20 to 30% of the hazardous waste generated by small businesses and industries in the county was "improperly or illegally" disposed of. Numbers for households are thought to be similar or even higher (pp. 5.8-6 to -7).

• No cumulative effect connected with hazardous waste is identified in Chapter 7 despite the intention in the General Plan to foster economic development and despite the statement here that 10 to 20% of that waste generated by small businesses and industries in "improperly or illegally" disposed of. It seems obvious, then, that a cumulative effect will be a greater amount of hazardous waste "improperly or illegally" disposed of as economic development takes place.

• As the *Hazardous Waste Management Plan* is over ten years old, is it considered in need of updating and, if so, what efforts to do so are being made? Are the foregoing figures still representative of estimates?

• The DEIR says there are three Superfund sites in the County, none of which is on the National Priority List. Where are these sites and what is the nature of the contamination? How is this information used in planning and reviewing development proposals? What cleanup efforts are being made, by whom, and how paid for? If no efforts are occurring, why not? How are the sites being restricted in the meantime?

**Impact 5.8-1: Increased Risk of Exposure Resulting from Routine Use of Hazardous Materials (p. 5.8-23).**

On p. 5.8-25 of the DEIR, reference is made to a "Household Hazardous Waste Element" that the County prepared in 1993 in response to the listed recommended activities from the County's Hazardous Waste Management Plan.

• What is the status of this "Element"? This statement conspicuously does not identify what it is an "element" of nor does it cite a County ordinance or identify what it consists of. Please correct in the FEIR. What were the recommended activities, and what is the status of their being carried out?

Compliance with the CHWMP is championed in discussion of impacts, but no information is

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given as to its current adequacy. On the contrary, a policy in both Alternatives 2 and 3 requires its updating. Hence we must withhold agreement that compliance with it constitutes appropriate mitigation to assure Less Than Significant impact. Furthermore, questions about how available information is used in the planning process have not been answered. Therefore we can't agree that the evidence provided demonstrates attainment of Less Than Significant status.

281-322

Impact 5.8-2: Increased Incidents of Illegal Disposal of Household Hazardous Wastes ( p. 5.8-31).

We agree that addressing this problem presents real difficulty. Website information can reach only those with access to the web. Advertisements in the Mountain Democrat are limited to those getting that paper, which is a minor part of the County's citizenry.

281-323

‡ **Informative fliers, giving addresses and operating hours of collection sites, to be distributed occasionally by garbage collection franchisees, and mandatory garbage collection could help in both reducing illegal dumping and increasing the rate of recycling.**

As we aren't given any information about the nature of the County "Household Hazardous Waste Element (see above), we don't know how it might apply to this impact.

281-324

• **Again, it would seem that there is a cumulative impact involved: this impact would have to increase as the numbers of households increase with growth.**

Impact 5.8-3: Increased Risk of Accidental Release of Hazardous Materials (p. 5.8-38).

The DEIR argues, p. 5.8-40, that an increase in such incidents is more closely related to the number of jobs generated that require handling of hazardous materials under the several alternatives than to either population increase or amount of traffic. The discussion here doesn't demonstrate that. However, we agree that clearly the risk will increase under all alternatives.

281-325

• **The Multihazard Functional Emergency Operating Plan is invoked here (p. 5.8-41, Policy 6.1.1.1 and later under other alternatives) and was invoked in the 1996 General Plan DEIR in ways that seem inappropriate to anyone who has actually examined its contents (we have a copy). It is solely a "who does what" plan. Just what would be updated "to keep pace with the growing population" isn't clear. There is no requirement therein for increasing staffing. Unless County organizational structure should change, change in "who does what" would not be expected. Please clarify in the FEIR.**

The only mitigation proposed relates to routes along which hazardous materials would be transported. It would be helpful to know where the primary generators of hazardous materials are now (see prior question), which might offer some ideas. We agree that this mitigation would not greatly change the degree of risk.

281-326

‡ **An additional mitigation might be that of requiring haulers of hazardous materials to travel only at night when traffic is light.**

• **The FEIR should examine, now that some distribution companies are offering the option, whether requiring underground installation of residential propane tanks in new construction, together with a retrofit program, perhaps at time of sale, would reduce the risk of accidental release and how much the cost over typical above-ground installation would be. We would need some figures as to numbers of accidental releases, flammability in wildland fire situations, and the like, to get a feel for cost v. benefits.**

281-327

Impact 5.8-4: Increased Risk of Exposure to Hazardous Waste Resulting from New Development on Known, Suspected, and Unknown Contaminated Sites (p. 5.8-45).

• Please see the discussion herein of contaminated sites under Solid Waste in the Utilities section. Some of the questions we asked there are answered here (p. 5.8-46). Still needed is how available information is incorporated into the planning process and into property sales so that potential buyers can be informed.

The revisions proposed to Policy 6.6.1.2 and HS-7b are inconsistent in that one refers to a "Registered Environmental Assessor" and the other to merely a "qualified assessor". If there is some sort of state program under which "environmental assessors" are registered, we approve of specifying such a person. "A qualified assessor" doesn't do that.

‡ Please use same terminology in both revised policies.

‡ Please incorporate into mitigation a means whereby a potential buyer of a contaminated property can learn whether s/he is "buying a pig in a poke" in time to avoid the cost of potential remediation.

FLOOD HAZARDS

*What is most disturbing is that many communities actually promote colonization of the edge of the 100-year floodplain, permitting concentrated development right up to the line in the sand as if this line will somehow protect the inhabitants. This approach to planning is a tragedy in the making.*

—Jeffrey Mount, California Rivers and Streams, 1995.

• Flooding is also treated in the DEIR under Utilities: Stormwater Systems. Please see our comments herein in that section. Please also refer to our scoping comments on Flooding, p. 49, for numerous unanswered questions and respond to them.

• On p. 5.8-52 the DEIR states that in this section the General Plan Alternatives are evaluated for development potential relative to "the 100-year floodplain and dam inundation areas". We have repeatedly pointed out (starting with comments on the 1996 General Plan DEIR—under the rubric of Taxpayers for Quality Growth--- and continuing in scoping comments on the present DEIR) that Silver Lake Dam has been omitted from consideration though, in event of dam failure, most of the affected downstream area is in El Dorado County. That omission continues in this section, which under "Dam Failure" (p. 5.8-53) lists only dams "located within the County" plus two others "identified by the County" that at least add Caples Lake (Alpine County) to the list. Please note, however, that Cameron Park Lake has not been owned by EID for some time. Rather, the owner is the Cameron Park Community Services District. Moreover, Jenkinson Lake Dam, heretofore non-jurisdictional by virtue of being federally owned, is in the process of being transferred to EID and thus should also be added to this list. Also, any failure of the Mormon Island auxiliary dam on Folsom Lake could inundate portions of development along the northwesternmost edge of the county (as noted in the environmental documents for The Promontory development). Where in the list is Finnon Lake (see p. 5.8-60)?

• Are there updated dam inundation maps for Cameron Park Lake dam, Jenkinson Lake dam, and the Mormon Island auxiliary dam, along with emergency plans? Do both Planning and the Office of Emergency Services have copies? The statement on p. 5.8-44 at the end of the section

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on dam failure that these maps are at the Office of Emergency Services suggests that Planning does not have copies and, hence, that considerations of dam failure do not enter into Planning processing. Please discuss in the FEIR.

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There are also numerous smaller, non state-jurisdictional dams in the county, at least some of which could present a hazard. An example is a privately-owned stock pond in the 3800 (address) area off Marshall Road in Garden Valley that nearly overtopped in a storm, bringing emergency workers out in the middle of the night. These small dams apparently are overseen by the Department of Transportation.

281-333

• What safety oversight does DOT exercise relative to these smaller dams and how frequently?

On pp. 5.8-52 to -53 the DEIR lists the "primary flood-prone areas on the west slope of the County". Absent from this list is the Knickerbocker Creek area where a car was swept downstream, as noted in comments by Quality Growth on the DEIR for the 1996 General Plan.

281-334

• In view of this omission, please clarify the process by which the County accumulates flooding data for eventual incorporation into revised FEMA maps and how it uses the information in the meantime.

On p. 5.8-55, the DEIR discusses the County's Flood Damage Prevention Ordinance. Again, development within the 100-year floodplain apparently is the principal criterion.

281-335

• As experts (see the introductory quotation from Jeffrey Mount) fault this approach, what consideration has been given to updating this ordinance, especially in relation to the recommendations of the California Floodplain Management Report (11/27/2002), incorporated here by reference? (See References for draft Executive Summary thereof.) This report states that "existing programs are not adequate to accomplish these goals [to reduce flood losses and maximize the benefits of floodplains]."

• The Multi-Hazard Functional Emergency Operations Plan again is invoked here. But, as we commented above under Hazardous Materials, its description in the DEIR bears little resemblance to the copy in our possession. It most emphatically does *not* contain dam failure plans nor "response plans for floods resulting from periods of high rainfall or rapid snowmelt". It is solely a "who-does-what" generic approach to emergencies. This should be corrected in the FEIR.

281-336

The DEIR states, p. 5.8-57, that the most recent Flood Insurance Rate Maps (FIRMs) for El Dorado County date from 1995.

• How many FIRMs cover the county? How many have a 1995 revision date? What are the dates for the rest of the FIRMs? What portion of the county over which County government has jurisdiction dates from 1995 and what portion from earlier dates? Exactly what changes were made in the 1995 maps? Was the mapping itself updated, and, if so, in what way? Was any additional mapping done? Are areas such as the Knickerbocker Creek area known to have flooded in the recent past now included in the mapping? What portion of the County has been mapped?

281-337

• In the National Inventory of Dams described on p. 5.8-57, are the previously mentioned omitted dams included in the breakdown given on p. 5.8-60?

281-338

In view of the serious questions re the appropriateness of using a mapped FEMA 100-year flood hazard area as a suitable criterion, together with our belief that most, and perhaps all, of the maps for the County are quite out of date, we can't agree that their use constitutes an appropriate Threshold of Significance (p. 5.8-62).

281-339

**Impact 5.8-5: Risk of Exposure to Flood Hazards Within the 100-Year Floodplain (p. 5.8-62).**

In view of reservations expressed above, we cannot agree that there is sufficient appropriate information to say that this is a Less Than Significant impact under any alternative. According to the California Floodplain Management Report previously cited, many communities are working toward protection against floods that exceed so-called 100-year floods, as is recommended by Jeffrey Mount.

281-340

• The County has an operating GIS system now. Does it include a layer depicting flooding such as occurred in association with the New Year's Day flooding of 1997? How is or will be this information incorporated relative to setbacks from streams in the General Plan? One of the recommendations in the California Floodplain Management Report (see References, p. 9) is that of maintaining or restoring natural floodplain processes, suggesting that as a possible criterion for minimum appropriate setbacks. Please evaluate.

281-341

‡ Alternatives 1 & 4 have policies, as noted on pp. 5.8-65 to -66 that invoke conformity to FEMA requirements and prohibit construction of critical buildings within the 100-year floodplain. As already stated, this approach has defects. A step toward overcoming these defects, in all alternatives, should be (a) that ministerial development be included, and (b) that ground floors of all buildings should be at least 2 feet above the calculated height of the 100-year flood.

281-342

**Impact 5.8-6: Risk of Exposure to Flood Hazards Inside Dam Inundation Areas (p. 5.8-68).**

As previously stated above, it has not been shown that information about all appropriate dams is incorporated into the Planning/Emergency Response framework. Moreover, the Promontory development was approved even though it was known that a number of parcels lay entirely within the dam failure inundation area should the Mormon Island auxiliary dam fail. We would support proposed mitigation measure 5.8-6(a) (p. 5.8-73) that would prohibit the creation of new parcels that are entirely within a dam failure inundation area.

281-343

‡ If 5.8-6(a) is thought too radical, then there should at least be a mechanism whereby the potential hazard is explicitly made known to any potential buyer. Certainly no high-occupancy buildings should be allowed in such areas.

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‡ The California Floodplain Management Report should be consulted and the County's Flood Damage Prevention Ordinance reviewed and revised in light of the recommendations in the report.

**ELECTROMAGNETIC FIELDS**

• Please refer to our comments on Communication Towers in Section 5.3 herein, and to the references therein that concern possible health and safety issues connected with electromagnetic fields.

281-345

**Impact 5.8-7: Exposure to Electromagnetic Fields Generated by New Electric Energy Facilities at School Locations (p. 5.8-81).**

**Impact 5.8-8: Exposure to Electromagnetic Fields Generated by Wireless Phone Facilities (p. 5.8-**

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85).

We noted in Section 5.3 that many other nations have chosen, in light of the uncertainty of scientific studies as to possible health and safety effects, to have much more stringent standards for exposure to EMF than does the United States. Exercise of the Prudence Principle is recommended by the sources cited in our comments therein. We cannot, therefore, agree that Impact 5.8-8 should be considered Less Than Significant.

**\* We urge as mitigation the measures set forth in our comments in Section 5.3. We believe they will effectively address both health and safety consideration and those of visual degradation.**

NATURALLY-OCCURRING ASBESTOS

*"I have visited the county myself; tufted tremolite similar in configuration to that in our own serpentine belts is apparent at the surface just driving along the highway, and can be confirmed by gross visual inspection on numerous roads. TEM [transmission electron microscopy] confirmation has been published in one of your local newspapers, the Sacramento Bee, at very disturbing air levels (above the OSHA limit!)."*

*"...Tremolite occurs, as you know, in a range of habits. Unfortunately for residents of Western El Dorado county, it appears that the habit of the tremolite associated with the serpentine seam that comes to the surface there is identical to that which runs underground, and has been mined commercially for its chrysotile content, near the border of Calaveras and Tuolumne counties (Copperopolis). This tremolite was shown to be the most potent of any tested in animals.... [emphasis added]."*

*"...The idea of construction activity for residences and schools in such a zone is a travesty. It can and will produce an epidemic in slow motion; mesothelioma deaths which will not occur for many years (in our experience with a much less potent variety of tremolite of 38 such cases in a cohort numbering 8009 deaths (PMR 0.5%) the median latency was 46 years, and that was among heavily exposed miners and millers; latency may be extended for construction workers and residents)."*

---Bruce Case, M.D., M.Sc., Dipl. Occupational Hygiene, FRCP(C). Phone: (514) 398-7192, ext. 00521; email address for further information: bruce.case@mccgill.ca.

**• Please refer to our scoping comments for discussion of this topic and respond to the questions therein.**

The DEIR discusses the physical environment in which asbestos commonly occurs beginning on p. 5.8-88. It discusses the two types found in the western part of the county, chrysotile and tremolite, noting that both are considered to present public health risks. As there have been many heated comments in El Dorado County from those denying that either form is harmful, this acknowledgment is clearly a step in the right direction.

**• The DEIR should also assess the comparative harmfulness of tremolite and chrysotile in view of the occurrence of tremolite in a well-settled part of the county that is undergoing further rapid development at this time and that there appears to be authoritative consensus that tremolite is considerably more harmful. (See References, letter to CalEPA and CARB from American Lung Association of California and California Thoracic Society.)**

The EPA sponsored a workshop in Oakland on 24-25 May 2001 that included discussion of the relative toxicity of different forms of asbestos. Amphibole asbestos (tremolite is one) appeared to represent a far greater health risk than chrysotile asbestos, in large part because amphiboles don't

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dissolve once in the lung, while chrysotile does in up to 160 days. It follows that relatively brief exposure to lower levels of amphiboles can cause disease and death. This is supported by epidemiological studies in many parts of the world.

Tremolite has been in the news in recent years because of its occurrence in vermiculite deposits mined in the vicinity of the town of Libby, Montana and the high rate of lung disease in residents that is attributable to exposure to tremolite. (See References, "Up to 30% tested in Libby hurt by asbestos" and graph of "Known deaths from tremolite from the Libby mine".) The DEIR, however, is silent as to where tremolite, as opposed to merely "asbestos" is found in the county.

- **The County needs to evaluate what background level of mesothelioma it is willing to tolerate by not taking action to regulate building on tremolite-bearing substrate.**

- **The DEIR should specify where in the county tremolite, specifically, is known to occur. This information should exist also in the General Plan.**

The DEIR discusses monitoring air in El Dorado County for detection of asbestos fibers (p. 5.8-89), saying that 195 out of 252 samples "were found to be below the minimum detection limit". However, tremolite appears to be difficult to sample for, according to Case (author of the introductory quotations). The fibers appear to be quite heavy such that when stirred up, they remain airborne only a very short time. Thus the usual siting of monitoring stations to trap airborne particles will be largely unsuccessful in detecting tremolite. The County has not used the "aggressive air monitoring and soil sampling practices used by U.S. EPA staff in Libby, Montana" referred to in the letter to CalEPA and CARB mentioned previously (see References).

As set forth in the DEIR beginning on p. 5.8-91, the approach of both the California Air Resources Board and the County to regulation of naturally-occurring asbestos appears to focus solely upon dust-generating activities, such as grading, mining, and use for surface applications such as road surfacing. (See References for a Lake County approach to this concern.)

In the discussion of environmental impacts and mitigation measures beginning on p. 5.8-93, assumptions impose artificial boundaries to the discussion that are not necessarily true:

- "Residential uses were selected as the best indicator of potential impacts because future residents would be subjected to the greatest postconstruction exposure risk. "
- "Nonresidential development...was also considered in the context of construction impacts, as opposed to postconstruction impacts because these developments often result in full coverage of a project site..., which would cover any naturally occurring asbestos...."

Relative to postconstruction exposure risk, see References, *Asbestos Exposure While Rototilling in Soils Containing Less than 1% Asbestos*. At Oak Ridge High School, a parking lot was not paved and thus allowed generation of dust; a soccer field was not paved and, unfinished, was eventually fenced off though not so as to completely restrict access; and a track was not paved. Authoritative tests commissioned by private citizens in the absence of school district action turned up tremolite-actinolite asbestos also around the baseball diamond and playing field and elsewhere on the campus. All have presented opportunities for exposure to tremolite raised in activities that generated dust. (Incidentally, the 1974 Soil Survey maps do not show serpentine-based soils in this area. We have repeatedly commented that presence of tremolite is not necessarily dependent upon presence of serpentine.)

- **In view of all these foregoing considerations, this entire analysis should be redone.**

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Impact 5.8-9: Public Exposure to Asbestos (p. 5.8-94)

As the DEIR states, none of the four "equal-weight" alternatives has policies addressing asbestos. The County ordinance addresses only dust-generating activities, such as grading, mining, and use for surface applications. Yet even some of these seem to escape regulation, as we noted in scoping comments under Geology, Soils (p. 55 et seq.) and herein under Soils in the section on Geology, Soils, and Mineral Resources: "The DEIR states that construction of a single family home seldom needs a grading permit [presumably because it seldom triggers the need for a grading permit]. Yet the incident previously referred to, upon which the Regional Board acted while the County did not, involved preparing a single parcel for construction of a single home. Moreover, we also witnessed another single lot where a foundation was dug in serpentine by hand labor—therefore in close contact with dust that might have contained asbestos. In another nearby case, large grading took place in serpentine substrate. In neither case was there any watering down to control fugitive dust. Large developers commonly need a geotechnical study that would alert them to the hazard of naturally-occurring asbestos. A single-home builder may not recognize the substrate or be aware of the danger." The DEIR notes this possibility on p. 5.8-99.

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All alternatives allow development to occur on substrates that may contain asbestos. We strongly disagree that this hazard is reduced to Less Than Significant under *any* of the proposed mitigation.

• As we do not have a copy of the DOC-prepared asbestos mapping, and as it is used as the basis for the analysis presented in the DEIR, please clarify whether or not the areas in El Dorado Hills that are known to contain tremolite are included in the ca. 10,764 acres "designated for development of residential uses [that are] likely to contain naturally occurring asbestos." Discussion of such areas generally refers to serpentine and, as we said above, the 1974 soil survey maps do not indicate serpentine substrate in this area.

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Many asbestos experts familiar in particular with the properties of amphibole asbestos such as tremolite say that allowing *any* construction on such a substrate because of the long-term ramifications of doing so ["...The idea of construction activity for residences and schools in such a zone is a travesty. It can and will produce an epidemic in slow motion"—introductory quotation] and the potential liability.

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It may be noted that extensive grading took place for Town Center south of US 50 in substrate that, north of US 50, is known to contain tremolite. It is very probable that this grading stirred up a lot of tremolite. The geotechnical work done in connection with Valley View focused on looking for serpentine. The tremolite-bearing substrate north of US 50 is not mapped as serpentine in the 1974 Soil Survey of the western part of the County.

A home on Woedee Drive was found in 1999 to have up to 30.25% asbestos in the soil of the site. Did children play in this during construction—or afterwards?

• The FEIR needs to evaluate *not* allowing building of any kind—at least not public buildings --- on substrate containing amphibole asbestos. Measures to control off-site fugitive dust during construction are seldom, if ever, 100% effective and significant exposure to tremolite can occur long before air-borne dust becomes visible. If building by private owners is allowed, than site-stabilization measures should be required to ensure release of tremolite fibers doesn't occur either during or post construction. A vegetation cover (e.g., a lawn) has not been shown to be adequate (plants often don't grow well on such a substrate anyway) and could be subject to future disturbance connected with landscaping. Any cap of clean material would have to be at least

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several feet deep because of the likelihood of trenching for service lines and sprinkler systems. For swimming pools in a residential setting, as much as 12 feet of clean cap material could be needed. Land-use restrictions would be needed to prohibit disturbance of underlying asbestos-containing material. They would also be needed if paving is the approach to capping underlying material, and proper maintenance of the paving would also need to be included. Off-site transport of material should be prohibited. (A home is soil during construction?) All these consideration should be part of the treatment in the FEIR.

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‡ The County needs to track grading activities on serpentine and amphibole-asbestos containing substrate for all discretionary *and* ministerial activities. We also proposed in the Geology section that a grading permit should be triggered by much less than 250 cu yds.

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‡ If grading is permitted, all grading taking place in substrates that may contain asbestos should be accompanied by suitable precautions such as those contained in Lake County's "Dust Control Guidelines for Grading and Construction Operations" and "Special Guidelines..." (see References), which go beyond the County's current ordinance. Consideration should be given to requiring posting of a "hazardous conditions" sign at the work site while such grading is occurring.

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The DEIR notes (p. 5.8-99), "There are no policies and/or regulations in effect presently that address...post-construction impacts" such as exposure during landscaping activities or from unpaved roads surfaced with asbestos-containing material.

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• Please see the References for "*Asbestos Exposure While Rototilling in Soils Containing Less than 1% Asbestos*" and discuss the potential hazard presented unknowing homeowners who buy property situated on such deposits and then engage in typical landscaping activities. Discuss how to protect the health of both the homeowner and neighbors.

The current version of the *Real Estate Transfer Disclosure Statement*, supposedly required by County Code section 8.44.060 relative to the presence of "naturally occurring asbestos", makes no mention of tremolite or the elevated level of risk it presents. (See References.) Paul Peronard of the EPA, at the conference last December at Tahoe on naturally-occurring asbestos, as one of his main points, said, "Understanding the difference in fiber types is imperative. Not only is it likely that they have varying toxicity, but they behave differently in the environment." With that in mind, please refer to the *Real Estate Transfer Disclosure Statement*.

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• Are such statements used when ownership transfers from builder to buyer or only at times of subsequent sale?

‡The County should strengthen its statutory provisions relative to such a disclosure statement requiring that it discriminate between amphibole asbestos like tremolite and other forms of asbestos generally considered by professionals in this field to be of lesser hazard.

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We note that a newly proposed school site in the Rescue School District has been reported to have tremolite present.

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• Has the Rescue School District purchased this property? Was it advised of the presence of asbestos, and in particular tremolite, through a *Real Estate Transfer Disclosure Statement*? If not, why not and what actions to remedy the situation will the County (or the School District) take?

‡ County oversight of questions relating to naturally-occurring asbestos should be in the

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hands of someone with expertise in this area and in the appropriate testing means for the different forms of asbestos found in the County. It is unlikely that the average County Health Officer has the necessary background. Even less likely is that school district officials have it.

That the foregoing statement is meritorious is demonstrated by the work plan for remediation for the presence of tremolite at the campus of the Oak Ridge High School. Not only are some known areas of its occurrence omitted from the work plan, but nowhere is it specified that Transmission Light Microscopy should be used to analyze samples. Yet Division 1, California Department of Industrial Relations, Chapter 4, Division of Industrial Safety, Subchapter 7, Group 16, Article 110, Sec. 5208, Appendix J, states, in part:

When electron microscopy was applied to asbestos analysis, hundred of fibers were discovered present too small to be visible in any light microscope. There are two different types of electron microscope used for asbestos analysis: Scanning Electron Microscopy (SEM) and Transmission Electron Microscope (TEM). Scanning Electron Microscopy is useful in identifying minerals. The SEM can provide two of the three pieces of information required to identify fibers by electron microscopy: morphology and chemistry. The third is structure, as determined by Selected Area Electron Diffraction—SAED, which is performed in the TEM. Although the resolution of the SEM is sufficient for very fine fibers to be seen, accuracy of chemical analysis that can be performed on the fibers varies with fiber diameter in fibers of less than 0.2 um diameter. The TEM is a powerful tool to identify fibers too small to be resolved by light microscopy and should be used in conjunction with this method when necessary. The TEM can provide all three pieces of information required for fiber identification.

¶ Proposition 65 notices should be required in areas where amphibole asbestos is known to occur.

Mitigation Measure 5.1-3(a) (p. 5.1-63) is to "Establish a General Plan Conformity Review Process for All Development Projects". This would apply to development of any structure greater than 120 sq ft in size or requiring a grading permit. Though this could bring ministerial projects under review, the threshold for requiring a grading permit is too high, as previously commented upon. Effectiveness of the alternative policy presented is impossible to judge without knowing what the standards alluded to therein would consist of.

MM 5.8-9(b) (p. 5.8-105) is to Strengthen Naturally Occurring Asbestos and Dust Protection Standards. We agree that these standards need strengthening, but cannot judge effectiveness of this proposal in absence of specifics. The threshold for needing a grading permit remains too high. As previously stated, we have questions about the adequacy of DOC mapping if it is "serpentine" dependent because of the occurrence of tremolite in non-serpentine substrate areas.

MM 5.8-9(c) (p. 5.8-105) is to Provide Disclosure of Naturally Occurring Asbestos on Properties.

• We support such disclosure; indeed, is it not already required by virtue of being a known hazard? Yet we see too much potential for a seller to claim ignorance. Moreover, a potential buyer *must* be notified of the much more severe hazard presented by amphibole asbestos.

MM 5.8-9(d) (p. 5.8-106) is to Conduct Annual Reporting Regarding Asbestos. This might keep successive Boards of Supervisors informed but seems ineffective at protecting public health.

• Which among the proposed MMs would likely be effective relative to the possibly contaminated proposed new school site previously mentioned? Refer again to Dr. Case's comments

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on the "travesty" of building on such sites.

Construction activity on a parcel presents hazards not only to workers, but to neighbors. It isn't just the owner's problem. None of the proposed mitigation measures, in our judgment, individually or collectively reduces this impact to Less Than Significant.

#### WILDLAND FIRE HAZARDS

*"According to CDF, an average of 300 fires occur in the County every year, 95 percent of which are started by people."*

—General Plan Draft EIR, December 1994

*"The most important [effect of land conversion due to human settlement] in the Sierra Nevada is associated with impacts on the fire regime in both settled areas and adjacent wildlands. Human settlement affects the structure and level of fuel load, viability of presuppression fuel-management strategies, ignition risk, availability of suppression resources, and the manner in which suppression efforts are allocated and deployed (e.g., to protect structures rather than wildlands)."*

—Sierra Nevada Ecosystem Project Report, Vol. I, p

*"The presence of structures in the urban-wildland intermix zone alters suppression strategies and complicates sharing of fire-management responsibilities among local, state, and federal agencies. In particular, resources (e.g., firefighters, water, and equipment) are often allocated to the protection of individual structures and public safety rather than protection of wildland resources. This could result in both greater wildland resource damage and significantly greater fire-suppression costs. Finally, the presence of human settlement affects the viability of many presuppression fuel-management options."*

—Timothy Duane, Sierra Nevada Ecosystem Project Report, v. II, Chapter 11, p. 320.

*[T]he state reviews its fire coverage periodically; when authorities in rural counties permit development, converting the state's wildlands into urban uses, the state can and does relinquish responsibility for fire protection in those areas. Local residents are then required to bear the added costs of fire protection either in the form of higher taxes, fees or insurance."*

—part of editorial, Sacramento Bee, 17 Aug 2000.

• Please see our scoping comments on Fire Protection under Public Services and Utilities, incorporated herein by reference, and respond to unanswered questions.

The DEIR discusses historic fires and their causes on p. 5.8-107. In the Eldorado National Forest (ENF), 56% of wildland fires are human-caused and account for 93% of the acreage burned. Of those wildland fires occurring within the California Department of Forestry and Fire Protection's (CDF) jurisdiction, 90% are caused by people and less than 10% by lightning. Encompassing higher elevations than CDF's jurisdiction, ENF would be expected to have more lightning-caused fires at elevations where forest cover is discontinuous, thus serving to limit extent of fires.

• How have the statistics for "recent years" given for the Eldorado National Forest been affected by inclusion of the big Cleveland Fire?

• Exhibit 5.8-3 (p. 5.8-109) might be augmented by the fire information for the year 1931 contained in Fig. 10 in Bulletin 572, *The Utilization of El Dorado County Land*, University of California Agricultural Experiment Station, May 1934, depicting the areas covered by the 88-man-caused fires that burned about 73,000 acres that year. [See References. The County has a complete copy of this, photocopied during evolution of the 1996 General Plan from an original in the writer's

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possession.] It would add appreciably to the areas depicted as "Fires Before 1950".

Factors contributing to fire danger in the County are next discussed: hot, dry summers and late-season drying winds; poor road access; inadequate clearance around structures; flammable vegetation; topography, both in abetting spread of fire and in hindering access thereto; the presence of a large amount of low-level flammable vegetation; and development patterns that have increased residential intrusion into the wildland interface.

• We take exception to the description of causes of conditions (p. 5.8-111) contributing to the present potential for catastrophic fire. This should be corrected. No mention is made that it originated with logging itself. Whole areas of the western slope now home to just oaks, gray pine, and grasslands were, before the gold rush influx, forested with ponderosa pine, incense cedar, and red fir (including present-day Shingle Springs). These were converted to grassland, oak woodland, a shrubby tangled undergrowth through logging starting with the advent of settlement by European man. (See early immigrant diaries, as well as the aforementioned Bulletin 572; the distribution of ponderosa pine is also attested to by the widespread presence of *Quercus kelloggii*, typically occurring naturally with ponderosa pine, and still doing so here and there on the western slope at lower elevations.) This induced the present situation, exacerbated by misguided forest management practices and fire suppression.

It should also be noted that allowing "dead and downed fuels ["trees"] that result from natural causes" to go untreated is what replenishes the soil through natural decay.

We strongly endorse the statement on p. 5.8-112 that "Allowing substantial population growth into the severe and high fire hazard areas increases the risk of igniting a fire, increases the exposure of persons and property to wildland fires, and compounds the difficulty of the wildland firefighting effort because of access, water, and equipment constraints."

The DEIR next describes activities associated with wildland fire management (p. 5.8-112):

- Fire Prevention: This focuses on influencing human activities in ways that minimize accidental ignition.
- Fuel Management: This focuses on altering expression of vegetation in ways that reduce the chances of damaging fire and would include both the elimination of slash and the reduction of vegetation around structures.
- Fire Suppression: This involves cooperation among federal, state, and local agencies.

Suitable access for fire-fighting equipment is a major problem in the County, where narrow, dead-end roads are common (p. 5.8-113). Gated subdivisions also have impeded access (p. 5.8-114).

Since 1991, says the DEIR (p. 5.8-114) road access to all parcels has been subject to a requirement of 18-foot minimum width. Dead-end roads are "discouraged" but, if built, have requirements for turnarounds and maximum length. Driveways must be at least 10 feet wide with a turnout if over 150 feet long. And "fuel clearance standards apply to reduce fire intensity near roads".

- Where are these requirements set forth and how are they enforced?
- Please estimate the proportion of substandard roads in the developed part of the County.
- What retrofitting program, if any, is in effect to bring substandard access up to par?

Water availability is important in areas removed from piped water and fire hydrants (p. 5.8-114). Building and fire codes affect allowable construction materials (p. 5.8-114). The County has adopted the 1988 Uniform Fire Code and Standards (Chapter 15.44).

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• Is there a more recent UFC? If so, the County should also upgrade its version. Actual requirements are not set forth in County Code. Are these incorporated into design and building standards? How are they presented to individual builders in the building permit process? How do these standards differ, if at all, depending upon the degree of hazard presented by location of the proposed building? For example, the City of Santa Barbara, which has experienced a number of bad fires in the foothills and canyons backing it, has adopted requirements for special construction techniques to reduce ease of ignition. (See References.)

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The University of California Forest Products Laboratory website ([www.ucfpl.ucop.edu](http://www.ucfpl.ucop.edu)) has much useful information about building materials and their resistance to fire, construction techniques, fire-resistant plants and landscaping, a research and development report on "Performance-Based Building Standards in the Urban-Wildland Interface", a model ordinance, etc. (See References.)

Vegetation management programs include a "Communities at Risk" list under the 2001 National Fire Plan and ENF's plans for "urban intermix zones" calling for reduction of fuel loads within 1/4 mile of such areas (focusing on mechanical reduction because of restrictions imposed by air quality concerns and risk associated with prescribed burns). The State has a California Fire Plan calling for development of wildfire safety zones. "Defensible space" is a key concept.

281-379

• What are the consequences of being included in the "Communities at Risk" list for El Dorado County under the National Fire Plan?

The County has a Fire Hazard Ordinance with more stringent standards than those required by the state. It applies to both discretionary and ministerial development but, judging from a "windshield survey", appears to be only laxly enforced.

281-380

• What is the assessment of local and state fire officials as to compliance with this ordinance? Is proper enforcement judged a political problem as to acceptability? Is enforcement more stringent with new development than with existing development? If not, why not?

• What are the requirements for storage of water for residences dependent upon wells? What proportion of such residences actually have storage tanks of the appropriate volume? Why could this requirement not be enforced when building permits are issued and followed up on by building inspectors?

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• Some relatively remote areas still are served by piped water. In such cases evaluate installation of roof-top sprinkler systems as an appropriate mitigation for fire hazard.

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County Code also provides (chapter 13.20) for a Fire District Improvement Fee, paid at issuance of a building permit, to fund "improvements and equipment for fire protection purposes".

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• Please clarify whether this applies to both ministerial and discretionary approvals.

• We asked a number of questions in our scoping comments directed at functioning of fire protection services in the more rural areas largely dependent upon volunteers but found no answers in the DEIR's treatment of fire hazards. Please be sure to correct this in the FEIR as we think the information is significant relative to the degree of risk involved in more remote areas.

281-384

Impact 5.8-10 : Increased Potential for Fire Incidents and Fire Hazards (p. 5.8-124).

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We agree that the potential for fire incidents increases in all alternatives: a CDF study correlates increased housing density to increased frequency of human-caused fire incidents. On the other hand, dense settlement makes structure protection and evacuation easier. Most fire hazard areas classified as High and Very High are in the urban/wildland interface. Development in such areas is expected to increase, to a varying degree, in all alternatives. Existing policies may work to counter increased hazard but could not eliminate it.

Proposed mitigation is only two-fold: To implement Mitigation Measure 5.1-3(a), which would extend review to ministerial, as well as discretionary, projects, and MM 5.8-10(b), to preclude development in areas of high wildland fire hazard. In the case of Alternatives 1 (No Project), 2 (Roadway Constrained), and 4 (1996 General Plan), MM 5.8-10(b) is moderated by a clause stating, "...unless it can be demonstrated that the hazard can be reduced to a moderate or better level as determined by the local fire protection district and the California Department of Forestry and Fire Protection." In Alternative 3 (Environmentally Constrained) development appears to be flatly banned in such places. We think this is probably politically infeasible considering how much of the western slope is in such areas.

We do, however, have some additional suggestions for mitigation:

‡ Update County Code to incorporate the latest version of the Uniform Fire Code and see that it is kept up to date.

‡ The Office of the Legislative Analyst has, for several years, been recommending that fees be imposed upon property owners benefitting from CDF fire suppression services. See References. Similarly, the County should consider high fees for the more remote areas where, we believe, local service tends to be dependent upon volunteers with less equipment than in more urban situations. Such a policy could help strengthen the capabilities in these situations.

‡ Strengthen the permit issuance and monitoring processes such that existing law and regulations are better adhered to, such as the requirement for storage of appropriate volumes of water where hydrants are absent. Title 14 of the California Code of Regulations, Section 1270.06, for example, requires inspections prior to, among other things, the final inspection of any project of building permit.

‡ Develop more stringent construction and materials requirements for building in High and Very High hazard zones.

• The FEIR should include a GIS-based analysis of areas of High and Very High fire risk relative to zoning for residential development in the several alternatives and quantify the numbers of dwelling units involved.

The Governor's Office of Planning and Research in August 2002 issued a draft *Hazard Mitigation, Fire Hazard Planning and the General Plan* (see References). It contains many suggestions for incorporation of features into various elements of the General Plan.

*"Fire and resource protection can be enhanced (and part of the urban bias can be overcome) if the data and analysis portion of the Plan describes the wildland fire environment in detail: fire history, slopes, fuel loadings, average/worst fire danger, rates of spread, potential for structural threat, access. ...The data and analysis section is the starting point for better fire and resource protection. The more complete the analysis, the stronger the justifications for action will be."*

• In light of the foregoing exhortation, conduct the described analysis and discuss its

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ramifications for land-use designations, zoning, and improvement of protection. This should include but not necessarily be limited to fire history, slope and fuel-loading information, evaluation of fire danger, potential for structural threat, identifying access problems and means to improve them, and prioritizing improvement relative to intensity of associated development.

• Please note that by law the Safety Element must include provisions for evacuation routes, water supply, minimum road widths, and clearances around structures. The aforementioned OPR publication suggests that the Safety Element "can be used to strengthen or further justify other elements. It is an excellent place to include project design requirements to reduce hazard levels, and provide for mitigation measures not included elsewhere in the General Plan. It may also be used to justify strategic fire defense systems zoning." Please in the FEIR analyze the extent to which the Safety Element fulfills these purposes.

‡ In cooperation with the local Fire Safe Council, develop, adopt, and implement a county-wide fire plan meeting federal and State criteria.

#### SEISMIC AND GEOLOGIC HAZARDS

Please see our comments herein under 5.9 Geology, Soils, and Mineral Resources.

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2. *California Floodplain Management Report: Executive Summary*, including Summary of Task Force Recommendations. November 2002. Department of Water Resources.
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## PREFACE

*The motivation behind this document is to illustrate an integrated planning process that includes many levels of government and private entities and to ensure that planning and funding are most effectively linked. Community safety is maximized when local hazard mitigation efforts are linked with local land use decisions.*

This publication is designed as a planning tool to help concerned citizens, planning professionals, Fire Safe Councils, and other interested parties, to develop local fire plans which can be easily incorporated into a city's or county's (hereafter referred to as "county") General Plan.

This is the first step in preparing a guidance package that incorporates multi-hazard mitigation planning into the General Plan and associated local prevention, response and mitigation plans. In the coming year, the Partnership will prepare supplemental guidance to the General Plan Guidelines to address flooding, earthquakes, landslides, severe weather, tsunami and other natural and man-caused events. California State law requires each county to adopt a general plan "for the physical development of the county, and any land outside its boundaries which...bears relation to its planning (Government Code [GC] 65300)." The role of a community's general plan is to act as a "constitution"; a basis for rational decisions regarding a county's long-term physical development. The general plan expresses the community's goals and embodies public policy relative to the distribution of future land uses, both public and private. Each general plan must contain seven (7) mandatory "elements" which are discussed in Part One of this publication. One (1) mandatory "element" of the general plan is the "Safety Element." The aim of the Safety Element is to reduce the potential risk of death, injuries, property damage, and economic and social dislocation resulting from hazards such as fires, floods, earthquakes, landslides, and other hazards.

### A. FIRE SAFE COUNCIL A NEW PLANNING PARTNER

Fire Safe Councils throughout California are developing fire plans for local communities. These councils are voluntary organizations typically consisting of state and federal fire agencies, local fire districts and local concerned citizens formed to enhance the effectiveness of fire protection. Some councils have combined with neighboring fire safe councils to develop countywide fire plans. If developed in conjunction with locally enforceable general plans, and related ordinances, these fire plans may provide policy direction that can be implemented through the local government.

Fire Safe Councils can provide a valuable service in the development of the fire protection and prevention policies and implementation measures of the Safety Element. Fire plans developed by the Fire Safe Councils that are adopted as part of the county general plan become part of the locally mandated policies which counties are obligated to implement.

Incorporation of fire plans that meet Federal and State criteria into county general plans will ensure funding is utilized consistent with a well-developed plan. Moreover, fire plans developed under the expectation of eventual adoption into the general plan utilizes the



energy, commitment and expertise of local fire safe councils while providing counties with development oversight, implementation, and regulatory capability. County fire plans need to reflect county policy as stipulated in the county's general plan. It is an opportunity to shape, direct and unify fire management activities of both public and private lands through consistency with county general plans.

## **B. ORGANIZATION OF DOCUMENT**

This publication provides a brief introduction to the required contents of a General Plan and the relationship of the General Plan to fire safety. (See Part 1 - A Discussion of the County General Plan.) Next it explores issue areas that should be addressed when developing a fire plan, the general plan elements that may be associated with each of these issue areas, suggested data that should be assembled, analysis that should be performed, and suggested policy examples for each issue area. Policies should be developed after careful review and consideration of the relevant data and analysis. Development of the individual elements of the General Plan should be based on a foundation of good data collection and sound data analysis. (See Part 2 - Areas to Consider When Developing Fire Plans.) Finally this publication provides state and federal contact information, related web site addresses and a list of useful publications (see Part 3 - Contact Information and Related Publications).

The intent of this document is to encourage Fire Safe Councils, concerned citizens and professional planners to develop sound fire plans for their communities that can be easily integrated by the County into the General Plan. Some of the information needed to create the fire plan may be available from the local fire department or other fire protection service provider (see Part 3). Conversely, the information developed for the local fire plan and the General Plan may assist first responders.

Funding is available for projects that improve the effectiveness of local fire protection. Examples include funds distributed through the National Fire Plan, the California Fire Plan and House Resolution (H.R.) 2389 - (The Secure Rural Schools and Community Self-Determination Act of 2000).

## I. STRUCTURE AND CONTENT OF GENERAL PLANS

*"The legislature also finds that decisions involving the future growth of the state, most of which are made and will continue to be made at the local level, should be guided by an effective planning process, including the local general plan, and should proceed within the framework of officially approved statewide goals and policies directed to land use, population growth and distribution, development, open space, resource preservation and utilization, air and water quality, and other related physical, social and economic development factors." (Section 65030.1, California Government Code.)*

### A. INTRODUCTION

The General Plan is the master document, or constitution, that governs land use and development within a community. State law gives cities and counties (hereafter referred to as "county") wide latitude in formatting a General Plan, but every county's General Plan must satisfy fundamental content requirements which are described in the Government Code and in the *General Plan Guidelines* from the Office of Planning and Research (OPR). Foremost of these content requirements is the inclusion of seven (7) mandatory components, or elements, including the land use, transportation, housing, open space, conservation, noise and safety element.

For well over 100 years federal and state courts have upheld the authority of local governments to regulate their own internal affairs, subject only to compliance with state and federal laws. Described as "police powers" by the courts, these local authorities govern planning (among other things) and the regulations that control the type, size, character, and location of development. The General Plan process is one of many ways in which local governments exert their police powers.

The primary purposes of the General Plan are:

- To plan for the physical development of the county and any land outside its boundaries which bears relation to its planning.
- To act as a "constitution" for development, that is, a basis for rational decisions regarding a county's long-term physical development.
- To express the community's development goals and embody public policy relative to the distribution of future land uses, both public and private.
- To serve as the basis for establishing locally appropriate regulations over development.
- To guide most subsequent land use decisions, including division of land, capital improvements, development agreements, zoning, community plans, specific plans and use permits.

As the "constitution" for development, the General Plan guides subsequent development undertaken by the County and development approvals granted by the County. All development decisions must be consistent with the policy and intent of the General Plan.

# The Health of Nations

*Instead of forcing seniors into HMOs, how about forcing them to exercise?*

BY PHILLIP J. LONGMAN

**T**O GET AN IDEA OF HOW WILDLY ineffective our health-care system is, consider this: The United States spends roughly \$4,500 per person on health care each year. Costa Rica spends just \$273. That small Central American country also has half as many doctors per capita as the United States. Yet the life expectancy of the average Costa Rican is virtually the same as the average American's: 76.1 years.

How can that be? According to public health researchers, the biggest reasons are behavior and environment. Costa Ricans consume about half as many cigarettes per person as we do. Not surprisingly, they are four times less likely to die of lung cancer. The car ownership rate in Costa Rica is a fraction of what it is in the United States. That not only means that fewer Costa Ricans die in auto accidents, but that they do a lot more walking, and hence they get more exercise. Thanks to a much lower McDonald's-to-citizen ratio, the average Costa Rican thrives on a traditional diet of rice, beans, fruits, vegetables, and a moderate amount of fried food—and therefore enjoys one of the world's lowest rates of heart disease and other stress-related illnesses.

The simple comparison between the health of Costa Ricans and Americans suggests a whole new way to think about how to fix America's increasingly dysfunctional health-care system—a system that these days seems to combine spiraling costs, declining coverage, and growing dissatisfaction with the quality of care. But instead of offering new ideas, both political parties in Washington are stuck in a hopeless rut, each trying to hawk plans that essentially expand the current system.

The battle over a Medicare prescription-drug bene-

fit is a classic example. In March, President Bush unveiled a plan to provide partial drug discounts to all seniors, but full discounts only to those who leave traditional "fee-for-service" Medicare and join an HMO. Democrats derided the plan as a stealth attempt to "privatize" Medicare and argued instead for a much more generous plan that would give full discounts to all seniors, including those who remain in traditional Medicare.

Neither party seems to get it. Simply adding an expensive new benefit to a Medicare system whose costs are running out of control, as Democrats want to do, is fiscally irresponsible. Republicans, however, are deluded if they think funneling the elderly into HMOs will do much to cut health-care costs for long—HMO costs in the private sector are soaring. Moreover, when the Clinton administration experimented with a program to lure seniors into HMOs (Medicare+Choice), the result was chaos: Many HMOs went broke, others raised premiums, cut benefits, shifted costs, or simply dropped hundreds of thousands of seniors.

Both parties should pause and reflect. For all the additional money we're throwing into medicine, Americans aren't getting much healthier. Maybe it's time to try a different approach. The biggest opportunities for improving the health of Americans—and restraining health-care costs—lie in keeping people healthy, rather than treating them once they become sick. So instead of simply adding more benefits to a health-care system that is already financially unsustainable, or using new benefits to herd people into HMOs, why not offer a more sensible deal: Bribe people into taking better care of themselves. For instance, why not offer seniors who exercise bigger drug discounts than those who don't?

This may sound radical, and it is. But the more Americans learn about the costs and failings of contemporary

PHILLIP J. LONGMAN is a senior fellow at the New America Foundation.

medicine and the extraordinary benefits they can reap from simple behavioral changes like exercising, the more such plans will begin to make sense.

### Clean Living

To understand the value of this approach, it is important to clarify a common misperception about health care. During the 20th century, the health and life expectancy of the average American improved dramatically. A child born today can expect to live a full 30 years longer than one born in 1900. Improvements in medicine, however, played a surprisingly small role in this achievement. Public health experts agree that it contributed no more than five of those 30 years.

This may seem counterintuitive given the attention society pays to medical breakthroughs. But the changes in living and working conditions over the last century are the real reason. American cities at the turn of the last century stank of coal dust, manure, and rotting garbage. Most people still used latrines and outhouses. As recently as 1913, industrial accidents killed 23,000 Americans annually. Milk and meat were often spoiled; the water supply untreated. Trichinellosis, a dangerous parasite found in meat, infected 16 percent of the population, while food-borne bacteria such as salmonella, clostridium, and staphylococcus killed millions, especially children, 10 percent of whom died before their first birthday.

During the first half of the 20th century, living and working conditions improved vastly for most Americans. Workplace fatalities dropped 90 percent. This, combined with public health measures such as mosquito control, quarantines, and food inspections, led to dramatic declines in premature death. In 1900, 194 of every 100,000 U.S. residents died from tuberculosis. By 1940, before the advent of any effective medical treatment, reductions in overcrowded tenements combined with quarantine efforts had reduced the death rate by three-fourths.

As the century progressed, medical care grew enormously more sophisticated and effective, particularly in managing pain and preventing sudden death from traumatic injury, infection, and heart attack. But the overall gains to public health remained modest. The greatest gains came from strategic vaccination campaigns, which have virtually eliminated once-common diseases, including diphtheria, tetanus, poliomyelitis, smallpox, measles,



Government workers administer vaccination shots in 1917. In the last century, the greatest medical contributions to increasing life expectancies came from preventative campaigns.

mumps, rubella, and meningitis. But even these triumphs involved treating people before they became sick. Modern medicine's ability to actually cure people is quite depressing. The consensus estimate, accepted by the Centers for Disease Control (CDC), is that medicine has contributed just two of the seven years in added life expectancy achieved since 1950.

The reason is that, strictly speaking, medicine doesn't "save" lives, but extends them. If you're like my son, who spent the first 60 days of his life in a neonatal intensive care unit, medical intervention could extend your lifespan 90 years or more—but that number diminishes if you're 50, much more so if you're 90.

This gets at an important truth about the role medicine plays in public health—it is concentrated primarily on the elderly, who consume about 38 percent of all health-care dollars, yet account for just 124 percent of the population. By definition, the elderly have fewer years of life to extend than the young. This simple fact goes a long way toward explaining medicine's modest role in improving life expectancy: It cannot stop aging.

Sure, many best-sellers and newsmagazines tout the "longevity revolution" prompted by advances in cutting-edge medicine. But overall longevity is due more to dramatic reductions in infant mortality, which allow more people to grow old, than to modestly extended lives among the elderly. Since 1950, life expectancy at 65 has increased by just 345 years; among women over 65, it has actually *declined* slightly since 1992.

### Domino's Theory

Another reason for the medical system's limited role in extending life is that, frankly, it kills so many people. Each year nearly two million patients in U.S. hospitals get

an infection, about 90,000 of whom die as a result. According to the CDC, the largest preventable cause is doctors and nurses with dirty hands. Then there is the Institute of Medicine's well-publicized finding that "more people die in a given year as a result of medical errors than from motor vehicle accidents (43,458), breast cancer (42,297), or AIDS (16,516)." Such errors cause 2 to 4 percent of all deaths and derive not just from doctors' indecipherable handwriting or mix-ups in the lab, but also from a lack of the same kinds of systematic quality control procedures that are commonplace in workplaces from automakers to Domino's Pizza chains. Had the Institute considered deaths caused by medical errors outside of hospitals—in doctors' offices, pharmacies, or outpatient clinics—the fatality rate would be even higher.

Overmedication and adverse reactions to prescription drugs also cause unnecessary deaths. In 1994, these accounted for 106,000 deaths, according to the *Journal of the American Medical Association*. More people are killed by adverse reactions to prescription drugs than by pulmonary disease or accidents. In fact, prescription drug

and H. Gilbert Welch as "disease that would never become apparent to patients during their lifetime were it not for diagnostic tests." Most Americans have a binary view of illness: Either you have a disease or you don't. But the truth is often more subtle. Autopsy studies have shown that a third of adults have cancer cells in their thyroid; up to 40 percent of women in their 40s have ductal carcinoma in situ in their breasts; and half of men in their 60s have adenocarcinoma of the prostate. Yet each of the subjects died of other diseases. In other words, they died with their cancer, not from it, suggesting that many who have small cancers will never develop symptoms because they will die of something else before their cancers become noticeable.

Yet if your doctor discovers that you have cancer, there are two likely results: First, you will experience extraordinary and prolonged stress from the diagnosis, along with the attendant risks to health. Second, you and your doctor will try to fight the disease through radiation, chemotherapy, or surgery. Though it is difficult for a doctor and patient to know, even in terms of probabil-

## More medicine isn't extending our lives much. Since 1992, the life expectancy of American women at age 65 has actually *declined*.

deaths are surpassed only by heart disease, cancer, and stroke. The elderly, whose bodies often can't tolerate the dosages and combinations of pills doctors prescribe them, are particularly susceptible.

Moreover, many of the treatments the medical system provides are unnecessary, further limiting their effect. Consider the wide regional disparity in the intensity of care given to patients. In Miami, the average Medicare patient is treated by 25 specialists during the last six months of life; in Minneapolis, such patients see only four specialists. Yet the result is exactly the same: death within six months. Where specialists are abundant, they find elders to treat—and Medicare pays, spending, for example, \$50,000 more per patient in Miami than Minneapolis, as my colleague Shannon Brownlee recently wrote in *The Atlantic*. But according to John Wennberg of Dartmouth Medical School, elder persons living in regions where the use of specialists is high have no greater life expectancy than their counterparts in regions where it is low. Wennberg and his colleagues estimate that nearly 20 percent of Medicare expenditures provide no benefit in terms of survival, nor does evidence show improvement in quality of life.

Then there is the growing problem of "pseudo-disease," defined by medical researchers Elliot S. Fischer

ity, whether such treatment is necessary, it is clear that for the broader population, the spread of diagnostic testing is causing an epidemic of "pseudo disease"—and vast commitments of medical resources that result in little, if any, gain in public health.

But what if we could get doctors and nurses to wash their hands, fix the errors in the medical system, and adapt sensible, evidence-based medicine to prevent over-treatment, overmedication, and adverse drug reaction? This would dramatically improve our health-care system and prevent millions of deaths. But the overall effect on the health and life expectancy of Americans, and on the future demand for health care, would remain startlingly small. That's because the health-care system kicks in after most people are already ill. As the poet Joseph Malines aptly put it, it's like an ambulance waiting at the bottom of a cliff. By the time most people receive treatment, their bodies are already compromised by stress, indulgent habits, environmental dangers, and injury. As Maline wrote in his poem, "A Fence or an Ambulance": "If the cliff we will fence, we might almost dispense/ With the ambulance down in the valley?"

### Joint Survival

In a recent issue of *Health Affairs*, three researchers

from the Robert Wood Johnson Foundation examined scores of studies dating back to the 1970s on what factors cause people to die prematurely. They reported that genetic predispositions account for 30 percent of premature deaths; social circumstances, 15 percent; environmental exposures, 5 percent; behavioral patterns, 40 percent; and shortfalls in medical care, 10 percent. As they note, these proportions are easily misinterpreted. Ultimately, nearly everyone's health is determined by a combination of factors. For example, while only about 2 percent of human diseases are caused by inherited genetic mutations alone, nearly everyone carries various genetic dispositions that, when combined with a hazardous environment or unhealthy lifestyle, can contribute to ill health. But this only underscores the relatively small role medicine plays in preventing premature death.

Consider the startling difference in mortality between Utah and Nevada. These two contiguous states are similar in demographics, climate, access to health care, and average income. Yet Nevada's infant mortality rate is 40 percent higher than Utah's, and Nevada adults face an increased likelihood of premature death. As health-care economists Victor Fuchs and Nathan Rosenberg have pointed out, it's hard not to attribute much of that difference to the fact that 70 percent of Utah's population follows the strictures of the Mormon Church, which requires abstinence from tobacco, alcohol, premarital sex, and divorce. Nevada, with its freewheeling, laissez-faire culture, has the highest incidence of smoking-related death in the country; Utah the lowest. Utah has the nation's highest birthrate, but the lowest incidence of unwed teenage mothers. Culture and behavior seem to trump access to health care in improving human life span.

Similarly, when comparing life expectancy in the United States to other countries, it becomes clear that the vast sums we spend on health care buy very little health. The roughly \$4,500 per person the United States spends annually on health care far outpaces any other country. Yet three-fourths of developed countries outrank America in life expectancy and infant mortality. Indeed, for all our high-tech medicine, Jamaican seniors outlive American seniors. According to the World Health Organization, life expectancy at age 65 is roughly equal, and at 85

it's longer in Jamaica. An argument for medical marijuana? No, it's an argument for walking. Dr. Denise Eldemire of the University of West Indies notes that 60 percent of Jamaica's elderly live in rural areas, where "walking is the only reliable means of transport." According to her studies, 78 percent of Jamaican elders walk daily. By contrast, just 60 percent of the entire U.S. adult population exercises at all.

Further evidence of medicine's limited effect is the slow pace of progress against cancer. The percentage of the U. S. population dying of cancer, while modestly improved in recent years, remains higher than in 1973, while the incidence of many specific forms of cancers, including non-Hodgkin's lymphoma, melanoma, and female breast and lung cancer have gotten worse. Headlines often celebrate how many more Americans are surviving cancer, but the underlying data offer little to cheer about. The five-year survival rate for men diagnosed with prostate cancer has improved—but mainly because doctors are able to detect it earlier,

including cases that may never have proven lethal or been so only at advanced ages. The five-year survival rate for lung cancer is unchanged since the early 1970s. Breast cancer survival rates have improved by a matter of months, but like prostate cancer, much of this is due to earlier diagnosis, not to the success of treatment. Though there has been real progress in detecting and treating cancer, much of the claimed advance in survivability is really just an increase in the incidence of pseudo-disease. Cancer still kills 1,500 Americans a day.

Mortality from diabetes, liver, and kidney disease, meanwhile, has hardly changed since the 1960s—while infectious diseases continue to grow more numerous and deadly. Thirty years ago, the surgeon general declared it time to "close the book" on infectious disease. Since then, at least 20 that were once thought conquered, from tuberculosis to salmonella, have reemerged, while 29 new ones have been identified, including HIV/AIDS, Lyme disease, and hepatitis C. Meanwhile, antibiotic-resistant strains of all sorts of microbes are cropping up, largely because doctors keep dispensing antibiotics to treat what are actually viral infections.

In the face of such trends, even a Cadillac health-insurance plan plays little, if any, measurable role in improving health and life expectancy. A RAND Corpo-



As prohibition and the drug war demonstrate, simply criminalizing unhealthy behavior only goes so far.

ration study compared two groups of families over 15 years, one with full medical coverage, the other with a large deductible. The families with full coverage consumed 40 percent more health-care dollars than the other groups, but researchers couldn't detect any measurable differences in health.

### Death of a Salesman

These results may seem odd until one considers that the eight leading causes of death in the United States—heart disease, cancer, stroke, pulmonary diseases, accidents, pneumonia/influenza, diabetes, and suicide—are closely tied to living conditions and behavior. According to the Institute of Medicine, social and behavioral factors such as smoking, diet, alcohol use, and sedentary lifestyles contribute to approximately half of all deaths in this country. Scientists estimate that up to 75 percent of all cancer deaths result from behavior such as smoking, diet, and lack of exercise. Though modern medicine can help stave off death from such behavior, rarely can it mitigate

these factors altogether. Chemotherapy, for example, may put a smoker's lung cancer into remission. But he'll continue to face the risk of dying from heart disease or other chronic conditions brought on by his behavior and environment—including the damage his body suffers from chemotherapy itself.

In contrast, large-scale changes in social arrangements or the environment do have profound effects on health. There is powerful statistical evidence, for instance, that hierarchy and inequality are among the major contributing causes of premature death. The first hint of this came in a famous 1967 study of British civil service workers, which found that, within a given office mortality rates would increase, step by step, as one moved down the organization chart. Those at the bottom suffered three times the death rate of those at the top. Since everyone had equal access to health care under Britain's universal, socialized system, the study suggested that one's socioeconomic status is a key determinant of health.

## Bills of Health

**L**AWMAKERS COULD DO MUCH more to improve public health if they wrote laws that stressed prevention rather than treatment. Here are a few ideas that may seem political nonstarters on their own, but, understood by the public as vital to their own personal health and well being, might well catch on:

- In addition to free needles, distribute free nicotine patches to any American who wants them. Following the example of private life insurance, give Medicare beneficiaries reduced premiums if they test negative for nicotine.

- Require the Food and Drug Administration to develop an operational definition of "junk food" based on fat, salt, and sugar content. Require health warnings on junk food, and subject it to sales taxes commensurate with those imposed on cigarettes and alcohol. Ban sales in school cafeterias and advertising on children's television. Ban the use of "Joe Camel" equivalents, such as Ronald McDonald, in junk-food advertising.

- Just as many municipalities limit concentrations of liquor stores, let's regulate the number of fast-food joints through licensure and zoning. Restaurants serving food that meets the FDA's definition of "junk" would require a license to operate, with the supply of new Burger Kings and McDonalds limited by regional quotas.

- Just as the Americans With Disabilities Act mandates setting aside parking spaces for the handicapped, let's mandate that new planned urban developments include a set length of sidewalks and trails per resident. Developments with more than 300 residents should have mandatory community centers (or bowling alleys or Starbucks) to combat social isolation and its adverse health effects.

- Mandate one hour of daily physical education in public schools. Limit the size of school districts so that most students can reasonably walk or bike to school. Redesignate more parking spaces at high schools as handicapped only.

- To reduce the adverse health effects of hierarchy and income inequality, make the compensation of executives who earn more than 30 times the average American wage no longer deductible from corporate taxable income. Repeal the regressive Medicare payroll tax. Increase the progressivity of the federal income tax, and finance Medicare through increased sin taxes, gas taxes, and general revenue.

- Just as federal regulation requires airlines to relay safety procedures to passengers before every flight, require doctors to recite to patients a short presentation, developed by the CDC, on the dangers of smoking, lack of exercise, drug abuse, and unprotected sex at the beginning of each consultation.

- Redirect the research agenda of the National Institutes of Health to put greater resources into studying the biological determinants of addiction, depression, and obesity. Canada's equivalent of NIH now directs research dollars away from high-tech research that, while possibly beneficial to individuals, does little or nothing to improve public health.

—PL

Since then, a cascade of studies has confirmed the relationship between equality and health. The healthiest states, such as Utah, Iowa, and New Hampshire, are also those with the least disparity of income, while states such as Louisiana, Mississippi, and New York lead the nation in both poor population health and income inequality. Similarly, wealthy nations with low income inequality, such as Sweden and Japan, have higher life expectancy than wealthy countries in which income is less evenly shared, such as the United States and Britain.

This phenomenon isn't associated simply with extreme concentrations of poverty or wealth. Across nations and races, under both single-payer systems that provide universal care and market-driven systems, life expectancy gradually increases according to socioeconomic status. There is a raging debate over why this is so. Some researchers suggest that a widening gap between the rich and everyone else leads to deepening

*American Medical Association* estimates that 40 percent of all deaths are caused by behavior patterns that could be prevented. And yet, approximately 95 percent of the \$1 trillion dollars the nation spends on health goes for direct medical care services to individuals. Only 5 percent goes for measures designed to promote more healthy behavior among the population as a whole.

### **Deadly Suburbs**

Persuading Americans to take better care of themselves is no easy task. As prohibition and the drug war demonstrate, simply criminalizing unhealthy behavior goes only so far. Moreover, most of the unhealthy behavior we're talking about—say, eating Big Macs—shouldn't be criminalized in the first place. Imposing "sin" taxes, while somewhat effective, can only do so much without creating black markets. And most Americans are appropriately resentful of government efforts to penalize them for lifestyle choices. That's why,

## **Most Americans appropriately resent government penalizing their lifestyle choices. That's why, instead of punishing citizens for unhealthy behavior, government should pay you to clean up your act.**

stress, frustration, and ultimately self-destructive behavior among people struggling unsuccessfully toward the top. (Imagine the unhappy American salesman who relieves his stress with booze, cigarettes, and occasionally compulsive unprotected sex with strangers.) Others speculate that political support for government services critical to health, such as clean water and police protection, erodes when too many of a society's resources are controlled by a narrow elite.

Others turn the question on its head, suggesting that the rich get ahead because they are, on average, healthier than everyone else to begin with and smart enough to know how to stay that way. Or it may be that education plays a key role, too. Those who do well in school may learn a greater awareness of how to lead a healthy life, and they may also have greater discipline and ability to defer gratification. In any event, those with a bright financial future certainly have more to lose, in a monetary sense at least, by indulging in unhealthy behavior.

But there is one point of agreement among all serious students of public health, which is that environment and social conditions play an overwhelming role in determining the prevalence of diseases and premature death. Indeed, a study published in the *Journal of the*

instead of punishing citizens for unhealthy behavior, the government should concentrate on reducing the major environmental causes of premature death—not just pollution, but poverty and hazardous living conditions—while also paying you to clean up your act. Here are three ideas on how to do it:

*Drugs for Jumping Jacks:* The benefits to older people of even moderate exercise are overwhelming. As a report sponsored by the AARP and other health and aging groups concludes: "Scientific evidence increasingly indicates that physical activity can extend years of active independent life, reduce disability, and improve the quality of life for older persons." And yet approximately 34 percent of those ages 50 and older are sedentary, and fewer than half of older adults report that their physician has suggested exercise.

Meanwhile, with Medicare's insolvency looming in 2030, both political parties are competing to offer a plan that would subsidize prescription drugs for seniors. These plans attempt to meet a real problem: Higher prescription drug costs are eating away at the economic well being of many moderate-income seniors. There's little evidence, however, that such an entitlement would increase longevity. According to the Department of Health and Human Services, only 2 percent of the



nation's elderly report being unable to obtain a needed prescription drug even once in the course of the year. Moreover, an estimated 17 percent of all hospital admissions among persons over 70 result from harmful combinations of prescriptions drugs. Overmedication in hospitals and nursing homes is a leading form of elder abuse.

So if we're going to expand Medicare to cover prescription drugs, let's extract a quid pro quo to help defray the cost while giving seniors more years of active, independent life: offer every American over 50 a voucher to join a gym or exercise program. Those who use it and can demonstrate attendance will become entitled to heavily subsidized prescription drugs, regardless of financial need—think of it as drugs for jumping jacks. So will those too frail to exercise. But let those who are willfully unhealthy pay for their own drugs.

Death by Sprawl: On a statistical basis, what's most likely to get you killed in the next year: (A) living in Israel during the Intifada; (B) living in crime-ridden, inner-city Baltimore, Chicago, Dallas, Houston, Milwaukee, Minneapolis-St. Paul, Philadelphia, or Pittsburgh; or (C) living in the bucolic outer suburbs of those cities? The answer is overwhelmingly C. A recent study by University of Virginia professor William H. Lucy found that Americans' migration into sprawling outer suburbs is actually a huge cause of premature death. In the suburbs, you're less likely to be killed by a stranger—unless you count strangers driving cars. Residents of inner-city Houston, for example, face about a 1.5 in 10,000 chance of being killed in the coming year by either a murderous stranger or in an automobile accident. But in the Houston suburb of Montgomery County, residents are 50 percent more likely to die from one of those two causes because the incidence of automobile accidents is so much higher.

Sprawling, auto-dependent suburbs are unhealthy in other ways, too. In such an environment, almost no one walks—and for good reason. In 1999, 4,906 pedestrians died, 873 of them children under 14. Not surprisingly, metro areas marked by sprawling development and a high degree of auto dependency—Orlando, Tampa, West Palm Beach, and Memphis, among others—are the most dangerous regions to walk in.

But rarely walking or riding a bike can also be deadly. Largely because of sprawl, the number of trips people take on foot has dropped by 42 percent in the last 20 years. This is particularly true among children. In 1977, children ages 5 to 15 walked or biked 15.8 percent of the time. By 1995, the rate dropped to only 9.9 percent. Seventy percent of all trips children take today are in the back seats of cars. So sprawl not only substan-

tially increases the odds of dying in an auto crash, it also discourages routine exercise.

This is no small matter. Walking 10 blocks or more per day reduces the chance of heart disease in women by a third. The risks associated with a sedentary lifestyle rival those of hypertension, high cholesterol, diabetes, and even smoking. According to the surgeon general, the economic costs of obesity total \$117 billion a year, about 94 percent of health-care spending. Americans who never exercise cost the health-care system \$76.6 billion a year. Sprawl does not fully account for our increasingly sedentary lives, but it is a major factor, and therefore a leading cause of premature death.

Sprawl also leads to high levels of social isolation, which has its own public-health implications. Lonely individuals who are cut off from regular contact with friends and neighbors face highly elevated risks for heart diseases and other disorders. What's cause an effect is not entirely clear, but Robert Putnam, a professor of public policy at Harvard University, has found that an isolated individual's chances of dying over the next year fall by half if he joins a group, two-thirds if he joins two.

The good news is that reducing subsidies for sprawl is among the biggest policy levers available to improve public health. This includes reforming gas taxes that are currently nowhere near high enough to recoup the environmental costs of driving, let alone to compensate for the losses to the economy caused by auto-related deaths and injuries. And it includes ending overinvestment in new roads and highways, and directing more toward mass transit, bike trails, and sidewalks. Thanks to the surgeon general's warnings and vastly increased tobacco taxes, millions of Americans have overcome their addiction to nicotine. It's equally important for the federal government to warn Americans about the health hazards of auto-dependent sprawl and provide financial incentives to encourage a healthier environment and lifestyle.

Instead of paying a fare, for example, transit users should receive a dollar's credit on their swipe cards for up to three rides a day, financed by drivers who will enjoy less traffic, cleaner air, and a smaller burden on the health care system. The government could also offer greater home mortgage deductions to homeowners who move to cities and developments served by mass transit. These measures might at first seem politically unfeasible, but presented to an aging population as a way to improve public health and fix a failing health-care system, they may gain real political traction.

The Americans Without Disabilities Act: The Americans With Disability Act mandates everything from

how parking lots and public bathrooms are arranged to how employers organize workplaces. Yet it does nothing to prevent disability. Why not adapt parallel legislation that would prevent Americans from becoming disabled in the first place?

For instance, the National Cancer Institute recommends at least five servings of fruits and vegetables a day—but prices for fruits and vegetables have increased more than any other food category in recent years. Expand the Food Stamp program so that everyone is entitled to generous, free weekly allowances of fruits and vegetables. Or how about creating an Interstate Bicycle Highway System using abandoned railroad right-of-way? Instead of charging tolls, pay cyclists according to the number of miles they've pedaled. Or how about mandating that companies that employ 25 or more workers provide on-site exercise rooms or tax-free benefits to cover gym membership? Or offer a



**Death by Sprawl?**  
The number of trips Americans take on foot has dropped by 42 percent in the last 20 years.



\$200-a-month benefit increase to obese welfare recipients who shed at least 20 pounds, using the subsequent decrease in Medicaid expenditures to meet the cost? The ideas are practically limitless (see sidebar).

How might American life change for the better if we took this approach? Consider the problem of the uninsured. Currently, the cost of health care is outpacing economic growth, so maintaining the number of insured people would seem enough of a challenge. But the question of what health care costs depends overwhelmingly on how much is needed—and that is determined largely by how Americans conduct their lives. How fat are we? How sedentary? How much pollution do we create? How much do we suffer from loneliness, depression, and social isolation? How much do we smoke, drink, or abuse drugs? How productively do we age? What the Costa Rican example shows us is that with the right behavioral changes in lifestyle and social environment, we too could lower health-care costs—maybe not to \$273 per person, but low enough to afford universal health-care access. And Americans wouldn't even need to forego superfluous treatments;

Costa Rica boasts world-class plastic surgeons and cosmetic dentists and still offers free universal health.

That would, however, require more time walking. And some of us would have to be bribed to take better care of ourselves. And there would be big expenses for building better transit systems, and more compact, socially cohesive, less-polluted communities. But which system seems like the better bargain?

### Greek Hygiene

There are clear signs that Americans are becoming fed up with the current health-care system and open to bold new approaches. Marcus Welby would be shocked, for example, to know what Americans think of doctors these days. In the late 1960s, when of millions of viewers tuned in to watch the avuncular M.D. offer sage advice to his patients about the root causes of their illnesses, more than 70 percent of Americans

had confidence in medical leaders; today, only 40 percent trust doctors. A mere 29 percent of the public agrees with the statement: "The health-care system would work better if doctors had full control of the system."

And it seems the more people know about health care, the less faith they have in doctors and their remedies. While half the public now says it lacks trust in "scientific solutions" for health care, nearly 80 percent of health-care policy professionals share this doubt. According to a study that appeared recently in the medical journal, *Milbank Quarterly*, the largest single factor driving down trust in doctors—among the general public, but especially among health-care-policy experts—is mounting concern about the ineffectiveness of modern medicine.

In Greek mythology, the god of medicine, Asclepius, had two daughters. Hygeia was the daughter responsible for prevention, while, Panacea was responsible for cure. Today, to the detriment of our nation's health, we're fixated on the idea that medicine will produce a panacea. It's time to listen to her more powerful sister. ♦

City of Santa Barbara  
Building & Safety Division  
**High Fire Hazard District Requirements**

**SECTION 3703 – CONSTRUCTION REQUIREMENTS**

Buildings or structures erected, constructed, moved within, or moved into the High Fire Hazard District shall comply with the provisions of this section and the Building Code.

**Exceptions:**

1. Detached accessory buildings and attached or detached patio and carport covers which are constructed entirely of non-combustible materials.
2. Decks designed with a skirt enclosure and constructed of materials which are the same as those used for exterior wall protection.
3. Patio covers, garden pergolas or open lattice shade covers constructed of minimum two (2) inch thick (nominal) materials and not exceeding 200 square feet.

**3703.1 Exterior Walls.** Exterior walls shall be constructed as follows:

1. 7/8" minimum thick stucco or;
2. 1/2" minimum gypsum board under minimum 3/4" wood drop siding or 3/8" exterior grade plywood.
3. Treated or untreated wood shingle or shake siding shall not be permitted, except on existing buildings where less than 20% of the existing shake or shingle area is being replaced due to maintenance, provided such replacement is fire retardant.
4. All exterior glass shall be double glazed unless the Chief Building Official or Fire Chief approve a limited application or acceptable alternatives.

**3703.2 Roof Coverings.** Roof coverings on new buildings shall be class A noncombustible in accordance with adopted UBC Standards or otherwise as may be approved by the Chief Building Official. Roof coverings shall be class A or noncombustible fire retardant materials on existing buildings and additions or repairs to existing buildings.

**3703.3 Roof eaves, decks and other horizontal projections.**

**3703.3.1** Roof eave minimum requirements: 7/8" thick stucco or 1/2" gypsum board under 3/8" minimum finished wood or exposed two (2) inch thick (nominal) tongue and groove decking over minimum 3 x 6 rafters.

**3703.3.2** Structural support beams and posts minimum requirements: 4 x 6 supporting roof loads, 6 x 6 supporting floor and deck loads, joists supporting deck floors may be a minimum of two (2) inch thick (nominal) materials.

**Exceptions:**

- 2.1 Balconies and decks constructed entirely of noncombustible materials.
- 2.2 Balconies and decks more than eight (8) feet above grade, not attached to the ground and where the width is not more than four (4) feet and the total area is not more than 40 square feet.

**3703.3.3** Balcony and deck flooring shall be a minimum of two (2) inch thick (nominal) material with spacing no greater than ¼". Deck flooring less than three (3) feet above grade shall have a ½" thick solid skirt enclosure as a draft stop.

**3703.3.4** Handrails and guardrails shall be a minimum of two (2) inch thick (nominal) material or non-combustible material.

**3703.4** **Fire extinguishing systems.** Fire extinguishing systems shall not be substituted for the fire retardant roof or vertical and horizontal projection requirements.

**3703.5** **Ventilation openings and louvers.** Ventilation openings and louvers are prohibited in soffits, between rafters, or at any other overhanging areas measured three (3) feet vertically and horizontally from any window or door opening.

**3703.6** **Spark Arresters.** Spark arresters shall be provided on chimneys serving any fireplace, barbecue, incinerator, or any heating appliance in which solid or liquid fuel is used, and shall be made of heavy gauge wire mesh or other noncombustible material with openings not to exceed a ½" in any dimension.

**3703.7** **Alternatives or waivers.** Alternatives or waivers from the High Fire Hazard District requirements shall be submitted to and approved by the Chief Building Official and the Fire Chief. Alternative methods may also be appealed to the Building and Fire Code Board of Appeals.

Please submit waiver requests in writing to:

Fire Marshal Wilkinson  
City of Santa Barbara Fire Department  
121 West Carrillo Street  
Santa Barbara, CA 93101  
(805) 564-5702

**PERFORMANCE-BASED BUILDING STANDARDS IN THE URBAN-WILDLAND INTERFACE  
RESEARCH AND DEVELOPMENT REPORT**

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**PERFORMANCE-BASED BUILDING STANDARDS IN THE URBAN-WILDLAND INTERFACE  
RESEARCH AND DEVELOPMENT REPORT**

**Executive Summary:**

This report presents the interim results of a research project for Performance Based Building Standards in the Urban-Wildland Interface (UWI). The Project builds upon previous research conducted under the umbrella of a grant project called "The Strategic Fire and Resource Planning Guide". This grant project was one in the production of a series of field guides for the California Department of Forestry and Fire Protection (CDF). This project was undertaken as an additional Hazard Mitigation Program Grant (HMPG) project approved by the Federal Emergency Management Agency (FEMA) and the Governor's Office of Emergency Services (OES).

A. Objectives of the Study

The primary objective of this study was to develop performance-based building standards for use in reducing the loss of life and property for one specific fire condition: the UWI fire. The secondary objective was to develop a "tool set" of new and old test protocols to evaluate the performance of building materials.

The combination of the performance standards and objectives and the fire test protocols were designed to begin to provide plan checkers and land use planners with the tools they need to solve structural design problems more flexibly and cost effectively in the future.

This report is primarily aimed for use with the authorities having jurisdiction (AHJ) when applying planning processes for land use in newly developed areas. This performance-based research is also applicable to the constructional alternatives contained in existing codes, i.e. alternative materials and methods. The performance-based building standards developed from this research will be applicable to new construction, relocation, repair, remodel and maintenance of any building are applicable in areas defined by state or local law as being located in the UWI.

B. Organization of this Document

The body of this report consists of the following sections:

- I. Overview of Regulations and Standards - This section reviews the concept of prescriptive based standards, the definition of alternative materials and methods, transition from prescriptive codes to performance-based codes. Another portion of this section talks about the objectives of performance-based codes and where we are going in terms of acceptable methods to measure objectives. There is a short section in the report on the historical perspective on UWI fires.
- II. Developmental Activities - This section provides an overview of the literature search to assure the proposed methods and tasks were consistent with the overall shift from prescription to performance-

based codes. This section also includes a glossary of information. The sub-components of this chapter include philosophy of test protocol development, fire impact management scenarios, fire scenarios to be considered, building elements, and functional statements.

- III. Performance Tables - This section provides a performance table based upon roof problems, wall problems, door problems, window protection, deck and ancillary structure protection, and vents.
- IV. Future Needs - This section deals with future needs and talks about the transition from prescriptive to performance-based codes. It also includes a discussion of the rulemaking process, data collection and damage assessment.
- V. Glossary, Works Cited and Bibliography, Appendix A: UCFPL Test Protocols, Appendix B: Model Ordinance for Adoption of Performance Based Building Standards in the UWI, Appendix C: Performance Diagrams, Appendix D: Fire Test Methods

#### **Summary:**

The fire problem created by the interface of the wildland with structural conditions is not a new problem. Fire protection professionals working diligently to limit the losses of life and property is not a new problem either; nor are codes and ordinances. The difference about this project is the effort to bring together fire issues, fire professionals and regulations without having to resort to draconian measures. The concept of a performance-based code is still in its infancy. Much more research is needed to continue to support this approach. In development of this report, the first steps have been taken to move towards a methodology that can eventually be evaluated against its own requirements.

#### **Introduction:**

As a result of several large fires in 1993 now known collectively as the Southern California Firestorm, the Federal Emergency Management Agency (FEMA) provided funding for disaster relief and hazard mitigation. Via this FEMA Hazard Mitigation Program Grant funding (Disaster Relief 1005), administered by the Governor's Office of Emergency Services (OES), the California Department of Forestry and Fire Protection (CDF) and the Office of the State Fire Marshal (SFM) were able to conduct research on reducing losses to life and property from wildfire.

After the 1993 fires, FEMA funded the development of the first *Urban-Wildland Interface (UWI) Code* (1997). That project was managed by the SFM, and the prescription-based code was developed in cooperation with the International Fire Code Institute (IFCI). With the support of the University of California Forest Products Laboratory (UCFPL) and other researchers, since the 1993 disaster the SFM has successfully completed several additional grant projects. Some of these have resulted in such works as: *Wildland Fire Hazard Assessment* (CDF 1999), the *Structural Fire Prevention, Property Inspection and Fire Hazard Zoning* field guides (CDF 2000), the *I-Zone Series* (CDF 2001), *Structure Ignition Assessment* (UCFPL 2000), and much more. The Mountain Communities Firesafe Project based in Riverside County, California was also funded by a FEMA/OES Hazard Mitigation Program Grant.

This performance-based building standards research project builds upon research conducted under the umbrella of a grant project called the *Strategic Fire and Resource Planning Guide*, which resulted in the production of the *I-Zone Series* and

several CDF fire prevention field guides. After developing protocols for exterior fire tests of building materials and assemblies for a *Structure Ignition Assessment* grant project, the UCFPL and the SFM recognized the need to expand the existing body of research. Fire and design scenarios should be coupled with fire test protocols specifically developed to simulate the vulnerability of structures when exposed to severe wildfire conditions. Most current model codes and testing protocols do not address this extremity. To fulfill the growing needs for design flexibility, structure protection and public safety, this project has been undertaken thanks to additional Hazard Mitigation Program Grant funding approved by FEMA and OES.

**Background:**

The authority to conduct fire prevention activity in California comes from two separate sources: California law and the police powers reserved for local governments. These local governments are called the "authority having jurisdiction" (AHJ). The state's responsibility is to adopt a State Building and Fire Code, which establishes requirements for local adoption within 180 days of State publication. Local authority may amend the State Codes provided they are not less restrictive, and that they justify such amendments with findings based on climatic, geographic, and topographical conditions. There are specific duties and responsibilities for both state agencies and local agencies once they have adopted the latest edition of the code. Once a local entity adopts its own code they are required to implement the provisions of the Health and Safety Code for specific occupancies.

Generally speaking, when people use the term "fire prevention" it is in the context of preventing the act or omission that causes the fire to start. Fire prevention engineering is designed to encourage fire safe behavior in addition to providing information on how to mitigate conditions that can contribute to ignition and fire spread. Code enforcement, on the other hand, refers to ensuring the fire safe requirements of a building are implemented and maintained. This includes adoption and enforcement of regulations requiring that conditions within the building allow the occupants to safely exit the structure if a fire occurs.

For many years, the practices of encouraging fire safe behavior and conditions have depended upon adoption and enforcement of prescriptive requirements, which describe an acceptable solution. Over the last 50 years, the process of developing prescriptive requirements has become increasingly complex. In some cases this has made designing and constructing buildings costly and restrictive.

In 1991, Worcester Polytechnic Institute brought together over 100 leaders and enlightened practitioners to the First Conference on Fire Safety Design in the 21<sup>st</sup> century. They considered the fact that prescription-based codes are sometimes cost-prohibitive and are often barriers to innovative solutions and the use of new technologies. The Conference called for a paradigm shift in how codes and standards are promulgated. This shift is toward performance-based fire and life safety design. In the ensuing decade, a great deal of energy and effort has been devoted to defining what performance-based codes mean to the AHJ.

This is an evolving perspective. There are many issues left to be resolved before final answers are accepted. A "first generation" model performance-based building code has been created and published by the International Code Council (ICC), but there are many questions yet to be answered. The widespread use of the performance-based concept is highly dependent upon the creation of user-friendly tools, their availability, and the education of those who use them.



**Purpose:**

The purpose of this project was to develop a body of research on which to promulgate performance-based building standards for use in reducing the losses of life and property from one specific fire condition: the UWI fire. There already is a prescription-based *UWI Code*, which was cooperatively developed by the SFM and IFCI using FEMA grant funds. This new project was aimed at developing the first generation of performance-based building standards, accompanied by a "tool-set" of new and old test protocols. The new standards and protocols will provide plan checkers and land use planners with the tools they need to solve structural design problems with more flexibility and cost effectiveness.

This performance-based building standards research project has been funded through a grant from FEMA, and was administered by the SFM with the cooperation of the University of California Forest Products Laboratory (UCFPL) in Richmond, California. This publication provides the State of California with documentation that can be utilized by either state or local AHJs to help increase survivability of structures during a wildfire event, thereby preserving public safety and personal property.

**Applicability:**

This report provides a model to the AHJs for application in the land use planning process of newly developed areas. It is focused upon future development in the UWI areas throughout California. The performance requirements and objectives are applicable to the construction alternatives, relocation, repair, remodel and maintenance of any building or premise in areas defined by state or local law as UWI. The performance statements apply to roof, wall, door, vent, window, deck, and ancillary assemblies. As a model, these standards are not intended to be a state-mandated program, but rather additional and alternative building standards for consideration during the local code adoption cycle.

**Scope of Document:**

This document provides research information about performance-based codes and standards for structures exposed to UWI fire. It should be viewed as a work in progress, in that detailed testing of the recommended protocols was underway during the writing of this document. The text also includes explanations that are intended to provide the user with background information on the needs for model performance-based building standards, definitions related to UWI fire, recent protocols developed to test structural subassemblies, and the rationale for the use of the protocols.

**OVERVIEW OF REGULATIONS AND STANDARDS****Prescription-Based Standards:**

After the occurrence of so many UWI fires in the last few decades, AHJ have begun to adopt prescription-based codes to regulate access, water, building construction, defensible space and vegetation management issues. This has been done on a piecemeal basis throughout California. Some examples of these regulatory issues include roofing standards and automatic fire sprinkler system requirements in high fire hazard areas.

The UWI fire problem has been addressed in several ways throughout the last few decades. In 1982, the State legislature enacted Public Resources Code (PRC) §§4201-4204, requiring State Responsibility Area (SRA) lands to be classified into fire hazard severity zones according to the extremity of fire hazards determined to exist

there. Severe wildfires throughout California in 1985 prompted the National Fire Protection Association (NFPA) to develop their Standard 299. It established infrastructure and access standards, vegetation management for defensible space around structures, and minimum structural design requirements for homes in fire hazardous areas. Following the 1991 Oakland/Berkeley Hills Tunnel Fire with the passage of Assembly Bill 337 (Bates) in 1992, Local Responsibility Areas (LRA) were assessed based on hazardous conditions such as accumulated fuels, critical fire weather, topography, and structure density. In cooperation with local officials, CDF mapped these areas into Very High Fire Hazard Severity Zones (VHFHSZ), and upon local adoption of such maps, specific construction and defensible space provisions were to be enforced on properties located within the VHFHSZ. The main purpose of these statutes and standards is to identify measures that may retard the rate of wildfire spread, and to reduce the potential intensity of wildfires that could destroy resources, lives and property.

Following several firestorms in Southern California in 1993, FEMA provided a grant to the SFM and IFCI to develop the prescription-based *UWI Code* (1997 version). That code uses a systematic approach to building in the UWI area. The document begins by looking at the fire hazard severity of a location based on vegetation, topography, geological conditions, climatic conditions, extreme fire weather conditions, fire department access and water for fire suppression. Based on the assessment of the conditions, one of three ignition resistant (IR) construction models is used to determine the standards for building construction.

#### **Alternate Materials and Methods:**

For many years, AHJs have had the authority to accept alternate materials and methods submitted by designers and builders for fire prevention. Few AHJs have chosen to accept alternate materials and methods because they lack adequate means of evaluation and testing.

***Uniform Fire Code 103.1.2: Alternate materials and methods:*** *The chief, on notice to the building official, is authorized to approve alternate materials or methods, provided that the chief finds that the proposed design, use or operation satisfactorily complies with the intent of this code and that the material, method of work performed or operation is, for the purpose intended, at least equivalent to that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety. Approvals under the authority herein contained shall be subject to the approval of the building official whenever the alternate material or method involves matters regulated by the Building Code.*

*The chief is authorized to require tests as proof of compliance with the intent of this code. Such tests shall be made by an approved agency at the expense of the person requesting approval of the alternate material or method of construction.*

#### **Transition:**

At this time, performance-based codes are used in many other countries, and are being developed by model code groups in the United States. The driving forces of performance-based code development are economics and technology. Performance-based codes allow for flexibility in the design of structures by enabling the designer or

builder to demonstrate that the actual performance of the proposed design will provide an equivalent or higher level of ignition resistance or fire safety.

Performance-based codes also use a systems approach in addressing fire problems, providing alternate methods and means of fire safe design. This type of code will establish: 1) goals to be met, 2) methods to meet the goals, 3) a standard of evaluation for the methods, 4) acceptable performance criteria, and 5) the documentation necessary for review of the system on a periodic basis. Once established, the design documentation used to meet the performance requirement must be readily available for the life of the building. Both the AHJ and the building owner should retain such documentation. In addition, deed encumbrances are to be attached to the property to ensure proper review of planned alterations to structures that were built using performance-based design.

#### **Performance-Based Codes:**

The objective of performance-based codes is to address issues related to economics, aesthetics, technology, location, risk and other conditions and circumstances that do not lend themselves to prescription-based code requirements. Performance-based codes provide a systems approach in order to allow pragmatic solutions to problematic situations.

Implementation of performance-based codes can effectively reduce losses to structures, lives and personal property. Using performance-based codes allows a system of design and construction that limits the impact of a wildfire on a building or structure, its occupants, and its use. Appropriate performance-based design can also serve to limit the spread of a fire within a building, to other buildings or structures, and to adjacent vegetation or other flammable materials.

#### **Where We Are--Objectives:**

- To apply science to the regulation of design and construction utilizing criteria supported by empirical testing.
- To permit the use of alternative technologies or methodologies which result in performance equivalent or superior to prescription-based codes.
- To provide a systems approach that addresses and mitigates all the components of the built and natural environments affecting the level of fire risk.
- To provide a means of sustaining the documentation and maintaining the agreed-upon mitigation system.

#### **Where We Are Going--Acceptable Methods to Measure Objectives:**

To accurately measure an objective, it must have measurable elements such as time, quality and quantity. One can then measure the outcome of the objective utilizing the appropriate criteria. Appropriate methods may include, but are not limited to, the following:

- The use of a performance criteria that says, for example, a structure shall not ignite after X minutes of exposure to a radiant heat flux of Y. The radiant heat flux would be obtained from the output of a BEHAVE model for the particular type of vegetation and fuel load present.
- The use of performance criteria that says a structure shall not ignite from exposure to a fire in an adjacent ignited structure.

- Actual fire observations, interviews, and videos to observe fire performance and design deficiencies.
- Comparison of the expected flame temperature of the vegetation with the standard time temperature curve to determine the needed resistance of a material, such as decking.
- Post fire analysis, damage assessment and lessons learned.
- Evaluation of annual statewide loss trends in fires in areas where fire safe structures and fire safe landscaping are located, as compared to losses in non-fire safe communities.
- Comparison of dollar loss in specific fires exposing or damaging fire safe structures as opposed to fires exposing or damaging non-fire safe structures.
- Future analysis of the number of fire companies needed and the fire flow utilized at UWI fires in fire safe communities, as compared to non-fire safe communities.
- Actual fire tests of building materials such as vents, windows, roofs, walls, openings, decks, shutters, etc.
- Wind-driven fire tests to assess vulnerability of windows and vents to airborne debris and embers.
- Actual tests of residential fire sprinkler systems to determine if they will control a fire that has entered the structure through an opening during a wind-driven fire event.
- Actual tests of residential fire sprinkler systems to determine if they will prevent a fire within a structure from spreading to wildland vegetation.
- Actual full-scale fire tests of various types of vegetation, vegetation management prescriptions, and sizes of vegetation management zones.
- Cost-benefit analysis on future fires to determine if the additional cost of fire safe construction was offset by the reduction in the fire loss.

The most valuable way to determine the success of an objective will be after future fires occur and expose fire safe communities, or by conducting actual full scale wind-driven fire tests of a mock community of several full size structures having fire safe construction, fire sprinklers and proper vegetation management. In actuality it will probably take many years of evaluating actual fire experience to determine if these objectives are being met. The fire service inherently knows from collective experience that the objectives are valid and will improve public safety.

#### **Historical Perspective of UWI Fires:**

Probably the most significant change of perspective that has emerged from the fires of the last three decades is the increased attention focused on the combustibility of structures. Review of after-action reports for the large loss fires shows consistent recognition of a few basic needs—to reduce wildland fuels, maintain defensible space, and to construct ignition-resistant buildings.

Historically, efforts to reduce UWI fire losses have not been effective. Many of the issues identified as problems time and time again (e.g. education, regulations, vegetation, fire fighting resources, etc.) are still prevalent today. Some of the more recent efforts that focus on the UWI fire problem include:

Community-based fire prevention and protection actions:

- CDF California Fire Plan
- State and local Fire Safe Councils
- Firewise Communities Program (NFPA)

- Community-wide Fire Protection Plans (UFC Article 86)
- Strategic Plans
- Vegetation Management Plans
- Evacuation Plans
- Shelter in Place Plans
- Fire sprinkler systems

New Technology:

- Structural Ignition Assessment Model (SIAM)
- Wildfire modeling – BEHAVE/FARSITE
- GPS/GIS and remote sensing
- Fire Behavior Simulators
- Ignition Suppressants
- Building Materials
- Fire Barriers

Research & Development Organizations:

- UC Forest Products Laboratory
- Fire and Resource Assessment Project (FRAP)
- National Association of State Foresters
- Environmental Systems Research Institute (ESRI)
- Listing services (such as UL, ICBO, etc.)
- Federal Efforts:
  - FEMA Grants
  - Project Impact
  - National Fire Plan

In addition to these efforts and ongoing activities, there are additional investments being made at the federal and state level, focused on reducing structure losses within the UWI. For example, the federal land management agencies (BLM, USFS) are investing millions of dollars in prescribed fire programs to reduce unusually dense accumulated vegetation stands, which reduces fire hazards in and around the UWI. FEMA has provided grants for many wildfire hazard mitigation programs including the previously mentioned *UWI Code* (1997) developed jointly by the SFM and IFCI. Additionally, the observable level of activity within the regulatory roles at the state, federal, and local levels has influenced the private sector to improve materials, devices, and systems for fire protection.

Codes that address the UWI fire problem have been primarily prescription-based and have not translated into reduced losses in the UWI. As a result, performance-based codes are being developed as an alternative. Adoption of performance-based codes will allow the implementation of fire hazard mitigation strategies using a systems approach with practical solutions. Performance-based codes will allow flexibility and provide an alternative to the "one size fits all" historical approach.

**Fire Problem:**

In the twenty-five year period of 1955 through 1979, 2,408 structures were lost to wildfire, yet in the fourteen years following (1980-1993) over three times as many structures (7,698) were lost. And from 1990 through 1999, 6,309 structures were lost to wildfires in just nine events. This loss experience clearly demonstrates the changing

makeup of the wildlands in California. Nine hundred and fifty-four homes were lost during the 1999 fire season in just one conflagration, demonstrating that the potential for disaster still exists.

Rural and wildland development has continuously and increasingly impacted wildland fire protection in interface areas. When structures burn, those that lack built-in fire protection—such as fire safe design elements and defensible space—cause wildland fire suppression resources to be diverted to protect structures at risk. The results of this diversion can be more acres burned, higher natural resource losses, and greater fire protection and rehabilitation expenses incurred. Additionally, more homes can be destroyed, and more lives lost or put at risk.

Historically, the State of California has taken responsibility for wildland fire protection, while the local AHJ governs land use planning and development. Partly because of this separation of authority, areas known today as the UWI have continued to grow. Such an increase in the number of dwellings intermingled with wildland fuels has created statewide wildfire problems. Dense development in the UWI creates an additional level of risk, by concentrating flammable fuels in the form of homes and ornamental landscaping into relatively small areas, which can result in unprecedented fire intensity and spread.

The effectiveness of pre-fire mitigation is demonstrated by structure survivability studies. For example, one post-fire study indicated that homes with a noncombustible roof and adequate vegetation clearance had a 90% chance of survival, increasing to 99% when defensive actions were also taken by civilians or firefighters (Foote 1995). These mitigation measures tend to create a defensible space so that people may defend structures at risk. The same study shows that houses with combustible roofs, no vegetation clearance, and lack of intervention had only a 4% chance of survival. Under this scenario, pre-fire mitigation provided nearly certain survival as opposed to nearly certain destruction.

State legislators have recognized the need for and effectiveness of pre-fire management by way of various laws, encompassing hazard assessment, defensible space, fire retardant roofing, and written disclosure of fire hazards when selling real estate. Several state and national organizations have also worked to create model codes and standards designed to improve structure survivability and community-wide fire safety. This document and the model performance-based building standards it recommends, moves toward improvement of existing building standards, predicated on research directly aimed at the unique fire problem and intense fires experienced in the UWI.

#### **Continuing Processes:**

The process of code development is by its very nature a constantly evolving one. Over the last few decades the processes that have made prescription-based codes so voluminous and complex has caused increased pressure to develop performance-based codes. Unfortunately, the science and methodology to create a comprehensive performance-based code will require ongoing research and experimentation in order to provide adequate tools for implementation. This document could be best classified as a foundation for performance-based building standards, rather than a finished product.

#### **Politics of the Code Process:**

The development of a code is only the beginning of the process that will have an impact on the problem it was created to resolve. Once a code or a code amendment has been created it must be adopted by an authority having jurisdiction (AHJ). Depending upon

the nature of the problem, a code provision could apply to the federal, state, county or local government. Therein lies a potential obstacle that needs to be adequately considered. That obstacle is the political process for submittal, advocacy and successful adoption of a code by a political entity.

This document does not propose to identify or suggest any specific course of action for code adoption by a political entity. However, it does address the fact that performance-based codes will generate political dialogue. Performance-based codes are new, they are not clearly understood, and there will necessarily be a period of transition from older prescription-based codes.

Prescription-based codes regulate by specifying materials and methods. Performance-based codes are moving toward regulation in terms of the measurable behavior of materials and methods under certain conditions. This transition will generate both public and private comments and concerns. Codes exist to insure public safety, health and welfare, but they also create special interests. As we transition from prescription-based codes to performance-based codes, certain parties will advocate or resist change based upon these special interests. Performance-based codes are an attempt to implement rational standards based on scientific and engineering principles supported by appropriate testing protocols, however a great deal remains unknown about how performance-based codes will function.

Historically, most code development has been driven by catastrophic events. Many code provisions can be clearly associated with a specific tragedy. Alternatively, performance-based codes are more closely aligned with fire behavior and the response of materials to specific environmental conditions. It is anticipated that as time goes on, the major code development groups will support performance-based codes in the political process. It is also anticipated that manufacturers or distributors of products that are currently prescribed by code will resist the new performance-based codes. Those in a position of elected authority will have to determine how to respond to as these codes are considered for implementation.

The political environment is extremely complex. However, one influential principle pervades both locally and nationally: if a code can fulfill the spirit and intent of public interest while maintaining cost-effectiveness, it will receive favorable consideration. Codes that are more restrictive and do not provide cost effectiveness fall under far more scrutiny.

There is no doubt that as performance-based codes traverse the political process, they will face many challenges. Political entities lacking experience with the science and technology behind the performance-based code may be slow to respond. This exposes a need to provide education and training to planners, builders and political officials in order to assure adequate consideration will be given to this evolving concept.

**Advisory Board Function:**

The method used to compile this document was to combine the expertise of fire prevention testing and protocol engineers with the needs of the practitioners in the field. This project also benefited from the methods used to create the committee. This is one of the first projects in which by fire prevention practitioners joined researchers in the

process of designing fire test protocols. The synergy that emerged from this relationship improved the product and simultaneously improved the knowledge of both parties.

Dr. Frank Beall, Forest Products Laboratory, is the principal investigator for this grant project. An Advisory Board was created to integrate the information and processes developed by the lab with fire services utilization requirements. The Board consists of the following members:

- Ronny J. Coleman, Retired State Fire Marshal (Chairman)
- Don Oaks, Retired, Santa Barbara County (Vice Chairman)
- Frank Beall, Director, UCFPL
- Ken Blonski, Fire Mitigation Advisor, UCFPL
- Phil Cocker, Los Angeles County Fire Department
- Forrest Craig, Novato Fire Protection District
- Rolland Crawford, Loma Linda Department of Public Safety
- Page Dougherty, Fire Service Coordinator, IFCI
- Ethan Foote, CDF Sonoma-Lake Napa Unit
- Wally Hall, Chino Valley Independent Fire District
- James W. Hunt, Hunt Research Corporation
- Cliff Hunter, San Diego County
- Sam Husoe, National Fire Sprinkler Association
- Russ Johnson, Environmental Systems Research Institute
- Steve Quarles, Wood Durability Advisor, UCFPL
- Mike Scott, Rancho Santa Fe Fire Protection District
- Leonard Temby, Redlands Fire Department
- Robert Brady Williamson, Ph.D., UC Berkeley

Melissa Frago, the Fire Safe Planning and Research and Development Program Coordinator for the SFM, served as the primary contact for document development and editing as well as being coordinator of communications for the Advisory Board.

The Advisory Board was charged with the responsibility to translate the existing research findings and test protocols into performance-based statements and objectives. The Board was also tasked to identify possible limitations in the UCFPL test array. These protocols were to be used to help develop a set of methods and/or technologies that would translate into building standards to be included in an appendix for submission into the State Building Code. The results of the UCFPL research and Advisory Board recommendations are transmitted via this document to the State Fire Marshal for introduction into the California rulemaking process.

The Board held its first meeting on February 13, 2001. Subsequent meetings were held in March, April and May. The meeting locations were throughout the state in order to obtain maximum local participation in the process. The Board was also divided into several subgroups to pursue specific elements of the development process. The recommendations of these subgroups were reviewed and adopted into the overall process at subsequent Advisory Board meetings.

**Development Activities:**

A comprehensive literature search was conducted to assure the proposed methods and tests were consistent with the overall shift from prescription to performance-based codes and standards. A glossary of specific terms were developed and reviewed by the Advisory Board. The final draft of this document was produced and submitted for final edit by the SFM and the UCFPL.



**Philosophy of Test Protocol Development:**

There were several key needs and assumptions upon which development of the protocols were based, as follows:

- Address key hazardous subassemblies and features of structures
- Represent the type and degree of exposure in UWI fires
- Provide both relative and absolute measures of performance whenever possible
- Reproduce results with replicates of test material
- Be documented to permit adoption by any well-equipped fire laboratory
- Have peer-reviews by leading experts in combustion of wood and related materials
- Be designed for future consideration as American Society for Testing and Materials (ASTM) standards

**Fire Impact Management-Fire Scenarios:**

"In wildland interface areas, buildings shall be designed, constructed, arranged and maintained in such a manner to limit the impact to the building during a wildland fire event" (ICC Chapter 1701.2.5).

**Types of Fire Scenarios to be Considered:**

- Direct Flame Impingement - Burning material including ornamental vegetation immediately adjacent to (within 2 meters) the building under critical fire weather conditions (95<sup>th</sup> to 98<sup>th</sup> percentile conditions for wind and relative humidity).
- Radiant Heat - Burning material including ornamental and native vegetation under critical fire weather conditions that produces radiant heat flux of "X" kW/m<sup>2</sup> on the exposed building.
- Ember Exposure - Burning material including structures and ornamental and natural vegetation under critical fire weather conditions that produces embers and flying debris having sufficient mass and velocity to cause ignition and/or penetration of the structure.

In selecting the heat transfer mode (radiation, convection, conduction) for the UCFPL test protocols, we chose to use "flame impingement" as a combined mode and one that is more realistic in exposure. In order to achieve consistent results, we used a standard burner system where the gas flow could be carefully controlled. Also, we modeled our intensity of exposure for wall subassemblies from data that we obtained in testing ornamental vegetation that might be in the "home zone" (within 2 m. of the structure). Of course, in the design of the structural subassemblies, they had to be small enough to test in the laboratory, yet large enough to represent how a structure would respond. The selection of subassemblies (roofs, decks, and walls) was made to address the most vulnerable portions of structures.

**Building Elements:**

- Roofs - Construction of roof assemblies shall resist the spread and penetration of fire by limiting their contribution to fire growth and development in accordance with the performance criteria and test exposure(s) listed in Table 1: Roofs.
- Walls - Construction of exterior wall assemblies shall resist the spread and penetration of fire by limiting their contribution to fire growth and development in

accordance with the performance criteria and test exposure(s) listed in Table 2: Walls.

- Doors – Doors shall be constructed, arranged, limited or protected to limit fire penetration and heat transfer in accordance with the performance criteria and test exposure(s) listed in Table 3: Doors.
- Windows - Windows shall be constructed, arranged, limited or protected to limit fire penetration and heat transfer in accordance with the performance criteria and test exposure(s) listed in Table 4: Windows.
- Decks and Ancillary Structures – Decks and ancillary structures shall be constructed, arranged, or protected to limit their contribution to fire growth and development in accordance with the performance criteria and test exposure(s) listed in Table 5: Decks and Ancillary Structures.
- Vents – Vent assemblies shall prevent fire and ember penetration to the structure in accordance with the performance criteria and test exposure(s) listed in Table 6: Vents.

**Functional Statement:**

*In Urban Wildland Interface areas, roofs, wall, doors, windows, vents, decks and ancillary structures in buildings and facilities shall be designed, constructed, arranged and maintained in such a manner as to limit the impact to the building and facilities during an Urban Wildland Interface fire event.*

**Performance Tables:**

For detailed test protocols, see Appendix A.

**TABLE 1: ROOFS**

Item	Roof Problem	Objective	Scenario	Protocol
1	Roof covering combustibility	Limit the spread of fire beyond area of direct flame impingement	Direct flame; Radiant heat; Ember exposure	ASTM E108
2	Roof assembly combustibility	Prevent the fire from entering into the interior of the structure from the roof assembly	Direct flame; Ember exposure	UCFPL R01
3	Roof assembly combustibility and integrity	Prevent production of firebrands	Direct flame	ASTM E108; UCFPL R01
4	Gutters and debris in gutters contributes to ignition of roof edge	Prevent roof edge ignition	Direct flame; Ember exposure	UCFPL R01
5	Entrance of flame or firebrands between roof deck and covering	Prevent ignition between roof deck and covering	Ember exposure	UCFPL R01

**TABLE 2: WALLS**

Item	Wall Problem	Objective	Scenario	Protocol
1	Wall assembly combustibility	Limit the spread of fire to other building components	Direct flame; Ember exposure; Radiant heat	UCFPL W01
2	Wall assembly combustibility and integrity	Prevent fire from gaining entry directly through the wall assembly	Direct flame; Radiant heat	UCFPL W01
3	Wall assembly combustibility and integrity	Prevent the production of firebrands	Direct flame	UCFPL W01

**TABLE 3: DOORS**

Item	Door Problem	Objective	Scenario	Protocol
1	Door assembly combustibility	Limit the spread of fire to other building components	Direct flame; Ember exposure	UCFPL W01
2	Door assembly combustibility and integrity	Prevent fire from gaining entry through the door assembly	Direct flame; Ember exposure	UCFPL W01
3	Ignition of interior combustibles	Limit radiant heat transfer through door to interior combustibles	Radiant heat	UCFPL W01
4	Door integrity	Prevent failure due to firebrand and debris impact	Impact exposure (TBD)	TO BE DETERMINED

**TABLE 4: WINDOWS**

Item	Window Problem	Objective	Scenario	Protocol
1	Window assembly combustibility	Limit the spread of fire to other building components	Direct flame; Ember exposure	UCFPL W01
2	Window assembly combustibility and integrity	Prevent fire from gaining entry directly through the window assembly	Direct flame; Ember exposure	UCFPL W01
3	Ignition of interior combustibles	Limit radiant heat transfer through window to interior combustibles	Radiant heat	UCFPL W01
4	Window integrity	Prevent failure due to firebrand and debris impact	Impact exposure (TBD)	TO BE DETERMINED

**TABLE 5: DECKS AND ANCILLARY STRUCTURES**

Item	Deck/Ancillary Structure Problem	Objective	Scenario	Protocol
1	Deck and ancillary structure component material ignition	Limit ignition of deck materials and ancillary assemblies	Direct flame; Ember exposure	UCFPL D01
2	Deck and ancillary structure component material combustibility	Limit the spread of fire to building components or other combustible materials	Direct flame; Radiant heat	UCFPL D01
3	Deck material integrity	Prevent structural failure of decks	Direct flame loads associated with use	UCFPL D01
4	Deck material integrity	Prevent production of firebrands and other burning materials	Direct flame loads associated with use	UCFPL D01

**TABLE 6: VENTS**

Item	Vent Problem	Objective	Scenario	Protocol
1	Entrance of flame into or under structure	Prevent penetration from direct flame impingement	Direct flame	UCFPL W01
2	Entrance of embers into or under structure	Prevent penetration from firebrand exposure	Ember exposure	TO BE DETERMINED

**Future Needs:**

What will be needed in the future is continued emphasis on clarification of test methods and evaluation tools for both the public and private sectors. Architects and engineers will need additional information on how to evaluate products for inclusion in fire prevention designs. Public officials (i.e. fire prevention and building officials) will need mechanisms of evaluating the performance of specific designs. This will lead to an additional need for training and education of all parties as this information is more fully developed.

The continued emphasis on performance-based codes in many cases will continue to be dependent upon code-making bodies. However, the science behind the performance-based code will still likely remain a responsibility of academic and research institutions. The result of these differing responsibilities will require an ongoing partnership between academia and practitioners.

Codes cannot be developed in a vacuum. Once they have been created, an AHJ must adopt them; one of the greatest challenges in the field of code development is obtaining the support of a sufficient number of AHJs to adopt a code. This is not a technical process, but a political one. Therefore, the challenge for those who are attempting to resolve fire and life safety problems is how to educate, inform and co-opt those elected officials who have authority to accept or reject new code provisions. This part of the process cannot be taken for granted; it requires as much attention to detail as code development itself.

**Rulemaking Process:**

Upon completion of this project, performance-based building standards will be available to any AHJ wishing to adopt appropriate provisions for building safety in UWI areas. Elements contained herein can be used as a basis for acceptance of alternate materials and methods under Uniform Fire Code (UFC) or California Fire Code (CFC) authority. This document will also be turned over to the Regulations Division of the SFM for adoption of a model ordinance and the development of code language to be introduced into the State rulemaking process. The intent is that specific UWI performance-based code language be adopted as an appendix to the State Building Code and the Uniform Building Code (UBC) to help improve fire safe design and construction to reduce losses to life and property from wildfire.

**Data Collection / Damage Assessment:**

To implement UWI fire hazard mitigation measures effectively and efficiently, there is a need to track the severity of the problem and evaluate the performance of building design features exposed to interface fires. There are three areas of interface fire damage assessment where future work would be most valuable.

1. The extent and severity of the UWI fire problem needs to be tracked through basic fire incident reporting. There are strong indications, however, that this is not being done consistently. Fire incident reporting databases for records of known UWI fire losses will likely have large gaps in data. If this is the case, a study could be done to determine the necessary changes to fire incident reporting systems and data collection methods needed to document basic UWI fire losses.
2. A method is needed for more detailed anecdotal data collection that can be rapidly implemented and produce consistent results on an ad hoc basis. Fire incident reporting systems lack the depth and breadth of data collection to fully document and

reveal the mechanisms of UWI fire losses. This will be especially true as building design moves from prescription to performance-based code implementation.

3. Additional work is needed to identify some form, or forms, of quantitative analysis to fully evaluate performance-based designs under actual fire exposure. Anecdotal evidence will not be sufficient to maximize implementation of effective hazard mitigation measures. Given the difficulty of full-scale fire tests and of validating predictive models, post-fire statistical analysis is a good alternative and has proven to yield meaningful results. A possible form of statistical analysis is used in health-related research, where a number of individuals with a disease (cases) are randomly selected from a population and compared to a group of similar, but disease free, individuals (controls). Additional work is needed to apply this statistical analysis to study the effectiveness of UWI fire mitigation measures.

**Glossary:**

*For the purpose of performance-based building standards, certain terms are defined as follows:*

**Alternate Materials and Methods:** A process whereby the fire chief is authorized to approve alternate materials or methods of design and construction, provided that the chief finds that the proposed design, use or operation satisfactorily complies with the intent of the code and the method of work performed or operation is, for the purpose intended, at least equivalent to that prescribe in the fire code.

**Ancillary Structure:** Decks, fences, patio covers, gazebos and any other accessory structures that may be attached to or located in proximity to the main structure.

**Authority-Having Jurisdiction (AHJ):** The designated entity providing enforcement of regulations as they relate to planning, construction and development. A typical community will have a fire, building and planning authority.

**BEHAVE:** A wildland fire model that provides a fire behavior prediction based on a single calculation for particular site conditions. The model utilizes mathematical equations developed in the early 1970's by Richard Rothermel, a research engineer for the USDA Forest Service. BEHAVE is currently available as a PC-DOS based computer program.

**Brand:** A wooden crib of specific materials and dimensions for fire tests of roofs as prescribed by ASTM E108, Standard test methods for fire tests of roof coverings.

**Class A Roof:** Effective against severe fire test exposures, pursuant to section 15.202.4.4.1 of the Uniform Building Code (UBC). Under such exposures, roof coverings of this class are not readily flammable, afford a fairly high degree of fire protection to the roof deck, do not slip from position, and are not expected to produce flying brands.

**Class B Roof:** Effective against moderate fire test exposures, pursuant to section 15.202.4.4.2 of the UBC. Under such exposures, roof coverings of this class are not readily flammable, afford a moderate degree of fire protection to the roof deck, do not slip from position, and are not expected to produce flying brands.

**Class C Roof:** Effective against light fire test exposure, pursuant to section 15.202.4.4.3 of the UBC. Under such exposures, roof coverings of this class are not readily

flammable, afford a measurable degree of fire protection to the roof deck, do not slip from position, and are not expected to produce flying brands.

**Combustible Vegetation:** Material that in its natural state will readily ignite, burn and transmit fire from the vegetative growth to any structure, this includes ground fuels which are any native or landscape vegetation not considered a tree and generally in contact with the ground.

**Dead Load:** A constant weight or pressure, used in computing strength of beams, floors or roof surfaces.

**Deck:** An unsheltered flooring material used as structure flooring adjoining the walls of a house.

**Defensible Space:** An area either natural or man-made, where material capable of allowing a fire spread unchecked has been treated, cleared or modified to slow the rate and intensity of advancing wildfire. This will create an area for increased safety for emergency fire equipment and evacuating or sheltering civilians in place and a point for fire suppression to occur.

**Discretionary Project:** A project that requires the exercise of judgment or deliberation when the public agency or body decides to approve or disapprove a particular activity, as distinguished from situations where the public agency or body merely has to determine whether there has been conformity with applicable statutes, ordinances, or regulations.

**Door:** A hinged, pivoted or sliding member, permitting passage through a wall.

**Ember:** See Firebrand.

**Ember exposure:** Burning materials, including ornamental and native vegetation, under critical fire weather conditions, that produces embers and flying debris that has sufficient mass and velocity to cause ignition and/or penetration of the structure.

**Exposure:** The heat effect from an external fire that might cause ignition of, or damage to, an exposed structure, ancillary assemblies and its contents.

**Exposure:** Property that may be endangered by a fire in another structure or by a wildfire.

**Exposure Fire:** Classification for a fire not originating in a building, but which ignites building(s).

**Exposure Severity:** A fire originating in one building and spreading to another is classified under the original cause of the fire.

**FARSITE (Fire Area Simulator):** A wildland fire model that provides a fire behavior prediction based on multiple calculations for particular site conditions. FARSITE uses the Rothermel model to calculate fire spread, as does BEHAVE, but is temporally and spatially explicit. FARSITE is a Windows based computer program.

**Fire Protection Plan (FPP):** A plan submitted to an AHJ for approval that addresses building materials and construction features, water supply, road access, address and road name signage and combustible vegetation.

**Firebrand:** A burning ember produced by wildfire that are lifted high into the air and carried beyond the fire front. Typical firebrand materials include pieces of burning vegetation, and, if houses are involved wood shakes or shingles.

**Flame Impingement, Direct:** Burning materials, including ornamental and native vegetation, immediately adjacent to structure (within 3 meters), under critical fire weather conditions (95<sup>th</sup>/98<sup>th</sup> percentile for wind, temperature and relative humidity).

**Fuel Modification Zone (FMZ):** A wide strip of land where combustible vegetation has been removed or modified or both and partially or totally replaced with approved drought-tolerant, fire-resistant, and/or irrigated plants to provide an acceptable level of risk from vegetation fires. Fuel modification reduces radiant and convective heat, thereby reducing the amount of heat exposure on the roadway or structure and providing fire suppression forces a safer area in which to take action.

**Functional Statement:** Explains in general terms what function the building must provide to meet the objective; for example, the building must be constructed to give people adequate time to reach a place of safety without exposure to untenable conditions.

**Hazardous Fire Area:** Any geographic area as set forth by the fire chief that contains the type and condition of vegetation, topography, weather, and structure density to potentially increase the possibility of vegetation conflagration fires shall be considered a hazardous fire area.

**Heat Flux:** Heat transfer by radiation as expressed by energy per unit area (kW/m<sup>2</sup>)

**Heat Transfer:** Movement of heat energy from an area with high temperature to one with lower; the mechanism can be radiation, conduction, and/or convection.

**Ignition Source:** Any item or substance capable of energy release of a type and magnitude sufficient to ignite any flammable materials that could occur in or outside of a structure. Examples of ignition sources are storage or use of flammable gases and flammable liquids, permanent or temporary electrical wiring and open flame devices.

**Impingement, Flame:** Continuous or intermittent contact of flames with test materials or structures

**Local Responsibility Area (LRA):** An area in which a town, city, county or city and county has primary fire protection responsibility.

**Off-site Roadway:** A road, street, public highway, or private road used for fire apparatus access from a publicly maintained road to the boundary of the subject property.

**On-site Roadway:** A road, street, public highway, private road or driveway used for fire apparatus access within the boundaries of the subject property or land division.



**Penetration:** Entry of firebrands or flames through the outside building envelope into the wall cavities and/or the structure.

**Performance Objectives:** A statement of what is expected in terms of societal goals. Objectives are topic-specific and deal with particular aspects of performance required in a building, such as safeguarding people during escape and rescue.

**Performance Requirements:** Detailed statements that are necessary to achieve the requirements of the functional statement.

**Radiant Heat:** Burning materials, including ornamental and native vegetation, under critical fire weather conditions, that produces a radiant heat flux of at least  $X \text{ kW/m}^2$  on the exposed building.

**Roof Assembly:** includes the roof deck, substrate or thermal barriers, insulation, vapor retardant, underlayment, interlayment, base plies, roofing piles, and roof covering that is assigned a roofing classification.

**Roof Covering:** The outermost exposed surface material of a roof assembly, such as shingles, clay tiles, sheet metal, etc.

**State Responsibility Area:** An area of the State in which a State agency has primary fire protection responsibility. In some cases, the State will assume fire protection responsibilities in local jurisdictions by contract.

**Structure:** A residence and attached garage, building or related facility that is designed primarily for human habitation or buildings designed specifically to house farm animals. Decking, fences, and similar facilities are not considered structures for the purposes of establishing the limits of the fuel modification zone. Sheds, gazebos, and detached garages less than 250 square feet which are located within the fuel modification zone, shall be designed, constructed and placed such that they do not require the fuel modification zone to be increased beyond that required for the primary structures on the property.

**Subassembly:** A laboratory test section that simulates a portion of a structure or ancillary structure, and is of adequate size for obtaining representative fire testing results. The subassembly details are specified in the test protocols.

**Test Protocol, Fire:** A testing method developed to provide performance information on representative assemblies using agreed-upon fire exposures.

**Urban-Wildland Interface (UWI) Area:** A geographical area where structures and other human development meet or intermingle with, and threaten or are threatened by, vegetative fuels. Includes but is not limited to the hazardous areas defined by the AHJ and very high fire hazard severity zones as designated pursuant to Government Code and Public Resources Code.

**Vegetation Conflagration:** An uncontrolled fire spreading through vegetative fuels, and exposing and consuming structures in the advancing path of fire.

**Ventilation System:** All of the equipment intended or installed for the purpose of supplying air to, or removing air from, any room or space by natural air flow or mechanical means.

**Wall- Exterior:** Any wall or element of a wall, or any member or group of members, that define the exterior boundaries or courts of a building and has a slope of 60 degrees or greater with the horizontal plane.

**Weep Screenshot:** A layer of corrosion-resistant material placed a minimum of 4 inches above the earth or 2 inches above paved areas for the purpose of allowing trapped water to drain to the exterior of the building (1998 CFC paraphrased).

**Window:** An opening in a wall for light and ventilation, with all its appurtenances.

**Appendices:**

- A) UCFPL Test Protocols 1)
- B) Model Ordinance for Adoption of Performance-Based Building Standards in the Urban-Wildland Interface
- C) Performance Diagrams
- D) Fire Test Methods - Robert Brady Williamson

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- Governor's Office of Emergency Services: [www.oes.ca.gov](http://www.oes.ca.gov)
- California Fire Plan: [www/FireEmergencyResponse/FirePlan/FirePlan.asp](http://www/FireEmergencyResponse/FirePlan/FirePlan.asp)
- Fire Safe Councils: [www.firesafecouncil.org/](http://www.firesafecouncil.org/)
- Firewise Communities Program (NFPA): [www.firewise.org/](http://www.firewise.org/)
- United State Fire Administration: [www.usfa.fema.gov/](http://www.usfa.fema.gov/)
- National Fire Information Council: [www.nfic.org](http://www.nfic.org)
- National Technical Information Service: [www.ntis.gov](http://www.ntis.gov)

**APPENDIX B**  
**Model Ordinance for Adoption of Performance-Based Building Standards in the Urban-Wildland Interface**

Each jurisdiction will have a style, including rules of construction that is used to create internal consistency. The adopting ordinance should be approved with respect to style by legal counsel prior to submission to the Legislative Body. The draft submitted for approval should be as simple in words, terms, and structure as possible.

Keep it simple. Do not use the text of the ordinance for explanations or rationalizations. Use a cover letter or digest for such commentary. Do not bring in tangential issues or provide "hooks" that would enable other interests to impact the subject properties. Changes may be necessary in the safety element of a respective jurisdiction's Comprehensive Plan and other local land use policies and planning instruments to be consistent and enforceable.

\*\*\*\*\*

Ordinance # \_\_\_\_\_

An ordinance of the (legislative body) of the (jurisdiction) to amend the (jurisdiction's code) in order to provide fire safety regulations applicable to areas within the (city/county/district) and particularly within designated urban-wildland interface areas which represent an extraordinary fire risk.

Findings of Fact

The provisions of this Chapter are reasonably necessary because of the following local climatic, geological, or topographical and conditions:

Periodic conditions of extraordinarily high winds, high temperatures, and low humidity's.  
Unique configurations of slope gradients, elevations and aspects.  
Unusual natural and manmade barriers.

(provide additional local conditions as appropriate)

The conditions described above exacerbate the likelihood of fire occurrence and rapid spread, negatively impact accessibility and timely response, and present operational difficulties for fire suppression and evacuation activities.

Chapter # \_\_\_\_\_

Section 1.

This chapter shall apply to all real property located within the (jurisdiction) which is particularly within the designated urban/wildland interface areas as determined and declared by the (legislative body) based on location, topography, geology, flammable vegetation and climate, and described on a map prepared by the Fire Chief and maintained at (list public access location(s)).

Section 2.

Any person who constructs, modifies, or relocates, any structure in, or upon, a designated urban/wildland interface area, shall:

submit a Fire Protection Plan (FFP), to the Fire Chief for approval, describing the mitigation measures appropriate to establish and maintain reasonable fire safety in such buildings and on such property. This Fire Protection Plan shall address building materials and construction features, water supply, road access, address and road name signage, and combustible vegetation. And; submit to the Fire Chief evidence of deed encumbrance or other device that reasonably assures notice to subsequent purchasers of such land, that it is subject to special fire mitigation measures.

Section 3.

For purposes of developing the Fire Protection Plan (Section 2.a above), the applicant may use (the Model Ordinance for Defensibility of Space and Structures (2002 version) promulgated by the California State Fire Marshal).

Section 4.

Whenever the fire Chief disapproves an application or refuses to grant a permit applied for, or when it is claimed that the provisions of the code do not apply or that the true intent and meaning of the code have been misconstrued or wrongly interpreted, the applicant may appeal from the decision of the Fire Chief to (legislative body) within thirty (30) days from the date of the decision appealed.

Section 5.

If any provision of this Chapter is found to be unconstitutional or otherwise invalid by any court of competent jurisdiction, such invalidity shall not affect the remaining provisions which can be implemented without the invalid provision, and, to this end, the provisions of this ordinance are declared to be severable.

Section 6.

Rules of Construction. (provide local designations as appropriate)

Section 7.

This ordinance shall take effect and be in force thirty (30) days from and after its passage and, before the expiration of fifteen (15) days after the passage thereof, shall be published once, with the names of the members of the (legislative body) voting for or against the same in the (\_\_\_\_\_), a newspaper of general circulation, published in the County of (county of jurisdiction), State of California.

(local AHJ format, signature blocks, etc)

**Purpose:**

The purpose of this project was to develop a body of research on which to promulgate performance-based building standards for use in reducing the losses of life and property from one specific fire condition: the UWI fire. There already is a prescription-based *UWI Code*, which was cooperatively developed by the SFM and IFCl using FEMA grant funds. This new project was aimed at developing the first generation of performance-based building standards, accompanied by a "tool-set" of new and old test protocols. The new standards and protocols will provide plan checkers and land use planners with the tools they need to solve structural design problems with more flexibility and cost effectiveness.

This performance-based building standards research project has been funded through a grant from FEMA, and was administered by the SFM with the cooperation of the University of California Forest Products Laboratory (UCFPL) in Richmond, California. This publication provides the State of California with documentation that can be utilized by either state or local AHJs to help increase survivability of structures during a wildfire event, thereby preserving public safety and personal property.

**Applicability:**

This report provides a model to the AHJs for application in the land use planning process of newly developed areas. It is focused upon future development in the UWI areas throughout California. The performance requirements and objectives are applicable to the construction alternatives, relocation, repair, remodel and maintenance of any building or premise in areas defined by state or local law as UWI. The performance statements apply to roof, wall, door, vent, window, deck, and ancillary assemblies. As a model, these standards are not intended to be a state-mandated program, but rather additional and alternative building standards for consideration during the local code adoption cycle.

**Scope of Document:**

This document provides research information about performance-based codes and standards for structures exposed to UWI fire. It should be viewed as a work in progress, in that detailed testing of the recommended protocols was underway during the writing of this document. The text also includes explanations that are intended to provide the user with background information on the needs for model performance-based building standards, definitions related to UWI fire, recent protocols developed to test structural subassemblies, and the rationale for the use of the protocols.

**OVERVIEW OF REGULATIONS AND STANDARDS****Prescription-Based Standards:**

After the occurrence of so many UWI fires in the last few decades, AHJ have begun to adopt prescription-based codes to regulate access, water, building construction, defensible space and vegetation management issues. This has been done on a piecemeal basis throughout California. Some examples of these regulatory issues include roofing standards and automatic fire sprinkler system requirements in high fire hazard areas.

The UWI fire problem has been addressed in several ways throughout the last few decades. In 1982, the State legislature enacted Public Resources Code (PRC) §§4201-4204, requiring State Responsibility Area (SRA) lands to be classified into fire hazard severity zones according to the extremity of fire hazards determined to exist

there. Severe wildfires throughout California in 1985 prompted the National Fire Protection Association (NFPA) to develop their Standard 299. It established infrastructure and access standards, vegetation management for defensible space around structures, and minimum structural design requirements for homes in fire hazardous areas. Following the 1991 Oakland/Berkeley Hills Tunnel Fire with the passage of Assembly Bill 337 (Bates) in 1992, Local Responsibility Areas (LRA) were assessed based on hazardous conditions such as accumulated fuels, critical fire weather, topography, and structure density. In cooperation with local officials, CDF mapped these areas into Very High Fire Hazard Severity Zones (VHFHSZ), and upon local adoption of such maps, specific construction and defensible space provisions were to be enforced on properties located within the VHFHSZ. The main purpose of these statutes and standards is to identify measures that may retard the rate of wildfire spread, and to reduce the potential intensity of wildfires that could destroy resources, lives and property.

Following several firestorms in Southern California in 1993, FEMA provided a grant to the SFM and IFCI to develop the prescription-based *UWI Code* (1997 version). That code uses a systematic approach to building in the UWI area. The document begins by looking at the fire hazard severity of a location based on vegetation, topography, geological conditions, climatic conditions, extreme fire weather conditions, fire department access and water for fire suppression. Based on the assessment of the conditions, one of three ignition resistant (IR) construction models is used to determine the standards for building construction.

#### **Alternate Materials and Methods:**

For many years, AHJs have had the authority to accept alternate materials and methods submitted by designers and builders for fire prevention. Few AHJs have chosen to accept alternate materials and methods because they lack adequate means of evaluation and testing.

***Uniform Fire Code 103.1.2: Alternate materials and methods:*** *The chief, on notice to the building official, is authorized to approve alternate materials or methods, provided that the chief finds that the proposed design, use or operation satisfactorily complies with the intent of this code and that the material, method of work performed or operation is, for the purpose intended, at least equivalent to that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety. Approvals under the authority herein contained shall be subject to the approval of the building official whenever the alternate material or method involves matters regulated by the Building Code.*

*The chief is authorized to require tests as proof of compliance with the intent of this code. Such tests shall be made by an approved agency at the expense of the person requesting approval of the alternate material or method of construction.*

#### **Transition:**

At this time, performance-based codes are used in many other countries, and are being developed by model code groups in the United States. The driving forces of performance-based code development are economics and technology. Performance-based codes allow for flexibility in the design of structures by enabling the designer or



builder to demonstrate that the actual performance of the proposed design will provide an equivalent or higher level of ignition resistance or fire safety.

Performance-based codes also use a systems approach in addressing fire problems, providing alternate methods and means of fire safe design. This type of code will establish: 1) goals to be met, 2) methods to meet the goals, 3) a standard of evaluation for the methods, 4) acceptable performance criteria, and 5) the documentation necessary for review of the system on a periodic basis. Once established, the design documentation used to meet the performance requirement must be readily available for the life of the building. Both the AHJ and the building owner should retain such documentation. In addition, deed encumbrances are to be attached to the property to ensure proper review of planned alterations to structures that were built using performance-based design.

#### **Performance-Based Codes:**

The objective of performance-based codes is to address issues related to economics, aesthetics, technology, location, risk and other conditions and circumstances that do not lend themselves to prescription-based code requirements. Performance-based codes provide a systems approach in order to allow pragmatic solutions to problematic situations.

Implementation of performance-based codes can effectively reduce losses to structures, lives and personal property. Using performance-based codes allows a system of design and construction that limits the impact of a wildfire on a building or structure, its occupants, and its use. Appropriate performance-based design can also serve to limit the spread of a fire within a building, to other buildings or structures, and to adjacent vegetation or other flammable materials.

#### **Where We Are--Objectives:**

- To apply science to the regulation of design and construction utilizing criteria supported by empirical testing.
- To permit the use of alternative technologies or methodologies which result in performance equivalent or superior to prescription-based codes.
- To provide a systems approach that addresses and mitigates all the components of the built and natural environments affecting the level of fire risk.
- To provide a means of sustaining the documentation and maintaining the agreed-upon mitigation system.

#### **Where We Are Going--Acceptable Methods to Measure Objectives:**

To accurately measure an objective, it must have measurable elements such as time, quality and quantity. One can then measure the outcome of the objective utilizing the appropriate criteria. Appropriate methods may include, but are not limited to, the following:

- The use of a performance criteria that says, for example, a structure shall not ignite after X minutes of exposure to a radiant heat flux of Y. The radiant heat flux would be obtained from the output of a BEHAVE model for the particular type of vegetation and fuel load present.
- The use of performance criteria that says a structure shall not ignite from exposure to a fire in an adjacent ignited structure.

- Actual fire observations, interviews, and videos to observe fire performance and design deficiencies.
- Comparison of the expected flame temperature of the vegetation with the standard time temperature curve to determine the needed resistance of a material, such as decking.
- Post fire analysis, damage assessment and lessons learned.
- Evaluation of annual statewide loss trends in fires in areas where fire safe structures and fire safe landscaping are located, as compared to losses in non-fire safe communities.
- Comparison of dollar loss in specific fires exposing or damaging fire safe structures as opposed to fires exposing or damaging non-fire safe structures.
- Future analysis of the number of fire companies needed and the fire flow utilized at UWI fires in fire safe communities, as compared to non-fire safe communities.
- Actual fire tests of building materials such as vents, windows, roofs, walls, openings, decks, shutters, etc.
- Wind-driven fire tests to assess vulnerability of windows and vents to airborne debris and embers.
- Actual tests of residential fire sprinkler systems to determine if they will control a fire that has entered the structure through an opening during a wind-driven fire event.
- Actual tests of residential fire sprinkler systems to determine if they will prevent a fire within a structure from spreading to wildland vegetation.
- Actual full-scale fire tests of various types of vegetation, vegetation management prescriptions, and sizes of vegetation management zones.
- Cost-benefit analysis on future fires to determine if the additional cost of fire safe construction was offset by the reduction in the fire loss.

The most valuable way to determine the success of an objective will be after future fires occur and expose fire safe communities, or by conducting actual full scale wind-driven fire tests of a mock community of several full size structures having fire safe construction, fire sprinklers and proper vegetation management. In actuality it will probably take many years of evaluating actual fire experience to determine if these objectives are being met. The fire service inherently knows from collective experience that the objectives are valid and will improve public safety.

#### **Historical Perspective of UWI Fires:**

Probably the most significant change of perspective that has emerged from the fires of the last three decades is the increased attention focused on the combustibility of structures. Review of after-action reports for the large loss fires shows consistent recognition of a few basic needs—to reduce wildland fuels, maintain defensible space, and to construct ignition-resistant buildings.

Historically, efforts to reduce UWI fire losses have not been effective. Many of the issues identified as problems time and time again (e.g. education, regulations, vegetation, fire fighting resources, etc.) are still prevalent today. Some of the more recent efforts that focus on the UWI fire problem include:

Community-based fire prevention and protection actions:

- CDF California Fire Plan
- State and local Fire Safe Councils
- Firewise Communities Program (NFPA)

- Community-wide Fire Protection Plans (UFC Article 86)
- Strategic Plans
- Vegetation Management Plans
- Evacuation Plans
- Shelter in Place Plans
- Fire sprinkler systems

New Technology:

- Structural Ignition Assessment Model (SIAM)
- Wildfire modeling – BEHAVE/FARSITE
- GPS/GIS and remote sensing
- Fire Behavior Simulators
- Ignition Suppressants
- Building Materials
- Fire Barriers

Research & Development Organizations:

- UC Forest Products Laboratory
- Fire and Resource Assessment Project (FRAP)
- National Association of State Foresters
- Environmental Systems Research Institute (ESRI)
- Listing services (such as UL, ICBO, etc.)
- Federal Efforts:
  - FEMA Grants
  - Project Impact
  - National Fire Plan

In addition to these efforts and ongoing activities, there are additional investments being made at the federal and state level, focused on reducing structure losses within the UWI. For example, the federal land management agencies (BLM, USFS) are investing millions of dollars in prescribed fire programs to reduce unusually dense accumulated vegetation stands, which reduces fire hazards in and around the UWI. FEMA has provided grants for many wildfire hazard mitigation programs including the previously mentioned *UWI Code* (1997) developed jointly by the SFM and IFCI. Additionally, the observable level of activity within the regulatory roles at the state, federal, and local levels has influenced the private sector to improve materials, devices, and systems for fire protection.

Codes that address the UWI fire problem have been primarily prescription-based and have not translated into reduced losses in the UWI. As a result, performance-based codes are being developed as an alternative. Adoption of performance-based codes will allow the implementation of fire hazard mitigation strategies using a systems approach with practical solutions. Performance-based codes will allow flexibility and provide an alternative to the "one size fits all" historical approach.

**Fire Problem:**

In the twenty-five year period of 1955 through 1979, 2,408 structures were lost to wildfire, yet in the fourteen years following (1980-1993) over three times as many structures (7,698) were lost. And from 1990 through 1999, 6,309 structures were lost to wildfires in just nine events. This loss experience clearly demonstrates the changing

makeup of the wildlands in California. Nine hundred and fifty-four homes were lost during the 1999 fire season in just one conflagration, demonstrating that the potential for disaster still exists.

Rural and wildland development has continuously and increasingly impacted wildland fire protection in interface areas. When structures burn, those that lack built-in fire protection—such as fire safe design elements and defensible space—cause wildland fire suppression resources to be diverted to protect structures at risk. The results of this diversion can be more acres burned, higher natural resource losses, and greater fire protection and rehabilitation expenses incurred. Additionally, more homes can be destroyed, and more lives lost or put at risk.

Historically, the State of California has taken responsibility for wildland fire protection, while the local AHJ governs land use planning and development. Partly because of this separation of authority, areas known today as the UWI have continued to grow. Such an increase in the number of dwellings intermingled with wildland fuels has created statewide wildfire problems. Dense development in the UWI creates an additional level of risk, by concentrating flammable fuels in the form of homes and ornamental landscaping into relatively small areas, which can result in unprecedented fire intensity and spread.

The effectiveness of pre-fire mitigation is demonstrated by structure survivability studies. For example, one post-fire study indicated that homes with a noncombustible roof and adequate vegetation clearance had a 90% chance of survival, increasing to 99% when defensive actions were also taken by civilians or firefighters (Foote 1995). These mitigation measures tend to create a defensible space so that people may defend structures at risk. The same study shows that houses with combustible roofs, no vegetation clearance, and lack of intervention had only a 4% chance of survival. Under this scenario, pre-fire mitigation provided nearly certain survival as opposed to nearly certain destruction.

State legislators have recognized the need for and effectiveness of pre-fire management by way of various laws, encompassing hazard assessment, defensible space, fire retardant roofing, and written disclosure of fire hazards when selling real estate. Several state and national organizations have also worked to create model codes and standards designed to improve structure survivability and community-wide fire safety. This document and the model performance-based building standards it recommends, moves toward improvement of existing building standards, predicated on research directly aimed at the unique fire problem and intense fires experienced in the UWI.

#### **Continuing Processes:**

The process of code development is by its very nature a constantly evolving one. Over the last few decades the processes that have made prescription-based codes so voluminous and complex has caused increased pressure to develop performance-based codes. Unfortunately, the science and methodology to create a comprehensive performance-based code will require ongoing research and experimentation in order to provide adequate tools for implementation. This document could be best classified as a foundation for performance-based building standards, rather than a finished product.

#### **Politics of the Code Process:**

The development of a code is only the beginning of the process that will have an impact on the problem it was created to resolve. Once a code or a code amendment has been created it must be adopted by an authority having jurisdiction (AHJ). Depending upon

the nature of the problem, a code provision could apply to the federal, state, county or local government. Therein lies a potential obstacle that needs to be adequately considered. That obstacle is the political process for submittal, advocacy and successful adoption of a code by a political entity.

This document does not propose to identify or suggest any specific course of action for code adoption by a political entity. However, it does address the fact that performance-based codes will generate political dialogue. Performance-based codes are new, they are not clearly understood, and there will necessarily be a period of transition from older prescription-based codes.

Prescription-based codes regulate by specifying materials and methods. Performance-based codes are moving toward regulation in terms of the measurable behavior of materials and methods under certain conditions. This transition will generate both public and private comments and concerns. Codes exist to insure public safety, health and welfare, but they also create special interests. As we transition from prescription-based codes to performance-based codes, certain parties will advocate or resist change based upon these special interests. Performance-based codes are an attempt to implement rational standards based on scientific and engineering principles supported by appropriate testing protocols, however a great deal remains unknown about how performance-based codes will function.

Historically, most code development has been driven by catastrophic events. Many code provisions can be clearly associated with a specific tragedy. Alternatively, performance-based codes are more closely aligned with fire behavior and the response of materials to specific environmental conditions. It is anticipated that as time goes on, the major code development groups will support performance-based codes in the political process. It is also anticipated that manufacturers or distributors of products that are currently prescribed by code will resist the new performance-based codes. Those in a position of elected authority will have to determine how to respond to as these codes are considered for implementation.

The political environment is extremely complex. However, one influential principle pervades both locally and nationally: if a code can fulfill the spirit and intent of public interest while maintaining cost-effectiveness, it will receive favorable consideration. Codes that are more restrictive and do not provide cost effectiveness fall under far more scrutiny.

There is no doubt that as performance-based codes traverse the political process, they will face many challenges. Political entities lacking experience with the science and technology behind the performance-based code may be slow to respond. This exposes a need to provide education and training to planners, builders and political officials in order to assure adequate consideration will be given to this evolving concept.

**Advisory Board Function:**

The method used to compile this document was to combine the expertise of fire prevention testing and protocol engineers with the needs of the practitioners in the field. This project also benefited from the methods used to create the committee. This is one of the first projects in which by fire prevention practitioners joined researchers in the

process of designing fire test protocols. The synergy that emerged from this relationship improved the product and simultaneously improved the knowledge of both parties.

Dr. Frank Beall, Forest Products Laboratory, is the principal investigator for this grant project. An Advisory Board was created to integrate the information and processes developed by the lab with fire services utilization requirements. The Board consists of the following members:

- Ronny J. Coleman, Retired State Fire Marshal (Chairman)
- Don Oaks, Retired, Santa Barbara County (Vice Chairman)
- Frank Beall, Director, UCFPL
- Ken Blonski, Fire Mitigation Advisor, UCFPL
- Phil Cocker, Los Angeles County Fire Department
- Forrest Craig, Novato Fire Protection District
- Rolland Crawford, Loma Linda Department of Public Safety
- Page Dougherty, Fire Service Coordinator, IFCI
- Ethan Foote, CDF Sonoma-Lake Napa Unit
- Wally Hall, Chino Valley Independent Fire District
- James W. Hunt, Hunt Research Corporation
- Cliff Hunter, San Diego County
- Sam Husoe, National Fire Sprinkler Association
- Russ Johnson, Environmental Systems Research Institute
- Steve Quarles, Wood Durability Advisor, UCFPL
- Mike Scott, Rancho Santa Fe Fire Protection District
- Leonard Temby, Redlands Fire Department
- Robert Brady Williamson, Ph.D., UC Berkeley

Melissa Frago, the Fire Safe Planning and Research and Development Program Coordinator for the SFM, served as the primary contact for document development and editing as well as being coordinator of communications for the Advisory Board.

The Advisory Board was charged with the responsibility to translate the existing research findings and test protocols into performance-based statements and objectives. The Board was also tasked to identify possible limitations in the UCFPL test array. These protocols were to be used to help develop a set of methods and/or technologies that would translate into building standards to be included in an appendix for submission into the State Building Code. The results of the UCFPL research and Advisory Board recommendations are transmitted via this document to the State Fire Marshal for introduction into the California rulemaking process.

The Board held its first meeting on February 13, 2001. Subsequent meetings were held in March, April and May. The meeting locations were throughout the state in order to obtain maximum local participation in the process. The Board was also divided into several subgroups to pursue specific elements of the development process. The recommendations of these subgroups were reviewed and adopted into the overall process at subsequent Advisory Board meetings.

**Development Activities:**

A comprehensive literature search was conducted to assure the proposed methods and tests were consistent with the overall shift from prescription to performance-based codes and standards. A glossary of specific terms were developed and reviewed by the Advisory Board. The final draft of this document was produced and submitted for final edit by the SFM and the UCFPL.

**Philosophy of Test Protocol Development:**

There were several key needs and assumptions upon which development of the protocols were based, as follows:

- Address key hazardous subassemblies and features of structures
- Represent the type and degree of exposure in UWI fires
- Provide both relative and absolute measures of performance whenever possible
- Reproduce results with replicates of test material
- Be documented to permit adoption by any well-equipped fire laboratory
- Have peer-reviews by leading experts in combustion of wood and related materials
- Be designed for future consideration as American Society for Testing and Materials (ASTM) standards

**Fire Impact Management-Fire Scenarios:**

"In wildland interface areas, buildings shall be designed, constructed, arranged and maintained in such a manner to limit the impact to the building during a wildland fire event" (ICC Chapter 1701.2.5).

**Types of Fire Scenarios to be Considered:**

- Direct Flame Impingement - Burning material including ornamental vegetation immediately adjacent to (within 2 meters) the building under critical fire weather conditions (95<sup>th</sup> to 98<sup>th</sup> percentile conditions for wind and relative humidity).
- Radiant Heat - Burning material including ornamental and native vegetation under critical fire weather conditions that produces radiant heat flux of "X" kW/m<sup>2</sup> on the exposed building.
- Ember Exposure - Burning material including structures and ornamental and natural vegetation under critical fire weather conditions that produces embers and flying debris having sufficient mass and velocity to cause ignition and/or penetration of the structure.

In selecting the heat transfer mode (radiation, convection, conduction) for the UCFPL test protocols, we chose to use "flame impingement" as a combined mode and one that is more realistic in exposure. In order to achieve consistent results, we used a standard burner system where the gas flow could be carefully controlled. Also, we modeled our intensity of exposure for wall subassemblies from data that we obtained in testing ornamental vegetation that might be in the "home zone" (within 2 m. of the structure). Of course, in the design of the structural subassemblies, they had to be small enough to test in the laboratory, yet large enough to represent how a structure would respond. The selection of subassemblies (roofs, decks, and walls) was made to address the most vulnerable portions of structures.

**Building Elements:**

- Roofs - Construction of roof assemblies shall resist the spread and penetration of fire by limiting their contribution to fire growth and development in accordance with the performance criteria and test exposure(s) listed in Table 1: Roofs.
- Walls - Construction of exterior wall assemblies shall resist the spread and penetration of fire by limiting their contribution to fire growth and development in

accordance with the performance criteria and test exposure(s) listed in Table 2: Walls.

- Doors – Doors shall be constructed, arranged, limited or protected to limit fire penetration and heat transfer in accordance with the performance criteria and test exposure(s) listed in Table 3: Doors.
- Windows - Windows shall be constructed, arranged, limited or protected to limit fire penetration and heat transfer in accordance with the performance criteria and test exposure(s) listed in Table 4: Windows.
- Decks and Ancillary Structures – Decks and ancillary structures shall be constructed, arranged, or protected to limit their contribution to fire growth and development in accordance with the performance criteria and test exposure(s) listed in Table 5: Decks and Ancillary Structures.
- Vents – Vent assemblies shall prevent fire and ember penetration to the structure in accordance with the performance criteria and test exposure(s) listed in Table 6: Vents.

**Functional Statement:**

*In Urban Wildland Interface areas, roofs, wall, doors, windows, vents, decks and ancillary structures in buildings and facilities shall be designed, constructed, arranged and maintained in such a manner as to limit the impact to the building and facilities during an Urban Wildland Interface fire event.*



**Performance Tables:**

For detailed test protocols, see Appendix A.

**TABLE 1: ROOFS**

Item	Roof Problem	Objective	Scenario	Protocol
1	Roof covering combustibility	Limit the spread of fire beyond area of direct flame impingement	Direct flame; Radiant heat; Ember exposure	ASTM E108
2	Roof assembly combustibility	Prevent the fire from entering into the interior of the structure from the roof assembly	Direct flame; Ember exposure	UCFPL R01
3	Roof assembly combustibility and integrity	Prevent production of firebrands	Direct flame	ASTM E108; UCFPL R01
4	Gutters and debris in gutters contributes to ignition of roof edge	Prevent roof edge ignition	Direct flame; Ember exposure	UCFPL R01
5	Entrance of flame or firebrands between roof deck and covering	Prevent ignition between roof deck and covering	Ember exposure	UCFPL R01

**TABLE 2: WALLS**

Item	Wall Problem	Objective	Scenario	Protocol
1	Wall assembly combustibility	Limit the spread of fire to other building components	Direct flame; Ember exposure; Radiant heat	UCFPL W01
2	Wall assembly combustibility and integrity	Prevent fire from gaining entry directly through the wall assembly	Direct flame; Radiant heat	UCFPL W01
3	Wall assembly combustibility and integrity	Prevent the production of firebrands	Direct flame	UCFPL W01

**TABLE 3: DOORS**

Item	Door Problem	Objective	Scenario	Protocol
1	Door assembly combustibility	Limit the spread of fire to other building components	Direct flame; Ember exposure	UCFPL W01
2	Door assembly combustibility and integrity	Prevent fire from gaining entry through the door assembly	Direct flame; Ember exposure	UCFPL W01
3	Ignition of interior combustibles	Limit radiant heat transfer through door to interior combustibles	Radiant heat	UCFPL W01
4	Door integrity	Prevent failure due to firebrand and debris impact	Impact exposure (TBD)	TO BE DETERMINED

**TABLE 4: WINDOWS**

Item	Window Problem	Objective	Scenario	Protocol
1	Window assembly combustibility	Limit the spread of fire to other building components	Direct flame; Ember exposure	UCFPL W01
2	Window assembly combustibility and integrity	Prevent fire from gaining entry directly through the window assembly	Direct flame; Ember exposure	UCFPL W01
3	Ignition of interior combustibles	Limit radiant heat transfer through window to interior combustibles	Radiant heat	UCFPL W01
4	Window integrity	Prevent failure due to firebrand and debris impact	Impact exposure (TBD)	TO BE DETERMINED

**TABLE 5: DECKS AND ANCILLARY STRUCTURES**

Item	Deck/Ancillary Structure Problem	Objective	Scenario	Protocol
1	Deck and ancillary structure component material ignition	Limit ignition of deck materials and ancillary assemblies	Direct flame; Ember exposure	UCFPL D01
2	Deck and ancillary structure component material combustibility	Limit the spread of fire to building components or other combustible materials	Direct flame; Radiant heat	UCFPL D01
3	Deck material integrity	Prevent structural failure of decks	Direct flame loads associated with use	UCFPL D01
4	Deck material integrity	Prevent production of firebrands and other burning materials	Direct flame loads associated with use	UCFPL D01

**TABLE 6: VENTS**

Item	Vent Problem	Objective	Scenario	Protocol
1	Entrance of flame into or under structure	Prevent penetration from direct flame impingement	Direct flame	UCFPL W01
2	Entrance of embers into or under structure	Prevent penetration from firebrand exposure	Ember exposure	TO BE DETERMINED

**Future Needs:**

What will be needed in the future is continued emphasis on clarification of test methods and evaluation tools for both the public and private sectors. Architects and engineers will need additional information on how to evaluate products for inclusion in fire prevention designs. Public officials (i.e. fire prevention and building officials) will need mechanisms of evaluating the performance of specific designs. This will lead to an additional need for training and education of all parties as this information is more fully developed.

The continued emphasis on performance-based codes in many cases will continue to be dependent upon code-making bodies. However, the science behind the performance-based code will still likely remain a responsibility of academic and research institutions. The result of these differing responsibilities will require an ongoing partnership between academia and practitioners.

Codes cannot be developed in a vacuum. Once they have been created, an AHJ must adopt them; one of the greatest challenges in the field of code development is obtaining the support of a sufficient number of AHJs to adopt a code. This is not a technical process, but a political one. Therefore, the challenge for those who are attempting to resolve fire and life safety problems is how to educate, inform and co-opt those elected officials who have authority to accept or reject new code provisions. This part of the process cannot be taken for granted; it requires as much attention to detail as code development itself.

**Rulemaking Process:**

Upon completion of this project, performance-based building standards will be available to any AHJ wishing to adopt appropriate provisions for building safety in UWI areas. Elements contained herein can be used as a basis for acceptance of alternate materials and methods under Uniform Fire Code (UFC) or California Fire Code (CFC) authority. This document will also be turned over to the Regulations Division of the SFM for adoption of a model ordinance and the development of code language to be introduced into the State rulemaking process. The intent is that specific UWI performance-based code language be adopted as an appendix to the State Building Code and the Uniform Building Code (UBC) to help improve fire safe design and construction to reduce losses to life and property from wildfire.

**Data Collection / Damage Assessment:**

To implement UWI fire hazard mitigation measures effectively and efficiently, there is a need to track the severity of the problem and evaluate the performance of building design features exposed to interface fires. There are three areas of interface fire damage assessment where future work would be most valuable.

1. The extent and severity of the UWI fire problem needs to be tracked through basic fire incident reporting. There are strong indications, however, that this is not being done consistently. Fire incident reporting databases for records of known UWI fire losses will likely have large gaps in data. If this is the case, a study could be done to determine the necessary changes to fire incident reporting systems and data collection methods needed to document basic UWI fire losses.
2. A method is needed for more detailed anecdotal data collection that can be rapidly implemented and produce consistent results on an ad hoc basis. Fire incident reporting systems lack the depth and breadth of data collection to fully document and

reveal the mechanisms of UWI fire losses. This will be especially true as building design moves from prescription to performance-based code implementation.

3. Additional work is needed to identify some form, or forms, of quantitative analysis to fully evaluate performance-based designs under actual fire exposure. Anecdotal evidence will not be sufficient to maximize implementation of effective hazard mitigation measures. Given the difficulty of full-scale fire tests and of validating predictive models, post-fire statistical analysis is a good alternative and has proven to yield meaningful results. A possible form of statistical analysis is used in health-related research, where a number of individuals with a disease (cases) are randomly selected from a population and compared to a group of similar, but disease free, individuals (controls). Additional work is needed to apply this statistical analysis to study the effectiveness of UWI fire mitigation measures.

**Glossary:**

*For the purpose of performance-based building standards, certain terms are defined as follows:*

**Alternate Materials and Methods:** A process whereby the fire chief is authorized to approve alternate materials or methods of design and construction, provided that the chief finds that the proposed design, use or operation satisfactorily complies with the intent of the code and the method of work performed or operation is, for the purpose intended, at least equivalent to that prescribe in the fire code.

**Ancillary Structure:** Decks, fences, patio covers, gazebos and any other accessory structures that may be attached to or located in proximity to the main structure.

**Authority-Having Jurisdiction (AHJ):** The designated entity providing enforcement of regulations as they relate to planning, construction and development. A typical community will have a fire, building and planning authority.

**BEHAVE:** A wildland fire model that provides a fire behavior prediction based on a single calculation for particular site conditions. The model utilizes mathematical equations developed in the early 1970's by Richard Rothermel, a research engineer for the USDA Forest Service. BEHAVE is currently available as a PC-DOS based computer program.

**Brand:** A wooden crib of specific materials and dimensions for fire tests of roofs as prescribed by ASTM E108, Standard test methods for fire tests of roof coverings.

**Class A Roof:** Effective against severe fire test exposures, pursuant to section 15.202.4.4.1 of the Uniform Building Code (UBC). Under such exposures, roof coverings of this class are not readily flammable, afford a fairly high degree of fire protection to the roof deck, do not slip from position, and are not expected to produce flying brands.

**Class B Roof:** Effective against moderate fire test exposures, pursuant to section 15.202.4.4.2 of the UBC. Under such exposures, roof coverings of this class are not readily flammable, afford a moderate degree of fire protection to the roof deck, do not slip from position, and are not expected to produce flying brands.

**Class C Roof:** Effective against light fire test exposure, pursuant to section 15.202.4.4.3 of the UBC. Under such exposures, roof coverings of this class are not readily

flammable, afford a measurable degree of fire protection to the roof deck, do not slip from position, and are not expected to produce flying brands.

**Combustible Vegetation:** Material that in its natural state will readily ignite, burn and transmit fire from the vegetative growth to any structure, this includes ground fuels which are any native or landscape vegetation not considered a tree and generally in contact with the ground.

**Dead Load:** A constant weight or pressure, used in computing strength of beams, floors or roof surfaces.

**Deck:** An unsheltered flooring material used as structure flooring adjoining the walls of a house.

**Defensible Space:** An area either natural or man-made, where material capable of allowing a fire spread unchecked has been treated, cleared or modified to slow the rate and intensity of advancing wildfire. This will create an area for increased safety for emergency fire equipment and evacuating or sheltering civilians in place and a point for fire suppression to occur.

**Discretionary Project:** A project that requires the exercise of judgment or deliberation when the public agency or body decides to approve or disapprove a particular activity, as distinguished from situations where the public agency or body merely has to determine whether there has been conformity with applicable statutes, ordinances, or regulations.

**Door:** A hinged, pivoted or sliding member, permitting passage through a wall.

**Ember:** See Firebrand.

**Ember exposure:** Burning materials, including ornamental and native vegetation, under critical fire weather conditions, that produces embers and flying debris that has sufficient mass and velocity to cause ignition and/or penetration of the structure.

**Exposure:** The heat effect from an external fire that might cause ignition of, or damage to, an exposed structure, ancillary assemblies and its contents.

**Exposure:** Property that may be endangered by a fire in another structure or by a wildfire.

**Exposure Fire:** Classification for a fire not originating in a building, but which ignites building(s).

**Exposure Severity:** A fire originating in one building and spreading to another is classified under the original cause of the fire.

**FARSITE (Fire Area Simulator):** A wildland fire model that provides a fire behavior prediction based on multiple calculations for particular site conditions. FARSITE uses the Rothermel model to calculate fire spread, as does BEHAVE, but is temporally and spatially explicit. FARSITE is a Windows based computer program.

**Fire Protection Plan (FPP):** A plan submitted to an AHJ for approval that addresses building materials and construction features, water supply, road access, address and road name signage and combustible vegetation.

**Firebrand:** A burning ember produced by wildfire that are lifted high into the air and carried beyond the fire front. Typical firebrand materials include pieces of burning vegetation, and, if houses are involved wood shakes or shingles.

**Flame Impingement, Direct:** Burning materials, including ornamental and native vegetation, immediately adjacent to structure (within 3 meters), under critical fire weather conditions (95<sup>th</sup>/98<sup>th</sup> percentile for wind, temperature and relative humidity).

**Fuel Modification Zone (FMZ):** A wide strip of land where combustible vegetation has been removed or modified or both and partially or totally replaced with approved drought-tolerant, fire-resistant, and/or irrigated plants to provide an acceptable level of risk from vegetation fires. Fuel modification reduces radiant and convective heat, thereby reducing the amount of heat exposure on the roadway or structure and providing fire suppression forces a safer area in which to take action.

**Functional Statement:** Explains in general terms what function the building must provide to meet the objective; for example, the building must be constructed to give people adequate time to reach a place of safety without exposure to untenable conditions.

**Hazardous Fire Area:** Any geographic area as set forth by the fire chief that contains the type and condition of vegetation, topography, weather, and structure density to potentially increase the possibility of vegetation conflagration fires shall be considered a hazardous fire area.

**Heat Flux:** Heat transfer by radiation as expressed by energy per unit area (kW/m<sup>2</sup>)

**Heat Transfer:** Movement of heat energy from an area with high temperature to one with lower; the mechanism can be radiation, conduction, and/or convection.

**Ignition Source:** Any item or substance capable of energy release of a type and magnitude sufficient to ignite any flammable materials that could occur in or outside of a structure. Examples of ignition sources are storage or use of flammable gases and flammable liquids, permanent or temporary electrical wiring and open flame devices.

**Impingement, Flame:** Continuous or intermittent contact of flames with test materials or structures

**Local Responsibility Area (LRA):** An area in which a town, city, county or city and county has primary fire protection responsibility.

**Off-site Roadway:** A road, street, public highway, or private road used for fire apparatus access from a publicly maintained road to the boundary of the subject property.

**On-site Roadway:** A road, street, public highway, private road or driveway used for fire apparatus access within the boundaries of the subject property or land division.

**Penetration:** Entry of firebrands or flames through the outside building envelope into the wall cavities and/or the structure.

**Performance Objectives:** A statement of what is expected in terms of societal goals. Objectives are topic-specific and deal with particular aspects of performance required in a building, such as safeguarding people during escape and rescue.

**Performance Requirements:** Detailed statements that are necessary to achieve the requirements of the functional statement.

**Radiant Heat:** Burning materials, including ornamental and native vegetation, under critical fire weather conditions, that produces a radiant heat flux of at least  $X \text{ kW/m}^2$  on the exposed building.

**Roof Assembly:** includes the roof deck, substrate or thermal barriers, insulation, vapor retardant, underlayment, interlayment, base plies, roofing piles, and roof covering that is assigned a roofing classification.

**Roof Covering:** The outermost exposed surface material of a roof assembly, such as shingles, clay tiles, sheet metal, etc.

**State Responsibility Area:** An area of the State in which a State agency has primary fire protection responsibility. In some cases, the State will assume fire protection responsibilities in local jurisdictions by contract.

**Structure:** A residence and attached garage, building or related facility that is designed primarily for human habitation or buildings designed specifically to house farm animals. Decking, fences, and similar facilities are not considered structures for the purposes of establishing the limits of the fuel modification zone. Sheds, gazebos, and detached garages less than 250 square feet which are located within the fuel modification zone, shall be designed, constructed and placed such that they do not require the fuel modification zone to be increased beyond that required for the primary structures on the property.

**Subassembly:** A laboratory test section that simulates a portion of a structure or ancillary structure, and is of adequate size for obtaining representative fire testing results. The subassembly details are specified in the test protocols.

**Test Protocol, Fire:** A testing method developed to provide performance information on representative assemblies using agreed-upon fire exposures.

**Urban-Wildland Interface (UWI) Area:** A geographical area where structures and other human development meet or intermingle with, and threaten or are threatened by, vegetative fuels. Includes but is not limited to the hazardous areas defined by the AHJ and very high fire hazard severity zones as designated pursuant to Government Code and Public Resources Code.

**Vegetation Conflagration:** An uncontrolled fire spreading through vegetative fuels, and exposing and consuming structures in the advancing path of fire.

**Ventilation System:** All of the equipment intended or installed for the purpose of supplying air to, or removing air from, any room or space by natural air flow or mechanical means.

**Wall- Exterior:** Any wall or element of a wall, or any member or group of members, that define the exterior boundaries or courts of a building and has a slope of 60 degrees or greater with the horizontal plane.

**Weep Scream:** A layer of corrosion-resistant material placed a minimum of 4 inches above the earth or 2 inches above paved areas for the purpose of allowing trapped water to drain to the exterior of the building (1998 CFC paraphrased).

**Window:** An opening in a wall for light and ventilation, with all its appurtenances.

**Appendices:**

- A) UCFPL Test Protocols 1)
- B) Model Ordinance for Adoption of Performance-Based Building Standards in the Urban-Wildland Interface
- C) Performance Diagrams
- D) Fire Test Methods - Robert Brady Williamson

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- Governor's Office of Emergency Services: [www.oes.ca.gov](http://www.oes.ca.gov)
- California Fire Plan: [www/FireEmergencyResponse/FirePlan/FirePlan.asp](http://www/FireEmergencyResponse/FirePlan/FirePlan.asp)
- Fire Safe Councils: [www.firesafecouncil.org/](http://www.firesafecouncil.org/)
- Firewise Communities Program (NFPA): [www.firewise.org/](http://www.firewise.org/)
- United State Fire Administration: [www.usfa.fema.gov/](http://www.usfa.fema.gov/)
- National Fire Information Council: [www.nfic.org](http://www.nfic.org)
- National Technical Information Service: [www.ntis.gov](http://www.ntis.gov)

**APPENDIX B**  
**Model Ordinance for Adoption of Performance-Based Building Standards in the Urban-Wildland Interface**

Each jurisdiction will have a style, including rules of construction that is used to create internal consistency. The adopting ordinance should be approved with respect to style by legal counsel prior to submission to the Legislative Body. The draft submitted for approval should be as simple in words, terms, and structure as possible.

Keep it simple. Do not use the text of the ordinance for explanations or rationalizations. Use a cover letter or digest for such commentary. Do not bring in tangential issues or provide "hooks" that would enable other interests to impact the subject properties. Changes may be necessary in the safety element of a respective jurisdiction's Comprehensive Plan and other local land use policies and planning instruments to be consistent and enforceable.

\*\*\*\*\*

Ordinance # \_\_\_\_\_

An ordinance of the (legislative body) of the (jurisdiction) to amend the (jurisdiction's code) in order to provide fire safety regulations applicable to areas within the (city/county/district) and particularly within designated urban-wildland interface areas which represent an extraordinary fire risk.

Findings of Fact

The provisions of this Chapter are reasonably necessary because of the following local climatic, geological, or topographical and conditions:

Periodic conditions of extraordinarily high winds, high temperatures, and low humidity's.  
Unique configurations of slope gradients, elevations and aspects.  
Unusual natural and manmade barriers.

(provide additional local conditions as appropriate)

The conditions described above exacerbate the likelihood of fire occurrence and rapid spread, negatively impact accessibility and timely response, and present operational difficulties for fire suppression and evacuation activities.

Chapter # \_\_\_\_\_

Section 1.

This chapter shall apply to all real property located within the (jurisdiction) which is particularly within the designated urban/wildland interface areas as determined and declared by the (legislative body) based on location, topography, geology, flammable vegetation and climate, and described on a map prepared by the Fire Chief and maintained at (list public access location(s)).

Section 2.

Any person who constructs, modifies, or relocates, any structure in, or upon, a designated urban/wildland interface area, shall:

submit a Fire Protection Plan (FFP), to the Fire Chief for approval, describing the mitigation measures appropriate to establish and maintain reasonable fire safety in such buildings and on such property. This Fire Protection Plan shall address building materials and construction features, water supply, road access, address and road name signage, and combustible vegetation. And; submit to the Fire Chief evidence of deed encumbrance or other device that reasonably assures notice to subsequent purchasers of such land, that it is subject to special fire mitigation measures.

Section 3.

For purposes of developing the Fire Protection Plan (Section 2.a above), the applicant may use (the Model Ordinance for Defensibility of Space and Structures (2002 version) promulgated by the California State Fire Marshal).

Section 4.

Whenever the fire Chief disapproves an application or refuses to grant a permit applied for, or when it is claimed that the provisions of the code do not apply or that the true intent and meaning of the code have been misconstrued or wrongly interpreted, the applicant may appeal from the decision of the Fire Chief to (legislative body) within thirty (30) days from the date of the decision appealed.

Section 5.

If any provision of this Chapter is found to be unconstitutional or otherwise invalid by any court of competent jurisdiction, such invalidity shall not affect the remaining provisions which can be implemented without the invalid provision, and, to this end, the provisions of this ordinance are declared to be severable.

Section 6.

Rules of Construction. (provide local designations as appropriate)

Section 7.


This ordinance shall take effect and be in force thirty (30) days from and after its passage and, before the expiration of fifteen (15) days after the passage thereof, shall be published once, with the names of the members of the (legislative body) voting for or against the same in the (\_\_\_\_\_), a newspaper of general circulation, published in the County of (county of jurisdiction), State of California.

(local AHJ format, signature blocks, etc)



LAO   
RECOMMENDED  
LEGISLATION  


ELIZABETH G. HILL  
LEGISLATIVE ANALYST  
DECEMBER 2000



## ENVIRONMENTAL PROTECTION DEPARTMENTS

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### *Enact "Polluter Pays" Fees*

#### **Recommendation**

Require fees to fully cover costs of (1) environmental regulatory programs designed to prevent or reduce pollution and (2) programs for the cleanup and restoration of polluted properties and natural resources.

#### **Rationale**

Private parties that benefit from using public resources should be responsible for paying the costs imposed on society to regulate such activities. Environmental regulatory programs that are not fully funded from fees include the Air Resources Board's stationary and mobile source programs, the State Water Resources Control Board's (SWRCB's) core water quality regulatory and water rights programs, and timber harvest plan review by the Department of Forestry and Fire Protection and SWRCB.

#### **LAO Reference**

Please see our *1992-93 Analysis*, page IV-19 (financing of resources and environmental programs).

Also see our *1999-00 Analysis*, page B-109; and *1993-94 Analysis*, pages B-44, B-59, B-65, and B-69.

#### **LAO Contact**

Mark Newton: 445-5921

# DEPARTMENT OF FORESTRY AND FIRE PROTECTION

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## *Levy Fire Protection Fees*

### **Recommendation**

Require that property owners who directly benefit from fire protection services of the California Department of Forestry and Fire Protection (CDFFP) partially offset the costs of that service by paying a fee or obtaining fire insurance coverage.

### **Rationale**

The CDFFP provides fire protection services in state responsibility areas (SRAs). The SRA lands generally consist of all forestlands, watersheds, and rangelands that are not owned by the federal government or located within the jurisdiction of a city. Property owners in the SRAs directly benefit from the program, as does the state's population through the preservation of natural lands. Thus, the state and property owners who benefit from the program should share in the costs of providing fire protection services.

### **LAO Reference**

Please see our *1993-94 Analysis*, page B-43.

### **LAO Contact**

Jennifer Giambattista: 445-5921



Gray Davis  
GOVERNOR

State of California



Tal Finney  
INTERIM DIRECTOR

**DRAFT**

**HAZARD MITIGATION**

**Fire Hazard Planning & the General Plan**

**Governor's Office of Planning and Research**

August 2002



**DRAFT**

**Hazard Mitigation**

**Fire Hazard Planning & the General Plan**

Prepared for:

**The Governor's Office of Planning and Research**

1400 Tenth Street, Sacramento, CA 95812-3044, 916/322-2318, [www.opr.ca.gov](http://www.opr.ca.gov)

Tal Finney, Interim Director

**The Partnership:**

California Rural Policy Task Force, Governor's Office of Planning and Research (OPR)  
State Clearinghouse (OPR)  
Governor's Office of Emergency Services (OES)  
California Department of Forestry (CDF)  
Regional Council of Rural Counties (RCRC)  
California State Association of Counties (CSAC)

August 2002

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*The Governor's Office of Planning and Research (OPR) would like to acknowledge and thank the members of the Integrated Multi-Hazard Planning Group (The Partnership) for their invaluable assistance in identifying key issues and for providing input into the development of this integrated fire hazard planning tool.*

### **THE PARTNERSHIP MEMBERS**

- Scott Morgan, Project Director, State Clearinghouse, Governor's Office of Planning and Research
- Toni Symonds, Project Director, Director of the California Rural Policy Task Force, Governor's Office of Planning and Research
- Terry Roberts, Director of the State Clearinghouse, Governor's Office of Planning and Research
- Brian Grattidge, State Clearinghouse, Governor's Office of Planning and Research
- Rich Schell, Staff Chief for the California Fire Plan, California Department of Forestry and Fire Protection
- Melissa Frago, Fire Safe Planning and Data Collection Manager, California Department of Forestry and Fire Protection
- Chris Adams, Hazard Identification and Analysis Unit Manager, Governor's Office of Emergency Services
- Mike Staley, Senior Emergency Services Coordinator, Governor's Office of Emergency Services
- Frank Hauck, Emergency Services Coordinator, Governor's Office of Emergency Services
- Joan Smith, County Supervisor, Siskiyou County and Chair of California State Supervisor's Association Committee on Natural Resources
- John Hoffman, Director, Natural Resources, Regional Council of Rural Counties
- Richard Barnum, Planning Director of Siskiyou County

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"Consistent" means that development approvals and other related decisions of the County will further the policies and intent of the General Plan.

California law gives local governments wide latitude in designing or formatting General Plans. The seven (7) mandatory elements may be prepared as separate documents or combined. Regardless of format, the General Plan must be an integrated, internally consistent and compatible statement of policies. No one element has greater legal status or importance over another. Every policy in each of the elements must be compatible with the others.

In recognition of local differences, State law allows counties to tailor the General Plan to locally relevant issues. Within the seven (7) mandatory elements, the county need only address issues that are of local importance. Optional elements may be adopted in addition to the mandatory seven. These local differences make it rare to find two (2) General Plans that look alike.

There are many opportunities to address fire protection, fire prevention and hazard mitigation in the General Plan, most obviously in the safety element which deals with all manner of natural and man-made hazard to life and property. Unfortunately, wildlife hazard is often underplayed in the General Plan, either due to lack of recognition of the issue or because other issues have taken more prominence in the general planning process. With population growth creating more "urban-wildland interface" issues, and the increasing economic loss caused by wildland fire, this topic is due for review and incorporation into many local general plans.

## B. OPR GENERAL PLAN GUIDELINES

OPR's guidelines for the preparation of General Plans recommend that "attention be devoted to issues of concern to the community", and that "cities and counties need to address each issue to the extent it applies to the community." Counties have wide discretion in addressing locally important issues. The types of safety issues that concern each county may be very different, but many rural counties recognize wildland fire hazard as a growing concern, exacerbated by population growth and increasing demands on natural resources.

The General Plan must contain a statement of development policies and a diagram or diagrams and text setting forth objectives, principles, standards and plan proposals (GC Section 65302). The *General Plan Guidelines* attempt to clarify these terms and recommends a method to achieve this directive. OPR recommends that for every locally relevant issue, the county should articulate one or more broad objectives, establish more specific policies that would help achieve those objectives, and finally, devise implementation measures (specific action items or funding programs) to implement the policies. Before starting this process, adequate and accurate data and information must be collected and analyzed to provide the basis for sound policy decisions.

### 1. DATA AND ANALYSIS

Collection of appropriate data is necessary to describe the conditions, constraints, opportunities, and character of the issue. Fire and resource protection can be enhanced

(and part of the urban bias can be overcome) if the data and analysis portion of the Plan describe the wildland fire environment in detail: fire history, slopes, fuel loadings, average/worst fire danger, rates of spread, potential for structural threat, access. Post-fire flood damage potentials could also be described. The data and analysis section may include narrative descriptions, numerical data, maps, charts, and any other means of providing information about the issue of concern.

The data and analysis section is the starting point for better fire and resource protection. The more complete the analysis, the stronger the justifications for action will be. If data and analysis are weak or incomplete, then everything that follows will also be weak.

## 2. POLICY DEVELOPMENT

After an issue or concern is described in the data and analysis, there must be policies that state the jurisdiction's decisions to act, control, or mitigate the defined problems. Every aspect of a problem must have some kind of coping policy identified. For example, if fuel loading was identified in the data and analysis section as a problem, there should be some statement(s) to the effect that development will be designed or controlled to reduce the volume. If access was identified as a problem, there should be policies to improve road design.

## 3. IMPLEMENTATION MEASURES

These are the actual steps local government will take to implement their defined policies. Each policy described must have at least one (1) implementation measure, and may have several. For example, if a policy calls for improved access, then the implementation measure might be to adopt the road and street design recommendations in "Fire Safe Guides for Residential Development in California" into local ordinance. If a policy requires fuel reduction measures, then key ridges might be zoned for fuel breaks, and the zoning ordinance could require construction and maintenance by the developer.

## 4. THE MANDATORY ELEMENTS OF THE GENERAL PLAN

Section 65000 et. seq. of the Government Code is referred to as the Planning and Zoning Law. Section 65302 of the Government Code defines the seven (7) mandatory elements of a General Plan. Each of the elements must contain text that incorporates descriptions, policies, objectives, and standards. The text must be accompanied by, and consistent with, description "diagrams." (Planning law does not require detailed maps, only these "diagrams" approximate the planning intent.)

GC Section 65860 requires that General Plans be "internally consistent." From a practical standpoint, the requirement for internal consistency has two important meanings. First, it means that one element cannot contradict or conflict with any other element. All parts of the Plan must be integrated and offer mutual support to other parts of the Plan. Second, it means that the actions which follow general planning, such as specific plans, zoning ordinances, capital outlay projects, and development permits must meet the intent of the Plan's policies and objectives.

Six (6) of the mandated elements (excluding the noise element) are briefly described below, along with comment on their importance to fire and resource protection, and sample evaluation criteria (see Figure 1).

### **i. Land Use**

The Land Use element "dedicates" lands to particular purposes. It tells how the jurisdiction will designate and separate various uses such as commercial, industrial, and residential. Natural resource, agriculture, timber production, and flood plain areas (if any) must be included. A major intent of the element is to design areas for development that are compatible with one another. That is, "heavy industrial" areas should be separated from, and not adjacent to, residential areas. On the other hand, "light commercial" or "shopping center" designations may be compatible with residential uses. Sometimes commercial areas are designed as "buffers" or "gradual-change" uses between residential and industrial areas.

#### **Importance:**

Examination of the Land Use element in comparison with State Responsibility Area (SRA) lands may show current or future conflicts with fire and resource protection. All too frequently, the "compatibility" of uses is violated where development encroaches into wildlands. All types of uses are designated in, or adjacent to, hazardous fire areas without buffer zones or other mitigating measures. Land Use policies should consider and reduce these conflicts. Since zoning districts are derived from land use designations, it is important to assure that those designations, policies, and ordinances are compatible with wildland protection. For example, Residential, Open Space, Agriculture, and Timber Preserve land uses could be designated to include fuel break and fuel reduction zones.

#### **Sample Evaluation Criteria:**

Does the Land Use element include wildland fire risks and hazards in the data and analysis section? Do policies include requirements to reduce hazard levels by various means? Are recreation areas (parks, golf courses) and agricultural uses (pastures, irrigated tree farms) located to provide "buffers" between development and wildlands?

### **ii. Housing**

This element is required to designate how the government will regulate density and intensity of residential development. It includes provisions for low income and handicapped needs. In some cases, it may actually allow lower standards of design and construction to encourage "affordable" housing.

#### **Sample Evaluation Criteria:**

Does the data and analysis section for this element describe vulnerable, unsafe areas for "sub-standard" housing? Do the policies recognize these areas so that this type of development is prohibited there? Are required construction standards in conflict with defined fire protection needs (access, roofing, fire flow)? If so, what compensating mitigation measures are required to provide safety?

## FIGURE 1

OPPORTUNITIES FOR FIRE AND RESOURCE PROTECTION IN  
GENERAL PLAN ELEMENTS

<u>ELEMENTS</u>	<u>OPPORTUNITIES</u>
Land Use	Greenbelts, Fuelbreaks, Fuel Reduction, Buffer Zones, Water Supply Requirements
Housing	Definition of Hazard Areas and appropriate mitigation for "Affordable Housing".
Circulation	Strategic Access, Road Design, Helibases, Helispot, Evacuation Routes (ground and air).
Conservation	Fuelbreaks, Fuel Reduction Zones, Additional Design Requirements for Development near Commercial Timber Zones (TPZ's), Air Tanker Base Locations, Helibases and Helispots.
Open Space	Fuelbreaks, Fuel Reduction Zones, Strategic Access and Water Supplies, Off-Site Linking of Strategic Improvements.
Safety	Evacuation Routes, Water Supplies, Road Standards, Fuel Reduction Buffer Zones, Air Access, Definition of Hazard Areas and Mitigation Requirements.



### III. Circulation

This element consists of the general location of existing and planned transportation routes and public utilities. Designations, policies, and implementation measures in this element (and all others) must be correlated (consistent) with the Land Use element. The information is usually shown on maps or diagrams to show how the transportation system serves the various land use designations.

**Importance:**

This is the primary designator of access routes and road design requirements (not engineering standards). GC Section 14000 requires that the Circulation element provide transportation facilities that reduce hazards to human life and minimize damage to natural resources. This provides the opportunity to make strong recommendations about transportation routes and design requirements such as turn-outs, helispots, and safety zones.

**Sample Evaluation Criteria:**

Does the element plan for satisfactory access to high hazard areas? Are standards high enough to provide safe evacuation from residential (and other) land use designations? Are policies defined to limit the number and length of one-way roads? Are heliports and helispots designated in areas that will facilitate suppression and other emergency needs?

### IV. Conservation

This element describes how the jurisdiction intends to protect and conserve its natural resources. The element should cover water, soils, forests, wildlife, and fisheries. Potential fire and flood impacts on all resources should be included.

**Importance:**

This element ties directly to the CDF mission of protecting SRA lands. It should be written to facilitate that mission. As with all other elements, this one must be consistent with the overall General Plan. It has to "make sense" in the way it relates the natural resource management policies to everything else. (In some counties, urban bias shows itself quite clearly in this element: only the local wastelands, rocky ridges, and impassable canyons are included in the element. This practice is not the intent of the Legislature nor the Planning and Zoning Law.)

**Sample Evaluation Criteria:**

Is the element consistent and logically applied, or does it just gather up unusable areas and "lump" them into a conservation category? Does the element discuss resource values? Are potential resource losses from fire (soil loss, sedimentation, local flooding, timber production, wildlife habitat, etc.) included in the data and analysis section? Do policies include management options of prescribed fire and fuelbreaks to enhance protection?

## v. Open Space

This element designates areas for preservation and managed production of natural resources, outdoor recreation, and public health and safety. The Open Space element is related to the Conservation element in some ways, and designated lands in either element could be actually or nearly the same. The important difference between Conservation and Open Space elements is the very specific inclusion of public health and safety requirements in Open Space. Section 65560-4 of the Government Code dictates that the element should include designation of "areas that require special management because of fire risks." The Code authorizes the connecting or linking of these areas into complete networks in the interest of public safety.

### Importance:

The Open Space element offers opportunity to analyze conflagration potential and to design fuelbreak and fuel reduction zones, helispots, access, and water systems into strategic fire defense improvement systems. Developers can be required to construct and maintain the improvements. Inclusion of strategic defense improvements in the Open Space and Safety elements will lead to zoning for such improvements and eliminate the owner-by-owner agreements and public agency financing now necessary for construction and maintenance.

### Sample Evaluation Criteria:

Does the element relate to fire safety and suppression effectiveness? Is it correlated with the Land Use, Safety, and Conservation elements to provide integrated and systematic resource and public protection improvement? Does the element contain policies and implementation measures requiring dedication, construction, and/or maintenance of these improvements on all projects?

## vi. Safety

The Safety element defines community protection measures in relation to fires, seismic and geological hazards. It must include provisions for evacuation routes, water supply, minimum road widths, and clearances around structures. It should include mapping of fire hazard severity zones, and could include analyses of minimum suppression resources required.

### Importance:

The element can be used to strengthen or further justify other elements. It is an excellent place to include project design requirements to reduce hazard levels, and provide for mitigation measures not included elsewhere in the General Plan. It may also be used to justify strategic fire defense systems zoning.

### Sample Evaluation Criteria:

Does the element correlate with others to provide for the best and safest suppression actions? Does it recognize evacuation needs? Does it address the traditional suppression problems and include policies and implementation measures to eliminate those problems? (Almost all of the suggestions and evaluation criteria for the other elements can be applied.)

If any General Plan element (or elements) is judged legally inadequate, development approvals in the jurisdiction could be suspended until the deficiencies have been corrected. This is a powerful incentive to any jurisdiction to review its Plan for completeness and adequacy.

Formal review is a job for attorneys and the courts, but the following questions can be used as an informal or initial test to determine whether or not a General Plan is weak or strong in terms of legal adequacy.

- It is complete? Are the seven (7) mandatory elements included?
- Does each of the elements contain supporting data, analysis, policies and implementation measures?
- Is it internally consistent? Do elements, data, policies, and implementation measures fit together? Are there omissions, conflicts?
- Is it long-term in perspective? Does it plan for the population growth, development potential, and resource issues that the community will face in the foreseeable future (usually 20 years)?
- Does it address all locally-relevant issues? What does it say about fire? Does it include a strategy to deal with wildland protection and fire hazards?
- Does it meet statutory criteria? Do the Conservation, Open Space, and Safety elements provide for public safety and resource protection? Does the Land Use element define hazard areas?
- Are maps and diagrams adequate? Can you tell where specific uses are authorized? Where restrictions apply? Are map and diagram descriptions in agreement with the General Plan text?

General Plans should be reviewed periodically to ensure that they continue to reflect current values and policies of the community, and that they contain accurate information about existing resources and hazards. If necessary, the General Plan should be revised or amended to remain current.

## C. SUBORDINATE PLANNING TOOLS

California courts have placed General Plans "atop the hierarchy of local government law regulating land use." It is clearly established that all other planning and development approvals are subordinate to the General Plan and must be consistent with the General Plan. All development permits, public works projects, and zoning decisions must be consistent with the General Plan and its policies. There are numerous subordinate planning tools that may be used to implement the General Plan. Three commonly used tools are briefly described below to illustrate how fire safety can be incorporated into site specific or project specific developments.

### 1. SPECIFIC PLAN

A Specific Plan is a tool for the systematic implementation of the General Plan within all or a portion of the county's planning area. It may encompass unlimited land area within

the jurisdiction, may deal with only one or all policies in the General Plan, and may even delve into subjects that were not addressed in the General Plan if they are relevant to the community. At a minimum, the Specific Plan must include a text and diagram which specifies all of the following: (1) the proposed distribution, location and extent of all land uses including open space, (2) the proposed distribution, location, and extent of major components of the transportation, sewage, water, drainage, solid waste disposal, energy, and other essential facilities that are needed to support the proposed land uses, (3) standards and criteria by which development will proceed and standards for the conservation and use of natural resources, and (4) a program of implementation measures including regulations, programs, public works projects, and financing measures to carry out the Specific Plan.

All principles, goals, objectives, policies, standards, and implementation measures of the Specific Plan must be consistent with the General Plan. Adoption of a Specific Plan is a legislative act similar to the adoption of the General Plan or zoning ordinance. It can be adopted by resolution or by ordinance and may be amended as often as necessary. All future public works projects, zoning actions and development activities within the planning area must be consistent with the Specific Plan.

A Specific Plan is particularly useful for planning large projects whose development may be phased over time. It can be used to assemble a set of land use specifications and implementation programs tailored to the unique characteristics of a particular site. Specific Plans can stipulate development timing or set a schedule for infrastructure improvements to solve problems like exposure to wildland fire hazard.

## 2. SUBDIVISION ORDINANCE

Land cannot be subdivided for sale, lease or financing in California without local government approval. The Subdivision Map Act (GC Section 66410, et seq.) establishes the basic subdivision procedures, while giving local government the authority to regulate the design and improvement of subdivisions, require dedications of public improvements, require payment of impact fees, and require compliance with the objectives and policies of the General Plan.

These regulatory powers can promote the usual array of land use, circulation, open space and safety element objectives, policies, and implementation measures. Regulation of subdivision design can encourage numerous General Plan objectives including wildland fire safety, through the requirement to address fire prevention measures such as emergency access, adequate infrastructure and facilities, and separation (buffers) between buildable lots and wildland areas. Local governments can also require dedication of public improvements and land (through fee title or easements) to serve the subdivision.

A tentative subdivision map or parcel map cannot be approved unless the county finds that the subdivision, together with design and improvement conditions, is consistent with all aspects of the General Plan or any applicable Specific Plan. Two (2) of the findings that can cause a subdivision to be denied are (1) that the site is physically ill suited for the proposed type or density of the development or (2) that the subdivision's design or improvements are likely to cause substantial environmental damage or cause public

health problems (GC Section 66474). These are important considerations for counties who are reviewing subdivision proposals in areas that are subject to wildland fire hazard.

### 3. DEVELOPMENT AGREEMENT

Development Agreements are contractual agreements voluntarily entered into by a county and a developer to vest development rights for a specific development project. They provide the developer with the advantage of "locking-in" zoning and development regulations for a specified time period, giving the developer a degree of assurance that some future local policy or regulation will not nullify a development proposal. In exchange, the Development Agreement allows the local jurisdiction to obtain additional concessions from the developer, such as higher design standards or dedication of additional public facilities, or otherwise obligate the developer to provide improvements in excess of the usual legal limits on exactions.

Through the Development Agreement, the county may require the reservation or dedication of land for public purposes and may include conditions and restrictions for subsequent discretionary actions. For example, the county may require dedication of emergency access easements, dedication of land for fire fighting facilities, on-going maintenance of those facilities, and subsequent review of fire safety plans before later phases of development can begin. (GC Section 65865.2.)

It is important that local governments be aware of their authority to negotiate and enforce the terms of a Development Agreement to prevent and mitigate wildland fire hazards. Since many Agreements include phased development anticipated to occur over many years, they often describe the first phase of development in detail, but leave later phases less well defined. To ensure that fire prevention, protection and mitigation are adequately considered in all phases of a project, it is important for local jurisdictions to anticipate fire protection needs for all phases of the project, condition the Agreement accordingly, and monitor and enforce the terms of the Agreement.

GC Section 65865.1 requires annual review of the Development Agreement at which time the developer must demonstrate good faith compliance with the terms of the Agreement. If the county finds that this has not occurred and makes the necessary findings, it may terminate or modify the Agreement. Where measures to prevent and mitigate fire hazard have been incorporated into a Development Agreement and have not been implemented according to the Agreement, the county should be aware that it has this power to enforce compliance.

## II. THINGS TO CONSIDER WHEN DEVELOPING FIRE PLANS

### A. FIRE HAZARD - ALL AREAS

Fires are regular occurrences in California and mitigation opportunities exist at all stages including before, during and after a fire event. This subsection includes general considerations for prevention, protection and fire loss mitigation. Subsequent subsections address special considerations for wildland, urban interface and urban areas.

#### 1. ASSETS AT RISK FROM WILDFIRE

Possible affected GP Elements: Safety, Housing, Land Use

##### Data & Analysis:

Below is a list of data that may be useful in establishing a current picture of assets at risk, both public and private, which may be effected by wildfire. In order to identify the local assets at risk from wildfire collect and analyze the following:

- Check with the local CDF unit for California Fire Plan information with regards to assets at risk.
- Identify assets at risk including, but not limited to:
  - Recreational areas
  - Scenic areas
  - Ecologically significant areas
  - Critical watersheds
  - Public and private timberland
  - Wildlife habitat
  - Rangelands
  - Sensitive soils
  - Landslide prone areas
  - Water supplies
  - Watersheds prone to contribute to flooding
  - Air Quality
  - Historic sites
  - Emergency Shelters
  - Structures, such as homes and business
  - Utilities and accompanying infrastructure
  - Population and economic centers.
- Classify assets based on their vulnerability to wildfire.
- Evaluate the identified assets based on economic and social value to the community and replacement value.
- Prioritize the assets for assisting in the selection of mitigation efforts and development of fire response plans.

**Note:** Assets are tangible and intangible. Prioritization can be accomplished in a variety of ways: most expensive to replace, easiest to protect, broadest benefit to community, closest to urbanized areas and any other priority system that may be relevant to the community.

- Additional data and analysis may be appropriate based on local conditions and geographic circumstances.

**Policy Examples:**

Based upon the data, analysis and prioritization of the local assets, policies should be developed appropriate for local conditions to mitigate potential losses due to wildfire.

In developing appropriate local policies to protect assets which may be at risk in the event of a wildfire, there are several key areas to consider including but are not limited to, cost of protection/mitigation, ability to protect the asset or mitigate the threat, and the consequences of losing the asset to the community.

The following are examples of policies that a local government might adopt to mitigate damage to assets, both public and private, related to a wildfire:

- The County shall establish site specific safety measures to protect county assets from wildfire.
- Public and Private landowners shall implement site specific safety measures that mitigate to a low risk condition fire hazards around county assets.
- County agencies shall work cooperatively with other agencies and private interests to educate private landowners on fire-safe measures to achieve a low risk condition.
- Public and private funding, where available shall be used to the greatest extent practical to assist private landowners in implementing safety measures to achieve a low risk condition.
- Public and private property owners shall create and maintain a 1/4 mile fuel modification zone (buffer zone) around county assets to achieve a low risk condition.

**2. WATER SUPPLY**

Possible affected GP Elements: Safety, Conservation and Open Space

**Data & Analysis:**

Below is a list of data that may be useful in establishing a current picture of water supplies related to wildfire suppression. In order to identify inadequate water supplies with regards to wildfire suppression collect and analyze the following:

- Review National Fire Protection Association Standards 1141 and 1231.
- Identify existing peakload water supply including private water supplies which might be used to fight wildfires.
- Determine current minimum peakload water supply necessary to serve the area.
- Project future peakload water supply and demand
- Evaluate the adequacy of the water delivery system.

- Identify and price potential improvements to the water supply to meet the current and projected identified need.
- Identify peakload water supply requirements necessary to avoid unacceptable risks.
- Evaluate cost benefit analysis of additional water storage with regards to wildfire suppression.

#### Policy Examples:

Based upon the data and analysis of the hazards, risks and vulnerabilities, associated with water supply, policies should be developed appropriate for local conditions to ensure access and availability of water supply in case of a wildfire. Issues which policy makers may wish to consider include, but are not limited to, protecting existing water supplies, developing additional water supplies and maintaining and/or enhancing the integrity of the delivery systems.

The following are examples of policies that a local government might adopt with regards to water supply and fire hazards:

- Public agencies shall maintain adequate water supplies to provide reasonable protection of assets from wildfire without disruption to community water supplies.
- Implement Office of Emergency Services URAMP Program.
- The county shall adopt a specific water supply standard such as NFPA 1142, "Rural Water Supplies". A developer shall certify compliance with that standard and continue maintenance and availability of that water supply.
- Each property outside of a developed water system shall maintain sufficient usable water storage to provide wildfire and structure protection on the property.

### 3. EMERGENCY SERVICES

Possible affected GP Elements: Safety, Circulation, Land Use, Open Space, Conservation

#### Data & Analysis:

Below is a list of data that may be useful in establishing a current picture of emergency services related to wildfire. In order to identify the local emergency services needs related to wildfire, collect and analyze the following:

- Emergency response:
  - Identify the LAFCO approved service areas of emergency services including fire, police, ambulance, etc.
  - Review the LAFCO municipal service review (MSR), if completed, for the emergency services in the area. If no MSR is available, undertake your own review of the services including cost, municipal service level, response time, condition of existing facilities and vehicles, local delivery system and other relevant information.
  - Identify (map) existing and proposed emergency service facilities.



- Identify areas where emergency services are not readily available.
- Determine the projected need for emergency services in the area.
- Based upon the LAFCO MSR, your own MSR and any other related information, evaluate the adequacy of existing emergency services and demand for additional services for current and projected need in the area.

Note: Beginning in 2000. . MSR background

#### Policy Examples:

Based upon the data and analysis of local emergency services, policies should be developed appropriate for local conditions to mitigate potential losses due to wildfire. Issues which policy makers may wish to consider include, but are not limited to, mutual aid and other protection/response partnerships, desired emergency service levels, available resources to sustain the desired level of emergency services, the cost of maintaining protection measures, reasonable supplemental funding mechanisms, public awareness of emergency service levels, protection capability relative to growth and development, and centralized versus decentralized training opportunities.

The following are examples of policies that a local government might adopt with regards to emergency services:

- No development shall be approved unless the local government can make a finding that development can be reasonably accessed and served in the case of a wildfire.
- New development and subdivisions shall include appropriate facilities to assist and support wildfire suppression.
- Fire safe measures shall be commensurate with the response time for emergency services (e.g. longer distance to a fire department calls for more stringent mitigation measures).
- Communities and open space areas shall provide ¼ mile fuel modification zone for areas suitable for emergency protective services.
- Fire Districts/Departments will engage in wildland fire training with a recognized state or federal wildland fire agency at least once a year.
- All new fire district/department staff responsible for fire suppression activities shall receive a minimum of \_\_\_ hours of training in local terrain during their first year.
- County shall identify and/or construct a low risk fire safety area (location) where community members can evacuate to and wait until emergency service providers can reach them. The county shall annually review the adequacy of the fire protection infrastructure relative to growth and development.
- The county shall consider the long-term maintenance needs of emergency service equipment and facilities when developing its annual budget.

#### 4. EMERGENCY EVACUATIONS

Possible affected GP Elements: Safety, Circulation, Land Use, Open Space

##### Data & Analysis:

Below is a list of data that may be useful in establishing a current picture of local need and potential response strategies for emergency evacuations related to wildfire. In order to evaluate local emergency evacuations with regards to wildfire collect and analyze the following:

- Identify previously designated emergency evacuation routes.
- Identify the number of people who currently use these routes.
- Develop a projected increase of people who would need to use these routes over the next ten years.
- Identify potential circulation improvements necessary to avoid unacceptable community risks.
- Evaluate the availability and access of signed routes for use by evacuees and response vehicles during a fire emergency.
- Identify potential availability of alternate routes.
- Identify the adequacy of the access and evacuation routes relative to the degree of development or use (e.g., road width, road type, length of dead-end roads, turnouts, etc.) (Public Resources Code (PRC) 4290.)
- Evaluate the potential for disruption to evacuation routes from fire, landslide movement, fault ruptures, earthquake-triggered failures, volcanic eruption and other hazards.
- Identify the location and capacity of existing emergency shelters.
- Estimate the need for expanded capacity at existing shelters or the need for additional emergency shelters. Shelter needs include residents, workers, campers, tourists and other people reasonably expected in the area.

##### Policy Example:

Based upon the data and analysis of various scenarios for emergency evacuations at the local level, policies should be developed appropriate for local conditions. Issues which policy makers may wish to consider include, but are not limited to, the cost for retrofitting evacuation routes relative to sheltering in place, public awareness of evacuation routes, maintain the availability of evacuation routes and unique conditions relative to specific land uses or special needs populations. The following are examples of policies that a local government might adopt with regards to emergency evacuations:

- The county shall designate and maintain safe emergency evacuation routes from all communities and assets at risk.
- The county shall establish a unified road signing and street addressing system.

- The county shall establish and maintain low risk fire safety areas (location) and/or emergency shelters.
- The county shall establish a public information program educating the public on evacuation routes and fire safety.
- The county shall provide for broad public access to information regarding evacuation routes.
- The county shall establish minimum roads widths and flammable vegetation clearances for evacuation routes. (*PRC Sections 4290 and 4291*)

## 5. FIREFIGHTER SAFETY

Possible affected GP Elements: Safety, Land Use

### Data & Analysis:

Below is a list of data that may be useful in establishing a current picture of firefighter safety related to wildfire. In order to identify the local areas at risk with regards to firefighter safety collect and analyze the following:

- Identify existing defense zones.
- Identify low risk fire safety areas (location).
- Identify existing and alternate evacuation routes.
- Evaluate adequacy of existing defense zones.
- Evaluate need for additional defense zones to protect assets or communities at risk.
- Evaluate area to determine where it would be unsafe for ground fire fighting.
- Designate and map updated defense zones.

### Policy Example:

Based upon the data and analysis of the hazards, risks and vulnerabilities, regarding firefighter safety, policies should be developed appropriate for local conditions. Issues which policy makers may wish to consider include, but are not limited to, ability to maintain safety areas and defense zone, the appropriateness of centralized or decentralized training and unique geographic considerations for fire fighters.

The following are examples of policies that a local government might adopt with regards to firefighter safety:

- Public agencies shall designate and maintain low risk fire safety areas (locations).
- Public agencies shall designate and maintain fire defense zones where fire fighters can control wildfire without undue risk to their lives.
- Designate and publicize areas where firefighter safety prohibits ground attack fire fighting.

- Public Agencies and residential developments shall maintain fire defense improvements.

## 6. FIRE EFFECTS (MINIMIZING FIRE LOSS)

Possible affected GP Elements: Conservation, Open Space, Land Use

### Data & Analysis:

Below is a list of data that may be useful in establishing a current picture of fire effects related to wildfire:

- Establish desired initial attack success rate.
- Identify maximum acceptable fire size.
- Determine which geographic areas would benefit from mitigation programs to reduce fire effects in the event of fire.
- Estimate cost of treatment methods and compare to cost of suppression.
- Determine which mitigation measures should be used in each geographic area to accomplish fuel modification and reduce fire risk. The following are possible choices:
  - Education
  - Increase initial attack capability
  - Prescribed Burns
  - Wildfire protection zones
  - Forest thinning
  - Grazing

### Policy Examples:

Based upon the data and analysis of the hazards, risks and vulnerabilities with regards to fire effects, policies should be developed appropriate for local conditions. Issues which policy makers may wish to consider include, but are not limited to, treatment costs verses suppression costs; cost, benefits and opportunities for mitigation at the parcel level verses the landscape level; cost to replace a community asset; impact of an irreplaceable community asset; the potential impact of mitigation measures on areas of special concern (cultural, environmental); and, fixed fire defense opportunities vs land management opportunities.

The following are examples of policies that a local government might adopt to mitigate fire effects:

- Forest thinning, grazing, and hand or mechanical clearing shall be conducted in lieu of prescribed fire unless prescribed fire can be clearly shown to provide the greatest overall benefit.
- Each community shall establish and maintain a plan that identifies hazards and risks, identifies targeted priority areas, and establishes preferred vegetation/fuel treatment methods and timing.

## B. FIRE HAZARD - WILDLAND AREAS

In addition to the areas of concern listed in the "Fire Hazards-All Areas" section, the following should be considered when developing policies related to wildland areas.

### 1. FUEL MODIFICATION

Possible affected GP Elements: Safety, Land Use, Open Space, Conservation

#### Data & Analysis:

Below is a list of data that may be useful in establishing a current picture of fuel modification in wildland areas related to wildfire. In order to identify the local areas at risk with regards to fuel modification collect and analyze the following.

- Identify and classify fire hazard severity zones based on:
  - Degree of development.
  - Fuel loading.
  - Weather.
  - Slope.
  - Aspect.
  - Accessibility to fire protection assistance (i.e., response time, availability of helispots, proximity of air tanker attack bases, availability of woods workers, etc.).
  - Proximity to communities or assets at risk.
  - Historic fire data.
  - Other pertinent information and maps (see GC Sections 51178-51189.5, PRC Sections 4201-4205 and <http://www.fire.ca.gov/ab6/ab61st.html>).
- Analyze the potential for fire to critically impact or eliminate habitat or open-space values.
- Identify the policy implications for fire safe or fuels reduction policies of both public and private conservation or open-space areas.
- Prioritize areas needing vegetation/fuel treatment by:
  - Identify maximum acceptable fire size.
  - Estimating costs of treatment methods.
  - Developing timeline for implementation and maintenance of fuels treatments.
  - Evaluating how treatment methods impact habitat and open space resources and floodplains.

#### Policy Examples:

Based upon the data and analysis of the hazards, risks and vulnerabilities with regards to fuel modification, policies should be developed appropriate for local conditions to mitigate potential losses due to wildfire. In addition to the issues discussed in Fire Hazards - All Areas, policy makers may wish to consider other issues unique to wildland fires including, but are not limited to, acceptable level of fire risk, the degree of consistency and coordination between public and private landowner fuel modification

activities, the variety of fuel modification techniques and public awareness and ability to comply with residential clearance policies.

The following are examples of policies that a local government might adopt with regards to fuel modification to mitigate fire hazards in wildland areas.

- Prior to the construction of any structure, whether residential, recreational, or commercial, a site specific fuel mitigation plan shall be prepared. The location and development of any road, or any other man-made structure that may act as a fuel barrier, shall be done in consideration of its maximum benefit as a fuel barrier/fire break.
- All residences shall comply with the fuel modification requirements of PRC Section 4291, whether located in state responsibility or local responsibility areas.
- Forest thinning and grazing and hand or mechanical clearing shall be conducted in lieu of prescribed fire unless prescribed fire is clearly shown to provide the greatest overall benefit.
- County resources will work with landowners to assist in choosing the best method of fuel reduction.
- County shall establish desired initial attack success rate.
- Evaluate how methods impact habitat and open space resources and floodplains.
- Identify preferred methods for areas needing treatment:
  - Education
  - Increase initial attack capability
  - Prescribed fire
  - Wildfire protection zones
  - Forest thinning
  - Grazing
  - Mechanical clearing
  - Hand clearing (piling, burning/chipping)

## C. URBAN INTERFACE AREAS

In addition to the areas of concern listed in the "Fire Hazards-All Areas" section, the following should be considered when dealing with urban interface areas.

### 1. URBAN INTERFACE HAZARDS

Possible affected GP Elements: Land Use

#### Data & Analysis:

Below is a list of data that may be useful in establishing a current picture of fire hazards in the Urban Interface. The purpose of the collection and analysis of the following data is to determine areas containing hazards, risks, and vulnerabilities in the Urban Interface. In order to identify the local areas at risk from wildfire collect and analyze the following:

- Check the list of "Communities at Risk" per the National Fire Plan (see [www.cafirealliance.org](http://www.cafirealliance.org)).
- Check "high fire hazard severity zones" maps. (GC Section 51178, see maps at <http://ceres.ca.gov/planning/nhd/> and check with local governments for updates).
- Update "high fire hazard severity zones" maps as necessary.
- Inventory and prioritize your assets at risk (public and private).
- Undertake cost/benefit analysis of various hazard mitigation measures as opposed to fire suppression.
- Establish low risk category standards (tree spacing, predicted surface fuels flame length to crown height ratios, etc).

**Policy Examples:**

Based upon the data and analysis of the hazards, risks and vulnerabilities, policies should be developed appropriate for local conditions to mitigate potential losses due to wildfire.

In addition to the issues discussed in Fire Hazards - All Areas, urban interface areas may require the consideration of other conditions including construction and zoning requirements, impact of permanent residents vs seasonal residents, and maintenance of mitigated areas.

The following are examples of policies that a local government might adopt to mitigate fire hazards in the urban interface:

- Public and private landowners shall minimize the risk of wildfire moving from one property to adjacent property.
- Public landowners shall provide a minimum of ¼ mile defensible fuel profile (buffer zone) at property lines and near points of special interest.
- Public landowners shall implement safety measures that result in a low risk category designation for wildfires threatening the urban interface.
- County agencies shall work cooperatively with other agencies and private interests to educate private landowners on fire-safe measures to implement in order to achieve a low risk category designation.
- Public and private funding for fire risk hazard reduction shall be prioritized to assist private landowners in implementing safety measures for a low risk designation.
- All residential, commercial and industrial construction and development will comply with the Board of Forestry's State Responsibility Area Fire Safe Regulations (see California Code of Regulations, Title 14, Sections 1270 et seq.) relating to roads, water, signing and fuel modification.
- Public and private property owners shall maintain property in a low risk category (PRC Section 4291 and GC Section 51182).

## D. FIRE HAZARD - URBAN AREAS

In addition to the areas of concern listed in the "Fire Hazards-All Areas" section, the following should be considered when dealing with urban areas.

### 1. FUEL/STRUCTURE MODIFICATION

Possible affected GP Elements: Safety, Land Use, Open Space, Conservation, Housing

#### Data & Analysis:

Below is a list of data that may be useful in establishing a current picture of fuel and structure modifications in urban areas related to wildfire. In order to identify the local areas/structures at risk with regards to fuel and structure modifications collect and analyze the following:

- Identify and classify fire hazard severity areas (Bates Bill?).
- Evaluate age, condition, and size of structures (code related issues) .
- Evaluate use and occupancy of structures.
- Evaluate construction materials and roofing assemblies.
- Evaluate structure density.
- Evaluate access and evacuation routes.
- Evaluate historical fire data.
- Evaluate other pertinent information (maps).
- Evaluate landscaping as potential fire hazard.
- Evaluate neighborhood defensible space (island of safety).
- Identify fire protection jurisdictions.
- Evaluate use of open space and other facilities as part of overall fire protection/mitigation plan.
- Inventory urban forests and evaluate affect with regard to fire hazard.

#### Policy Examples:

Based upon the data and analysis of the hazards, risks and vulnerabilities with regards to fuel/structure modifications, policies should be developed appropriate for local conditions to mitigate potential losses due to fire. In addition to the issues discussed in Fire Hazards - All Areas, urban areas may require the consideration of other conditions including construction and zoning requirements, impact of permanent residents vs seasonal residents, maintenance of mitigated areas, access routes, acreage of open space and/or areas having wildland fuel characteristics vs wildfire response capability. The following are examples of policies that a local government might adopt to mitigate fire hazards in urban areas.

- Urban developments shall be planned and constructed to resist the encroachment of uncontrolled fire.



- Creation of a self assessment district to maintain a fuel modification program.
- Establish public education services through the appropriate fire protection agencies.
- Open space facilities will be planned, designed, and placed to provide for fire protection/mitigation.
- Structures with fire protection sprinkler systems must provide for outside alarm notification.
- In high fire hazard areas fire rated roofing and construction materials shall be used in reconstruction and new development.
- Use of fire rated materials for construction purposes shall not be used as a means to discriminate against affordable housing policies.
- Open spaces shall be maintained so that ground fuels don't promote the spread of wildfire and aerial fuels don't allow the spread of a fire through the tree canopy.
- Public Open Spaces shall be used as demonstration areas and examples to neighborhood residents.
- Create an urban forestry plan to be concert with local fire plan.

## **E. POST EVENT RECOVERY & MAINTENANCE**

### **1. POST EVENT SECTION**

#### **Introduction**

The Recovery and Maintenance phase is an opportunity for the community and landowners to re-evaluate land uses and practices. A current General Plan will usually have the baseline data which to make the analysis.

### **2. SHORT TERM RECOVERY: DIRECTLY RELATED TO IMPACTS OF FIRE**

**Possible affected GP Elements:** Land Use, Open Space, Conservation

#### **Data & Analysis:**

Below is a list of data that may be useful in establishing a current picture of short-term recovery possibilities related to impacts of a wildfire.

- Evaluate post fire fuel hazard ratings.
- Evaluate vegetation/fuel conditions relative to future flood and fire control
- Evaluate vegetation conditions relative to future fire conditions and wildlife habitat

#### **Policy Examples:**

Based upon the data and analysis, policies should be developed for short term recovery methods that are appropriate for local conditions to mitigate potential future losses due to wildfire. Issues that public policy makers may choose to consider include but are not

limited to, benefit of recommended measure commensurate with the protection needed, opportunities for re-introduction of native species, short term recovery needs vs long term environmental health, debris removal vs habitat health, and consider short term flood risks and mitigation opportunities.

The following are examples of policies that a local government might adopt to mitigate wildfire impacts in the shortly after an event.

- The County shall endeavor to reduce post fire recovery time by replanting native species.
- Ensure fire protection measures provide sustainability for restoration projects.
- Ensure reduced future fire risk by removing sufficient dead woody vegetation while retaining reasonable wildlife habitat (cross-link with water quality).
- Retain sufficient downed logs for erosion control as well as habitat.

### 3. LONG TERM OPPORTUNITIES-MAINTENANCE

Possible affected GP Elements: Safety, Land Use, Open Space, Conservation

#### Data & Analysis:

Below is a list of data that may be useful in establishing a current picture of long term maintenance opportunities related to wildfire:

- Identify endangered species, cultural and historic resources, hazardous material conditions.
- Evaluate patterns and trends of development.
- Evaluate impacts, and potential impacts, of event on availability and condition of infrastructure.
- Evaluate impact, and potential impacts of the event on environment and ecosystem, including primary, secondary, and tertiary impacts.
- Evaluate "Fire Plan", Safety Element, for adequacy.

#### Policy Examples:

Based upon the data and analysis of the long term maintenance opportunities policies should be developed appropriate for local conditions to mitigate potential losses due to wildfire. Issues that public policy makers may choose to consider include but are not limited to, the extent to which existing land use designations are appropriate, the potential for the re-evaluation of community assets, the success of past mitigation measures, sustainability of recommended fire mitigation measures and assurance that mitigation measures are continued to be implemented.

The following are examples of policies that a local government might adopt to mitigate fire impacts over the long term.

- Subdivisions and developments shall be designed to exist in concert with the natural ecosystem and to promote forest health and stewardship.

- Protect investment through reduction of fire risk.
- Extend defensible fuel profile zone agreements to subsequent landowners.
- Promote the opportunity to return to native plant species.
- In high risk wildland fire areas rebuild structures with a minimum 100 foot setback (when feasible) from property lines.
- Residential dwellings will be re-built using state of the art construction methods, materials, codes, and standards to reduce their susceptibility to wildfire.
- The legislative body shall periodically review the jurisdictions fire history and lessons learned, for the purpose of ensuring that mitigation measures are being maintained.

## F. FLOOD HAZARD RELATED TO WILDFIRE (PRE- AND POST-FIRE)

### 1. FIRE EFFECTS

Possible affected GP elements: Land Use, Open Space, Conservation

#### Data & Analysis:

Below is a list of data that may be useful in establishing a current picture of flood hazards related to wildfire. In order to identify the local areas at risk from floods due to wildfire collect and analyze the following:

- Collect historical data on flooding, such as frequency and intensity.
- Identify (map) areas within floodplains or subject to inundation by a 100-year flood and the 500-year flood (see <http://ceres.ca.gov/planning/nhd/> ) .
- Identify historic rainfall intensity.
- Determine and map areas that are potentially prone to flooding, and debris flow, following a catastrophic wildfire.
- Determine specific vulnerabilities within the identified flooding areas.

#### Policy Examples:

Based upon the data and analysis of the hazards, risks and vulnerabilities with regards to flooding, policies should be developed appropriate for local conditions to mitigate potential losses due to wildfire. Issues that public policy makers may choose to consider include but are not limited to, the need to re-asses an area after a wildfire to determine increased risk to flooding, and the cost and benefit associated with new mitigation measures regarding flooding due to wildfire.

The following are examples of policies that a local government might adopt to mitigate flood hazards related to a wildfire:

- All wildfire burned areas shall be treated to control storm water runoff prior to winter rains.

- Wildfire areas shall be restored by planting native vegetation cover or encouraging the re-growth of native species as soon as possible to aid in control of storm water runoff.
- Potential for future flood hazard shall be reduced by sufficient removal of dead, woody vegetation along watercourses following a catastrophic fire to reduce the risk of future catastrophic fires.
- Fire hazard reduction measures should balance forest health with fuel reduction activities while keeping in mind the potential effect on flood management.

(Note: Reduction in fire risk will simultaneously reduce flood risk.)

## G. LANDSLIDE HAZARD

### 1. WILDFIRE EFFECTS

Possible affected GP Elements: Conservation, Open Space

#### Data & Analysis:

Below is a list of data that may be useful in establishing a current picture of landslide effects as a result of a wildfire. In order to identify the local areas at risk from landslides due to a wildfire collect and analyze the following:

- Identify landslide prone areas from the Division of Mines and Geology and the U.S. Geological Survey landslide inventory and landslide and debris-flow susceptibility maps where maps exist.
- Identify areas which would be prone to landslides following a catastrophic wildfire.

#### Policy Examples:

Based upon the data and analysis of the hazards, risks and vulnerabilities with regards to landslides, policies should be developed appropriate for local conditions to mitigate potential losses due to wildfires and subsequent landslides. Issues that public policy makers may choose to consider include but are not limited to, the extent to which the area is at risk to landslides due to wildfire, the need to adopt new mitigation measures, and the potential impact of mitigation measures on areas of special concern (cultural, environmental), and cost of mitigation vs benefits.

The following are examples of policies that a local government might adopt to mitigate landslide hazards.

- All wildfire areas prone to landslides shall be treated avert storm water runoff prior to winter rains.
- Native vegetation cover shall be planted or temporary slope stabilization measures will be installed as soon as possible to aid in landslide control.
- Potential for landslides shall be reduced by sufficient removal of dead, woody vegetation following a catastrophic fire.

(Note: Reduction in fire risk will simultaneous reduce landslide.)

## H. TERRORIST RISK

This sub-section is included to ensure that your terrorist preparedness actions do not substantially increase your fire risk or unduly restrict emergency response. Communities should carefully weigh the impact of both terrorism preparedness activities and fire preparedness activities and ensure that clear communication exists pre-incident and during the incident between the legislative body, law enforcement, emergency response units.

**Possible affected GP Elements:** Circulation, Land Use

### Data & Analysis:

Development of the individual elements of the General Plan should be based on a foundation of good data collection and sound data analysis. Policies should be developed after review and reflection of the relevant data and analysis.

Below is a list of data that may be useful in establishing a current picture of terrorist risks that are related to wildfire:

- Identify potential access barriers which, if removed, would prevent fire fighter access (bridges, dams, etc.).
- Develop an alternative emergency access plan.
- Identify areas for treatment as survivor zones (areas that could survive without protection assistance).
- Prioritize zones of treatment if sufficient suppression forces are unavailable.

### Policy Examples:

Based upon the data and analysis of the hazards, risks and vulnerabilities with regards to terrorists, policies should be developed appropriate for local conditions to mitigate potential losses due to wildfire. Issues that public policy makers may choose to consider include but are not limited to, identify and prioritize assets at risk for protection in the absence of response forces, are ground circulation routes adequate in the event of wildfire due to terrorist attacks, identify areas that could be exploited by terrorists that would tie up fire response assets and/or inhibit emergency response.

The following are examples of policies that a local government might adopt to mitigate terrorist risks related to wildfires:

- Wildfires shall be limited in size by the establishment of survivor zones (areas that could stop fires without protection assistance).
- Second-line defense zones shall be strategically placed to be used independent of key structures (bridges, dams).
- Key structures (bridges, dams) shall be protected from terrorist attack to prevent fire emergencies.
- Defense zones shall be adequate for fire protection without dependency on air attack.

### III. CONTACT INFORMATION, RELATED WEB-PAGES AND PUBLICATIONS

Contact names, phone numbers and emails for emergency preparedness and planning.

Organization	Contact
State Fire Marshall's Office (SFMO)	Melissa Frago, Program Coordinator Data Collection & Analysis/Fire Safe Planning OSFM - Code Development & Analysis Division (916) 445-8422 <a href="mailto:Melissa.frago@fire.ca.gov">Melissa.frago@fire.ca.gov</a>
California Department of Forestry and Fire Protection (CDF)	Rich Schell, Staff Chief California Fire Plan California Department of Forestry and Fire Protection (916) 653-7472 <a href="mailto:rich.schell@fire.ca.gov">rich.schell@fire.ca.gov</a>
Governor's Office of Planning and Research (OPR)  State Clearinghouse and Planning Unit	P.O. Box 3044 Sacramento CA 95812-3044 (916)-445-0613 web page: <a href="http://www.opr.ca.gov">www.opr.ca.gov</a> E-mail: <a href="mailto:state.clearinghouse@opr.ca.gov">state.clearinghouse@opr.ca.gov</a>
Office of Emergency Services (OES)	Hazard Mitigation Unit - North Phone: 916-845-8150 Fax: 916-845-8386  Hazard Mitigation Unit - South Phone: 626-683-6700 Fax: 626-683-6702

Web-Page Addresses		
Organization	Address	Description
Governor's Office of Planning and Research (OPR)	<a href="http://www.opr.ca.gov">www.opr.ca.gov</a>	Information on the Governor's Office of Planning and Research and publication produced by OPR.
California Department of Forestry and Fire Protection (CDF)	<a href="http://www.fire.ca.gov">www.fire.ca.gov</a>	Direct link to the Department of Forestry and Fire Protections Web-Page. Look here for listing of local CDF units in your area.
U.S. Department of Forestry	<a href="http://www.r5.fs.fed.us/">www.r5.fs.fed.us/</a>	Direct link to the Department of Forestry's Pacific Southwest Region Home Page which contains contact information for California Field offices.

Web-Page Addresses		
Organization	Address	Description
Governor's Office of Emergency Services (OES)	<a href="http://www.oes.ca.gov">www.oes.ca.gov</a>	Direct link to the Governor's Office of Emergency Services Home Page.
Federal Emergency Management Agency (FEMA)	<a href="http://www.fema.gov/txt/library/fr02-4321.txt">www.fema.gov/txt/library/fr02-4321.txt</a>	Hazard Mitigation Planning and Hazard Mitigation Grant Program
Federal Insurance & Mitigation Administration (FIMA)	<a href="http://www.fema.gov/fima">www.fema.gov/fima</a>	Manages the National Flood Insurance Program and oversees FEMA's mitigation programs.
FEMA's State and Local Mitigation Planning	<a href="http://www.fema.gov/fima/planning_toc3.shtm">www.fema.gov/fima/planning_toc3.shtm</a>	How to Guide. Understanding Your Risks (identifying hazards and estimating losses).
FEMA's Hazards	<a href="http://www.fema.gov/hazards">www.fema.gov/hazards</a>	For information about a specific hazard and how to deal with it.

List of Available Planning Resources		
Element	Authority	Description
General Plan Guidelines	OPR	Comprehensive Guide to city and county planning. Discussion of the General Plan and its contents.
Planning, Zoning, and Development Law	OPR	California Government Code Sections 65000 - 66037 (Planning and Zoning Law) and Sections 66410-66499.58 (Subdivision Map Act) plus Miscellaneous Planning-Related Laws
Planners Training Series	OPR	Publications discussing planning specific topics (i.e. Variances, Conditional Use Permits)
General Planning Publication	OPR	Publications covering a variety of general planning topics (i.e. Citizens Guide to Planning, The Planning Commissioner's Book)
CEQA Technical Advice Series	OPR	Publications dealing with the California Environmental Quality Act.
Fire Hazard Severity Zoning	SFMO	Assessment of fire hazard severity and identification / adoption of hazardous areas for the purpose of public safety and fire prevention is currently required in both SRA and LRA.

List of Available Planning Resources		
Element	Authority	Description
Firewise Planning	<a href="http://www.firewise.org">www.firewise.org</a>	<p>Through presentations by experts and local stakeholders and workshop tools such as state-of-the-art mapping and wildfire simulations, community leaders and professionals will learn first hand the complexities involved in building communities (and citizenry) that are prepared for the inevitable effects of unwanted wildland fire.</p> <p>Participants learn how to:</p> <ul style="list-style-type: none"> <li>• recognize interface fire hazards</li> <li>• design Firewise homes and landscapes</li> <li>• deliver fire education</li> <li>• and incorporate Firewise planning into existing and developing areas of communities</li> </ul>
Model Ordinance for Defensibility of Space and Structures.	Publication - SFMO	Includes Zoning, Fire Protection Planning, Building Standards and Enforcement of fire prevention measures within Very High Fire Hazard Severity Zones.
Real Estate (Wildfire) Natural Hazard disclosure	Publication - SFMO	Requires written disclosure upon sale of real property whether or not the property is located in an identified or adopted Very High Fire Hazard Severity Zone.
A discussion of the County General Plan and the role of Strategic Fire Protection Planning	Publication - SFMO	Outlines strategic planning for fire safety and prevention within a County General Plan update.
I-Zone - Urban/Wildland fire Prevention and Mitigation	Publication - SFMO	Contains several informative articles about fire prevention in the Urban-Wildland Interface areas of California.
Fire Hazard Zoning fieldguide	Publication - SFMO	Outlines and explains state laws relating to LRA and SRA fire hazard zoning.
Structural Fire Prevention field guide	Publication - SFMO	Outlines and explains state laws and strategies relating to structural fire safety in Urban-Wildland Interface areas within California.
Wildland Fire Hazard Assessment	Publication - SFMO	A research document containing information about fire hazard zoning

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List of Available Planning Resources		
Element	Authority	Description
		history, laws and levels of compliance in local jurisdictions. This document also includes several different fire hazard assessment methods.
Wildland Urban Interface Code (IFC)	Publication - SFMO	A model fire safety code for reference and/or adoption in Urban-Wildland Interface areas.
RxR, Powerline, Industrial Operations Field Guides	Publication - SFMO	Outlines and explains state laws and regulations pertaining to fire prevention in association with timber operations, railroads, power lines

Statuary and other requirement of the plan(s)		
Element	Authority	Description
California Fire Plan	<u>PRC 4130</u>	<p>A plan for adequate statewide fire protection of state responsibility areas shall be prepared by the board in which all land of each type shall be assigned the same intensity of protection.</p> <p>The CA Fire Plan is a statewide planning framework to assess wildland fire related conditions and apply appropriate pre-fire actions to reduce the costs and losses from wildfire. Currently adopted by OES as the State Hazard Mitigation Plan. Required by the CA BOF&amp;FP to be updated by CDF every 5 years. The plan is built at the local level with significant input from federal and local government and stakeholders</p>
State Responsibility Area Review	<u>PRC 4128.5</u>	Requires the Board of Forestry and Fire Protection to review and adopt updates to State Responsibility Area (that area of the State where CDF has wildland fire protection responsibility), every 5 years
Pipeline Safety		
CUPA		

Statutory and other requirement of the plan(s)		
Element	Authority	Description
Board of Forestry & Fire Protection's Fire Safe Regulations	<u>PRC 4290</u>	Regulations require that specific fire safe standards be met in the planning and development of a subdivision as well as the issuance of a building permit.
Building Standards	<u>GC 51189</u>	Authorizes the State Fire Marshal to adopt building standards for fire safety in Very High Fire Hazard Severity Zones, and to publish a model ordinance for structure defensibility.
California All Incident Reporting System	<u>HSC 13110.5</u>	Requires reporting to State Fire Marshal of all fire, emergency medical services, hazardous materials and other fire department responses.
Fire Hazard Severity Zones	<u>GC 51175-51179</u>	Requires local jurisdictions to assess hazards and adopt fire prevention standards for defensible space within Very High Fire Hazard Severity Zones.

List of current planning and outreach processes		
Element	Source	Description
CA Fire Plan	CDF Units	The CA Fire Plan is an assessment tool based upon scientific data and stakeholder validation of the input values and resulting assessment. The plan is developed locally in 27 independently assessed and assembled plans that evaluate Assets at Risk, Level of Service, Vegetation and Fire Weather. The resulting data aggregate identifies priority areas for pre-fire management projects. Community and local government planning can take advantage of the data and assessments that are readily available.

Baseline data used in planning and evaluating programs and plans		
Element	Authority	Description

Baseline data used in planning and evaluating programs and plans		
Element	Authority	Description
State Responsibility Area	<u>PRC 4128.5</u>	Acts as trigger for application of regulations and standards.

List of programs which provide planning money		
Element	Authority	Description
National Fire Plan	Federal Funding	Through CDF or via the State Fire Safe Council, grant funding is available for community wildfire planning.
FEMA - Hazard Mitigation Planning and Hazard Mitigation Grant Program	Federal Funding	For implementing Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act which provides new and revitalized approaches to mitigation planning.

## IV. GLOSSARY

Fuel Modification Zone

*"shelter in place"*

defense zones

fuel loading

## APPENDIX

### FEMA REQUIREMENTS RELATED TO LOCAL PLANNING

The Federal Emergency Management Agency's (FEMA) Interim Final Rule (IFR), published in the Federal Register on February 26, 2002, includes new requirements for State and local mitigation planning, and plans which must be approved by FEMA by November 1, 2003. These state and local plans are required in order for the state and/or local communities to be eligible for disaster assistance grants and other Stafford Act assistance, excluding emergency assistance.

The IFR is intended to provide guidelines for implementing Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), enacted under §104, the Disaster Mitigation Act of 2000 (DMA 2000). In addition, the FEMA IFR established local planning criteria so that local jurisdictions could actively begin the hazard mitigation planning process, and to develop comprehensive, local hazard mitigation plans before disaster events.

FEMA and the State of California recognize that local governments are involved in a range of planning activities. The local hazard mitigation plan is the representation of the jurisdiction's commitment to reduce risks from natural hazards, and serves as a guide for decision makers as they commit resources to reducing the effects of natural hazards. Local plans will also serve as the basis for the State to provide technical assistance and to prioritize project funding. However, for some communities, meeting the deadline of having an approved local hazard mitigation plan in place by November 1, 2003 would appear to be difficult.

Fortunately, there is a good deal of information already documented and available in the General Plan, and other community emergency and hazard plans. This information may be linked or referenced to complete sections of a jurisdiction's local hazard mitigation plan.

A review of the local planning requirements of the IFR indicate that the following required sections of a local mitigation plan should at least be partially completed by an up-to-date General Plan, and that a jurisdiction's General Plan should be considered a major resource and source of information for completing a community's local hazard mitigation plan.

Improved integration of mitigation planning with other community planning efforts and documents, will result in a better understanding of risks and vulnerabilities, as well as serve to expedite implementation of mitigation measures and activities to reduce the risk of hazards to the community, both pre- and post-disaster.

Sections of the Local Mitigation Plans, required by the IFR for Section 322 of the Stafford Act, that may be linked or referenced from information found in General Plans include:

*NOTE: The significant hazards, including natural, technological and non-natural are identified and analyzed in a comprehensive, up-to-date General Plan, and mitigation measures to reduce the risk of those hazards are also discussed in detail.*

**IFR §201.6 Local Mitigation Plans.**

(a)(3) Multi-jurisdictional plans (e.g. watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process and has officially adopted the plan. State-wide plans will not be accepted as multi-jurisdictional plans.

*NOTE: A local government should include in its local hazard mitigation plan, documentation of attendance and participation in regional or multi-jurisdictional emergency and hazard prevention/mitigation meetings where the General Plan or other local plans were discussed.*

**IFR §201.6 (b) Planning Process** - An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:

(b)(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;

(b)(2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and

*NOTE: A local government should include in its local hazard mitigation plan, documentation of the public's or neighboring communities official's attendance and participation in meetings or council sessions where the General Plan sections, concerning emergency and hazard prevention/mitigation issues, were discussed.*

(b)(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

*NOTE: Local governments are encouraged to integrate, link and reference information from hazardous materials and other non-natural hazard plans and planning efforts within the community.*

*NOTE: For the items listed below in IFR §201.6 (c), Plan Content, A jurisdiction's General Plan, emergency plans, hazardous materials and other non-natural hazard plans should be considered a major resource and source of information for completing a community's local hazard mitigation plan.*

**IFR §201.6 (c) Plan Content** - The plan shall include the following:

(c)(1) Documentation of the *planning process* used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

(c)(2) A *risk assessment* that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards. The risk assessment shall include:

(c)(2)(i) A description of the type, location, and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

(c)(2)(ii) A description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community. The plan should describe vulnerability in terms of:

(c)(2)(ii)(A) The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas;

(c)(2)(ii)(B) An estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) of this section and a description of the methodology used to prepare the estimate;

*NOTE: Not all local jurisdictional General Plans provide "An estimate of the potential dollar losses to vulnerable structures." This information may exist only in the completed local hazard mitigation plan.*

(c)(2)(ii)(C) Providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

(iii) For multi-jurisdictional plans, the risk assessment section must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.

(c)(2)(iii) For multi-jurisdictional plans, the risk assessment section must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.

*NOTE: Information on how a local jurisdiction's risk varies from a Multi-jurisdictional planning area may not be included in local General Plans or other local plans. This information may exist only in the completed local hazard mitigation plan.*

(c)(3) A mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools. This section shall include:

(c)(3)(i) A description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

(c)(3)(ii) A section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

*NOTE: A local jurisdiction's analysis of a comprehensive range of specific mitigation actions for new and existing buildings and infrastructure may not be included in local General Plans or other local plans. This information may exist only in the completed local hazard mitigation plan.*

(c)(3)(iii) An action plan describing how the actions identified in paragraph (c)(3)(ii) of this section will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

*NOTE: An action plan, developed by local jurisdictions, describing how the specific mitigation actions will be prioritized, implemented and administered, according to a cost benefit analysis, may not be included in local General Plans or other local plans. This information may exist only in the completed local hazard mitigation plan.*



"Consistent" means that development approvals and other related decisions of the County will further the policies and intent of the General Plan.

California law gives local governments wide latitude in designing or formatting General Plans. The seven (7) mandatory elements may be prepared as separate documents or combined. Regardless of format, the General Plan must be an integrated, internally consistent and compatible statement of policies. No one element has greater legal status or importance over another. Every policy in each of the elements must be compatible with the others.

In recognition of local differences, State law allows counties to tailor the General Plan to locally relevant issues. Within the seven (7) mandatory elements, the county need only address issues that are of local importance. Optional elements may be adopted in addition to the mandatory seven. These local differences make it rare to find two (2) General Plans that look alike.

There are many opportunities to address fire protection, fire prevention and hazard mitigation in the General Plan, most obviously in the safety element which deals with all manner of natural and man-made hazard to life and property. Unfortunately, wildlife hazard is often underplayed in the General Plan, either due to lack of recognition of the issue or because other issues have taken more prominence in the general planning process. With population growth creating more "urban-wildland interface" issues, and the increasing economic loss caused by wildland fire, this topic is due for review and incorporation into many local general plans.

## B. OPR GENERAL PLAN GUIDELINES

OPR's guidelines for the preparation of General Plans recommend that "attention be devoted to issues of concern to the community", and that "cities and counties need to address each issue to the extent it applies to the community." Counties have wide discretion in addressing locally important issues. The types of safety issues that concern each county may be very different, but many rural counties recognize wildland fire hazard as a growing concern, exacerbated by population growth and increasing demands on natural resources.

The General Plan must contain a statement of development policies and a diagram or diagrams and text setting forth objectives, principles, standards and plan proposals (GC Section 65302). The *General Plan Guidelines* attempt to clarify these terms and recommends a method to achieve this directive. OPR recommends that for every locally relevant issue, the county should articulate one or more broad objectives, establish more specific policies that would help achieve those objectives, and finally, devise implementation measures (specific action items or funding programs) to implement the policies. Before starting this process, adequate and accurate data and information must be collected and analyzed to provide the basis for sound policy decisions.

### 1. DATA AND ANALYSIS

Collection of appropriate data is necessary to describe the conditions, constraints, opportunities, and character of the issue. Fire and resource protection can be enhanced

(and part of the urban bias can be overcome) if the data and analysis portion of the Plan describe the wildland fire environment in detail: fire history, slopes, fuel loadings, average/worst fire danger, rates of spread, potential for structural threat, access. Post-fire flood damage potentials could also be described. The data and analysis section may include narrative descriptions, numerical data, maps, charts, and any other means of providing information about the issue of concern.

The data and analysis section is the starting point for better fire and resource protection. The more complete the analysis, the stronger the justifications for action will be. If data and analysis are weak or incomplete, then everything that follows will also be weak.

## 2. POLICY DEVELOPMENT

After an issue or concern is described in the data and analysis, there must be policies that state the jurisdiction's decisions to act, control, or mitigate the defined problems. Every aspect of a problem must have some kind of coping policy identified. For example, if fuel loading was identified in the data and analysis section as a problem, there should be some statement(s) to the effect that development will be designed or controlled to reduce the volume. If access was identified as a problem, there should be policies to improve road design.

## 3. IMPLEMENTATION MEASURES

These are the actual steps local government will take to implement their defined policies. Each policy described must have at least one (1) implementation measure, and may have several. For example, if a policy calls for improved access, then the implementation measure might be to adopt the road and street design recommendations in "Fire Safe Guides for Residential Development in California" into local ordinance. If a policy requires fuel reduction measures, then key ridges might be zoned for fuel breaks, and the zoning ordinance could require construction and maintenance by the developer.

## 4. THE MANDATORY ELEMENTS OF THE GENERAL PLAN

Section 65000 et. seq. of the Government Code is referred to as the Planning and Zoning Law. Section 65302 of the Government Code defines the seven (7) mandatory elements of a General Plan. Each of the elements must contain text that incorporates descriptions, policies, objectives, and standards. The text must be accompanied by, and consistent with, description "diagrams." (Planning law does not require detailed maps, only these "diagrams" approximate the planning intent.)

GC Section 65860 requires that General Plans be "internally consistent." From a practical standpoint, the requirement for internal consistency has two important meanings. First, it means that one element cannot contradict or conflict with any other element. All parts of the Plan must be integrated and offer mutual support to other parts of the Plan. Second, it means that the actions which follow general planning, such as specific plans, zoning ordinances, capital outlay projects, and development permits must meet the intent of the Plan's policies and objectives.

Six (6) of the mandated elements (excluding the noise element) are briefly described below, along with comment on their importance to fire and resource protection, and sample evaluation criteria (see Figure 1).

### **i. Land Use**

The Land Use element "dedicates" lands to particular purposes. It tells how the jurisdiction will designate and separate various uses such as commercial, industrial, and residential. Natural resource, agriculture, timber production, and flood plain areas (if any) must be included. A major intent of the element is to design areas for development that are compatible with one another. That is, "heavy industrial" areas should be separated from, and not adjacent to, residential areas. On the other hand, "light commercial" or "shopping center" designations may be compatible with residential uses. Sometimes commercial areas are designed as "buffers" or "gradual-change" uses between residential and industrial areas.

#### **Importance:**

Examination of the Land Use element in comparison with State Responsibility Area (SRA) lands may show current or future conflicts with fire and resource protection. All too frequently, the "compatibility" of uses is violated where development encroaches into wildlands. All types of uses are designated in, or adjacent to, hazardous fire areas without buffer zones or other mitigating measures. Land Use policies should consider and reduce these conflicts. Since zoning districts are derived from land use designations, it is important to assure that those designations, policies, and ordinances are compatible with wildland protection. For example, Residential, Open Space, Agriculture, and Timber Preserve land uses could be designated to include fuel break and fuel reduction zones.

#### **Sample Evaluation Criteria:**

Does the Land Use element include wildland fire risks and hazards in the data and analysis section? Do policies include requirements to reduce hazard levels by various means? Are recreation areas (parks, golf courses) and agricultural uses (pastures, irrigated tree farms) located to provide "buffers" between development and wildlands?

### **ii. Housing**

This element is required to designate how the government will regulate density and intensity of residential development. It includes provisions for low income and handicapped needs. In some cases, it may actually allow lower standards of design and construction to encourage "affordable" housing.

#### **Sample Evaluation Criteria:**

Does the data and analysis section for this element describe vulnerable, unsafe areas for "sub-standard" housing? Do the policies recognize these areas so that this type of development is prohibited there? Are required construction standards in conflict with defined fire protection needs (access, roofing, fire flow)? If so, what compensating mitigation measures are required to provide safety?

## FIGURE 1

OPPORTUNITIES FOR FIRE AND RESOURCE PROTECTION IN  
GENERAL PLAN ELEMENTS

<u>ELEMENTS</u>	<u>OPPORTUNITIES</u>
Land Use	Greenbelts, Fuelbreaks, Fuel Reduction, Buffer Zones, Water Supply Requirements
Housing	Definition of Hazard Areas and appropriate mitigation for "Affordable Housing".
Circulation	Strategic Access, Road Design, Helibases, Helispot, Evacuation Routes (ground and air).
Conservation	Fuelbreaks, Fuel Reduction Zones, Additional Design Requirements for Development near Commercial Timber Zones (TPZ's), Air Tanker Base Locations, Helibases and Helispots.
Open Space	Fuelbreaks, Fuel Reduction Zones, Strategic Access and Water Supplies, Off-Site Linking of Strategic Improvements.
Safety	Evacuation Routes, Water Supplies, Road Standards, Fuel Reduction Buffer Zones, Air Access, Definition of Hazard Areas and Mitigation Requirements.

### III. Circulation

This element consists of the general location of existing and planned transportation routes and public utilities. Designations, policies, and implementation measures in this element (and all others) must be correlated (consistent) with the Land Use element. The information is usually shown on maps or diagrams to show how the transportation system serves the various land use designations.

**Importance:**

This is the primary designator of access routes and road design requirements (not engineering standards). GC Section 14000 requires that the Circulation element provide transportation facilities that reduce hazards to human life and minimize damage to natural resources. This provides the opportunity to make strong recommendations about transportation routes and design requirements such as turn-outs, helispots, and safety zones.

**Sample Evaluation Criteria:**

Does the element plan for satisfactory access to high hazard areas? Are standards high enough to provide safe evacuation from residential (and other) land use designations? Are policies defined to limit the number and length of one-way roads? Are heliports and helispots designated in areas that will facilitate suppression and other emergency needs?

### IV. Conservation

This element describes how the jurisdiction intends to protect and conserve its natural resources. The element should cover water, soils, forests, wildlife, and fisheries. Potential fire and flood impacts on all resources should be included.

**Importance:**

This element ties directly to the CDF mission of protecting SRA lands. It should be written to facilitate that mission. As with all other elements, this one must be consistent with the overall General Plan. It has to "make sense" in the way it relates the natural resource management policies to everything else. (In some counties, urban bias shows itself quite clearly in this element: only the local wastelands, rocky ridges, and impassable canyons are included in the element. This practice is not the intent of the Legislature nor the Planning and Zoning Law.)

**Sample Evaluation Criteria:**

Is the element consistent and logically applied, or does it just gather up unusable areas and "lump" them into a conservation category? Does the element discuss resource values? Are potential resource losses from fire (soil loss, sedimentation, local flooding, timber production, wildlife habitat, etc.) included in the data and analysis section? Do policies include management options of prescribed fire and fuelbreaks to enhance protection?

## v. Open Space

This element designates areas for preservation and managed production of natural resources, outdoor recreation, and public health and safety. The Open Space element is related to the Conservation element in some ways, and designated lands in either element could be actually or nearly the same. The important difference between Conservation and Open Space elements is the very specific inclusion of public health and safety requirements in Open Space. Section 65560-4 of the Government Code dictates that the element should include designation of "areas that require special management because of fire risks." The Code authorizes the connecting or linking of these areas into complete networks in the interest of public safety.

### Importance:

The Open Space element offers opportunity to analyze conflagration potential and to design fuelbreak and fuel reduction zones, helispots, access, and water systems into strategic fire defense improvement systems. Developers can be required to construct and maintain the improvements. Inclusion of strategic defense improvements in the Open Space and Safety elements will lead to zoning for such improvements and eliminate the owner-by-owner agreements and public agency financing now necessary for construction and maintenance.

### Sample Evaluation Criteria:

Does the element relate to fire safety and suppression effectiveness? Is it correlated with the Land Use, Safety, and Conservation elements to provide integrated and systematic resource and public protection improvement? Does the element contain policies and implementation measures requiring dedication, construction, and/or maintenance of these improvements on all projects?

## vi. Safety

The Safety element defines community protection measures in relation to fires, seismic and geological hazards. It must include provisions for evacuation routes, water supply, minimum road widths, and clearances around structures. It should include mapping of fire hazard severity zones, and could include analyses of minimum suppression resources required.

### Importance:

The element can be used to strengthen or further justify other elements. It is an excellent place to include project design requirements to reduce hazard levels, and provide for mitigation measures not included elsewhere in the General Plan. It may also be used to justify strategic fire defense systems zoning.

### Sample Evaluation Criteria:

Does the element correlate with others to provide for the best and safest suppression actions? Does it recognize evacuation needs? Does it address the traditional suppression problems and include policies and implementation measures to eliminate those problems? (Almost all of the suggestions and evaluation criteria for the other elements can be applied.)

If any General Plan element (or elements) is judged legally inadequate, development approvals in the jurisdiction could be suspended until the deficiencies have been corrected. This is a powerful incentive to any jurisdiction to review its Plan for completeness and adequacy.

Formal review is a job for attorneys and the courts, but the following questions can be used as an informal or initial test to determine whether or not a General Plan is weak or strong in terms of legal adequacy.

- It is complete? Are the seven (7) mandatory elements included?
- Does each of the elements contain supporting data, analysis, policies and implementation measures?
- Is it internally consistent? Do elements, data, policies, and implementation measures fit together? Are there omissions, conflicts?
- Is it long-term in perspective? Does it plan for the population growth, development potential, and resource issues that the community will face in the foreseeable future (usually 20 years)?
- Does it address all locally-relevant issues? What does it say about fire? Does it include a strategy to deal with wildland protection and fire hazards?
- Does it meet statutory criteria? Do the Conservation, Open Space, and Safety elements provide for public safety and resource protection? Does the Land Use element define hazard areas?
- Are maps and diagrams adequate? Can you tell where specific uses are authorized? Where restrictions apply? Are map and diagram descriptions in agreement with the General Plan text?

General Plans should be reviewed periodically to ensure that they continue to reflect current values and policies of the community, and that they contain accurate information about existing resources and hazards. If necessary, the General Plan should be revised or amended to remain current.

## C. SUBORDINATE PLANNING TOOLS

California courts have placed General Plans "atop the hierarchy of local government law regulating land use." It is clearly established that all other planning and development approvals are subordinate to the General Plan and must be consistent with the General Plan. All development permits, public works projects, and zoning decisions must be consistent with the General Plan and its policies. There are numerous subordinate planning tools that may be used to implement the General Plan. Three commonly used tools are briefly described below to illustrate how fire safety can be incorporated into site specific or project specific developments.

### 1. SPECIFIC PLAN

A Specific Plan is a tool for the systematic implementation of the General Plan within all or a portion of the county's planning area. It may encompass unlimited land area within

the jurisdiction, may deal with only one or all policies in the General Plan, and may even delve into subjects that were not addressed in the General Plan if they are relevant to the community. At a minimum, the Specific Plan must include a text and diagram which specifies all of the following: (1) the proposed distribution, location and extent of all land uses including open space, (2) the proposed distribution, location, and extent of major components of the transportation, sewage, water, drainage, solid waste disposal, energy, and other essential facilities that are needed to support the proposed land uses, (3) standards and criteria by which development will proceed and standards for the conservation and use of natural resources, and (4) a program of implementation measures including regulations, programs, public works projects, and financing measures to carry out the Specific Plan.

All principles, goals, objectives, policies, standards, and implementation measures of the Specific Plan must be consistent with the General Plan. Adoption of a Specific Plan is a legislative act similar to the adoption of the General Plan or zoning ordinance. It can be adopted by resolution or by ordinance and may be amended as often as necessary. All future public works projects, zoning actions and development activities within the planning area must be consistent with the Specific Plan.

A Specific Plan is particularly useful for planning large projects whose development may be phased over time. It can be used to assemble a set of land use specifications and implementation programs tailored to the unique characteristics of a particular site. Specific Plans can stipulate development timing or set a schedule for infrastructure improvements to solve problems like exposure to wildland fire hazard.

## 2. SUBDIVISION ORDINANCE

Land cannot be subdivided for sale, lease or financing in California without local government approval. The Subdivision Map Act (GC Section 66410, et seq.) establishes the basic subdivision procedures, while giving local government the authority to regulate the design and improvement of subdivisions, require dedications of public improvements, require payment of impact fees, and require compliance with the objectives and policies of the General Plan.

These regulatory powers can promote the usual array of land use, circulation, open space and safety element objectives, policies, and implementation measures. Regulation of subdivision design can encourage numerous General Plan objectives including wildland fire safety, through the requirement to address fire prevention measures such as emergency access, adequate infrastructure and facilities, and separation (buffers) between buildable lots and wildland areas. Local governments can also require dedication of public improvements and land (through fee title or easements) to serve the subdivision.

A tentative subdivision map or parcel map cannot be approved unless the county finds that the subdivision, together with design and improvement conditions, is consistent with all aspects of the General Plan or any applicable Specific Plan. Two (2) of the findings that can cause a subdivision to be denied are (1) that the site is physically ill suited for the proposed type or density of the development or (2) that the subdivision's design or improvements are likely to cause substantial environmental damage or cause public



health problems (GC Section 66474). These are important considerations for counties who are reviewing subdivision proposals in areas that are subject to wildland fire hazard.

### 3. DEVELOPMENT AGREEMENT

Development Agreements are contractual agreements voluntarily entered into by a county and a developer to vest development rights for a specific development project. They provide the developer with the advantage of "locking-in" zoning and development regulations for a specified time period, giving the developer a degree of assurance that some future local policy or regulation will not nullify a development proposal. In exchange, the Development Agreement allows the local jurisdiction to obtain additional concessions from the developer, such as higher design standards or dedication of additional public facilities, or otherwise obligate the developer to provide improvements in excess of the usual legal limits on exactions.

Through the Development Agreement, the county may require the reservation or dedication of land for public purposes and may include conditions and restrictions for subsequent discretionary actions. For example, the county may require dedication of emergency access easements, dedication of land for fire fighting facilities, on-going maintenance of those facilities, and subsequent review of fire safety plans before later phases of development can begin. (GC Section 65865.2.)

It is important that local governments be aware of their authority to negotiate and enforce the terms of a Development Agreement to prevent and mitigate wildland fire hazards. Since many Agreements include phased development anticipated to occur over many years, they often describe the first phase of development in detail, but leave later phases less well defined. To ensure that fire prevention, protection and mitigation are adequately considered in all phases of a project, it is important for local jurisdictions to anticipate fire protection needs for all phases of the project, condition the Agreement accordingly, and monitor and enforce the terms of the Agreement.

GC Section 65865.1 requires annual review of the Development Agreement at which time the developer must demonstrate good faith compliance with the terms of the Agreement. If the county finds that this has not occurred and makes the necessary findings, it may terminate or modify the Agreement. Where measures to prevent and mitigate fire hazard have been incorporated into a Development Agreement and have not been implemented according to the Agreement, the county should be aware that it has this power to enforce compliance.

## II. THINGS TO CONSIDER WHEN DEVELOPING FIRE PLANS

### A. FIRE HAZARD - ALL AREAS

Fires are regular occurrences in California and mitigation opportunities exist at all stages including before, during and after a fire event. This subsection includes general considerations for prevention, protection and fire loss mitigation. Subsequent subsections address special considerations for wildland, urban interface and urban areas.

#### 1. ASSETS AT RISK FROM WILDFIRE

Possible affected GP Elements: Safety, Housing , Land Use

##### Data & Analysis:

Below is a list of data that may be useful in establishing a current picture of assets at risk, both public and private, which may be effected by wildfire. In order to identify the local assets at risk from wildfire collect and analyze the following:

- Check with the local CDF unit for California Fire Plan information with regards to assets at risk.
- Identify assets at risk including, but not limited to:
  - Recreational areas
  - Scenic areas
  - Ecologically significant areas
  - Critical watersheds
  - Public and private timberland
  - Wildlife habitat
  - Rangelands
  - Sensitive soils
  - Landslide prone areas
  - Water supplies
  - Watersheds prone to contribute to flooding
  - Air Quality
  - Historic sites
  - Emergency Shelters
  - Structures, such as homes and business
  - Utilities and accompanying infrastructure
  - Population and economic centers.
- Classify assets based on their vulnerability to wildfire.
- Evaluate the identified assets based on economic and social value to the community and replacement value.
- Prioritize the assets for assisting in the selection of mitigation efforts and development of fire response plans.

**Note:** Assets are tangible and intangible. Prioritization can be accomplished in a variety of ways: most expensive to replace, easiest to protect, broadest benefit to community, closest to urbanized areas and any other priority system that may be relevant to the community.

- Additional data and analysis may be appropriate based on local conditions and geographic circumstances.

**Policy Examples:**

Based upon the data, analysis and prioritization of the local assets, policies should be developed appropriate for local conditions to mitigate potential losses due to wildfire.

In developing appropriate local policies to protect assets which may be at risk in the event of a wildfire, there are several key areas to consider including but are not limited to, cost of protection/mitigation, ability to protect the asset or mitigate the threat, and the consequences of losing the asset to the community.

The following are examples of policies that a local government might adopt to mitigate damage to assets, both public and private, related to a wildfire:

- The County shall establish site specific safety measures to protect county assets from wildfire.
- Public and Private landowners shall implement site specific safety measures that mitigate to a low risk condition fire hazards around county assets.
- County agencies shall work cooperatively with other agencies and private interests to educate private landowners on fire-safe measures to achieve a low risk condition.
- Public and private funding, where available shall be used to the greatest extent practical to assist private landowners in implementing safety measures to achieve a low risk condition.
- Public and private property owners shall create and maintain a 1/4 mile fuel modification zone (buffer zone) around county assets to achieve a low risk condition.

**2. WATER SUPPLY**

Possible affected GP Elements: Safety, Conservation and Open Space

**Data & Analysis:**

Below is a list of data that may be useful in establishing a current picture of water supplies related to wildfire suppression. In order to identify inadequate water supplies with regards to wildfire suppression collect and analyze the following:

- Review National Fire Protection Association Standards 1141 and 1231.
- Identify existing peakload water supply including private water supplies which might be used to fight wildfires.
- Determine current minimum peakload water supply necessary to serve the area.
- Project future peakload water supply and demand
- Evaluate the adequacy of the water delivery system.

- Identify and price potential improvements to the water supply to meet the current and projected identified need.
- Identify peakload water supply requirements necessary to avoid unacceptable risks.
- Evaluate cost benefit analysis of additional water storage with regards to wildfire suppression.

#### Policy Examples:

Based upon the data and analysis of the hazards, risks and vulnerabilities, associated with water supply, policies should be developed appropriate for local conditions to ensure access and availability of water supply in case of a wildfire. Issues which policy makers may wish to consider include, but are not limited to, protecting existing water supplies, developing additional water supplies and maintaining and/or enhancing the integrity of the delivery systems.

The following are examples of policies that a local government might adopt with regards to water supply and fire hazards:

- Public agencies shall maintain adequate water supplies to provide reasonable protection of assets from wildfire without disruption to community water supplies.
- Implement Office of Emergency Services URAMP Program.
- The county shall adopt a specific water supply standard such as NFPA 1142, "Rural Water Supplies". A developer shall certify compliance with that standard and continue maintenance and availability of that water supply.
- Each property outside of a developed water system shall maintain sufficient usable water storage to provide wildfire and structure protection on the property.

### 3. EMERGENCY SERVICES

Possible affected GP Elements: Safety, Circulation, Land Use, Open Space, Conservation

#### Data & Analysis:

Below is a list of data that may be useful in establishing a current picture of emergency services related to wildfire. In order to identify the local emergency services needs related to wildfire, collect and analyze the following:

- Emergency response:
  - Identify the LAFCO approved service areas of emergency services including fire, police, ambulance, etc.
  - Review the LAFCO municipal service review (MSR), if completed, for the emergency services in the area. If no MSR is available, undertake your own review of the services including cost, municipal service level, response time, condition of existing facilities and vehicles, local delivery system and other relevant information.
  - Identify (map) existing and proposed emergency service facilities.

- Identify areas where emergency services are not readily available.
- Determine the projected need for emergency services in the area.
- Based upon the LAFCO MSR, your own MSR and any other related information, evaluate the adequacy of existing emergency services and demand for additional services for current and projected need in the area.

Note: Beginning in 2000. . MSR background

#### Policy Examples:

Based upon the data and analysis of local emergency services, policies should be developed appropriate for local conditions to mitigate potential losses due to wildfire. Issues which policy makers may wish to consider include, but are not limited to, mutual aid and other protection/response partnerships, desired emergency service levels, available resources to sustain the desired level of emergency services, the cost of maintaining protection measures, reasonable supplemental funding mechanisms, public awareness of emergency service levels, protection capability relative to growth and development, and centralized versus decentralized training opportunities.

The following are examples of policies that a local government might adopt with regards to emergency services:

- No development shall be approved unless the local government can make a finding that development can be reasonably accessed and served in the case of a wildfire.
- New development and subdivisions shall include appropriate facilities to assist and support wildfire suppression.
- Fire safe measures shall be commensurate with the response time for emergency services (e.g. longer distance to a fire department calls for more stringent mitigation measures).
- Communities and open space areas shall provide ¼ mile fuel modification zone for areas suitable for emergency protective services.
- Fire Districts/Departments will engage in wildland fire training with a recognized state or federal wildland fire agency at least once a year.
- All new fire district/department staff responsible for fire suppression activities shall receive a minimum of \_\_\_ hours of training in local terrain during their first year.
- County shall identify and/or construct a low risk fire safety area (location) where community members can evacuate to and wait until emergency service providers can reach them. The county shall annually review the adequacy of the fire protection infrastructure relative to growth and development.
- The county shall consider the long-term maintenance needs of emergency service equipment and facilities when developing its annual budget.

#### 4. EMERGENCY EVACUATIONS

Possible affected GP Elements: Safety, Circulation, Land Use, Open Space

##### Data & Analysis:

Below is a list of data that may be useful in establishing a current picture of local need and potential response strategies for emergency evacuations related to wildfire. In order to evaluate local emergency evacuations with regards to wildfire collect and analyze the following:

- Identify previously designated emergency evacuation routes.
- Identify the number of people who currently use these routes.
- Develop a projected increase of people who would need to use these routes over the next ten years.
- Identify potential circulation improvements necessary to avoid unacceptable community risks.
- Evaluate the availability and access of signed routes for use by evacuees and response vehicles during a fire emergency.
- Identify potential availability of alternate routes.
- Identify the adequacy of the access and evacuation routes relative to the degree of development or use (e.g., road width, road type, length of dead-end roads, turnouts, etc.) (Public Resources Code (PRC) 4290.)
- Evaluate the potential for disruption to evacuation routes from fire, landslide movement, fault ruptures, earthquake-triggered failures, volcanic eruption and other hazards.
- Identify the location and capacity of existing emergency shelters.
- Estimate the need for expanded capacity at existing shelters or the need for additional emergency shelters. Shelter needs include residents, workers, campers, tourists and other people reasonably expected in the area.

##### Policy Example:

Based upon the data and analysis of various scenarios for emergency evacuations at the local level, policies should be developed appropriate for local conditions. Issues which policy makers may wish to consider include, but are not limited to, the cost for retrofitting evacuation routes relative to sheltering in place, public awareness of evacuation routes, maintain the availability of evacuation routes and unique conditions relative to specific land uses or special needs populations. The following are examples of policies that a local government might adopt with regards to emergency evacuations:

- The county shall designate and maintain safe emergency evacuation routes from all communities and assets at risk.
- The county shall establish a unified road signing and street addressing system.

- The county shall establish and maintain low risk fire safety areas (location) and/or emergency shelters.
- The county shall establish a public information program educating the public on evacuation routes and fire safety.
- The county shall provide for broad public access to information regarding evacuation routes.
- The county shall establish minimum roads widths and flammable vegetation clearances for evacuation routes. (*PRC Sections 4290 and 4291*)

## 5. FIREFIGHTER SAFETY

Possible affected GP Elements: Safety, Land Use

### Data & Analysis:

Below is a list of data that may be useful in establishing a current picture of firefighter safety related to wildfire. In order to identify the local areas at risk with regards to firefighter safety collect and analyze the following:

- Identify existing defense zones.
- Identify low risk fire safety areas (location).
- Identify existing and alternate evacuation routes.
- Evaluate adequacy of existing defense zones.
- Evaluate need for additional defense zones to protect assets or communities at risk.
- Evaluate area to determine where it would be unsafe for ground fire fighting.
- Designate and map updated defense zones.

### Policy Example:

Based upon the data and analysis of the hazards, risks and vulnerabilities, regarding firefighter safety, policies should be developed appropriate for local conditions. Issues which policy makers may wish to consider include, but are not limited to, ability to maintain safety areas and defense zone, the appropriateness of centralized or decentralized training and unique geographic considerations for fire fighters.

The following are examples of policies that a local government might adopt with regards to firefighter safety:

- Public agencies shall designate and maintain low risk fire safety areas (locations).
- Public agencies shall designate and maintain fire defense zones where fire fighters can control wildfire without undue risk to their lives.
- Designate and publicize areas where firefighter safety prohibits ground attack fire fighting.

- Public Agencies and residential developments shall maintain fire defense improvements.

## 6. FIRE EFFECTS (MINIMIZING FIRE LOSS)

Possible affected GP Elements: Conservation, Open Space, Land Use

### Data & Analysis:

Below is a list of data that may be useful in establishing a current picture of fire effects related to wildfire:

- Establish desired initial attack success rate.
- Identify maximum acceptable fire size.
- Determine which geographic areas would benefit from mitigation programs to reduce fire effects in the event of fire.
- Estimate cost of treatment methods and compare to cost of suppression.
- Determine which mitigation measures should be used in each geographic area to accomplish fuel modification and reduce fire risk. The following are possible choices:
  - Education
  - Increase initial attack capability
  - Prescribed Burns
  - Wildfire protection zones
  - Forest thinning
  - Grazing

### Policy Examples:

Based upon the data and analysis of the hazards, risks and vulnerabilities with regards to fire effects, policies should be developed appropriate for local conditions. Issues which policy makers may wish to consider include, but are not limited to, treatment costs verses suppression costs; cost, benefits and opportunities for mitigation at the parcel level verses the landscape level; cost to replace a community asset; impact of an irreplaceable community asset; the potential impact of mitigation measures on areas of special concern (cultural, environmental); and, fixed fire defense opportunities vs land management opportunities.

The following are examples of policies that a local government might adopt to mitigate fire effects:

- Forest thinning, grazing, and hand or mechanical clearing shall be conducted in lieu of prescribed fire unless prescribed fire can be clearly shown to provide the greatest overall benefit.
- Each community shall establish and maintain a plan that identifies hazards and risks, identifies targeted priority areas, and establishes preferred vegetation/fuel treatment methods and timing.



## B. FIRE HAZARD - WILDLAND AREAS

In addition to the areas of concern listed in the "Fire Hazards-All Areas" section, the following should be considered when developing policies related to wildland areas.

### 1. FUEL MODIFICATION

Possible affected GP Elements: Safety, Land Use, Open Space, Conservation

#### Data & Analysis:

Below is a list of data that may be useful in establishing a current picture of fuel modification in wildland areas related to wildfire. In order to identify the local areas at risk with regards to fuel modification collect and analyze the following.

- Identify and classify fire hazard severity zones based on:
  - Degree of development.
  - Fuel loading.
  - Weather.
  - Slope.
  - Aspect.
  - Accessibility to fire protection assistance (i.e., response time, availability of helispots, proximity of air tanker attack bases, availability of woods workers, etc.).
  - Proximity to communities or assets at risk.
  - Historic fire data.
  - Other pertinent information and maps (see GC Sections 51178-51189.5, PRC Sections 4201-4205 and <http://www.fire.ca.gov/ab6/ab61st.html>).
- Analyze the potential for fire to critically impact or eliminate habitat or open-space values.
- Identify the policy implications for fire safe or fuels reduction policies of both public and private conservation or open-space areas.
- Prioritize areas needing vegetation/fuel treatment by:
  - Identify maximum acceptable fire size.
  - Estimating costs of treatment methods.
  - Developing timeline for implementation and maintenance of fuels treatments.
  - Evaluating how treatment methods impact habitat and open space resources and floodplains.

#### Policy Examples:

Based upon the data and analysis of the hazards, risks and vulnerabilities with regards to fuel modification, policies should be developed appropriate for local conditions to mitigate potential losses due to wildfire. In addition to the issues discussed in Fire Hazards - All Areas, policy makers may wish to consider other issues unique to wildland fires including, but are not limited to, acceptable level of fire risk, the degree of consistency and coordination between public and private landowner fuel modification

activities, the variety of fuel modification techniques and public awareness and ability to comply with residential clearance policies.

The following are examples of policies that a local government might adopt with regards to fuel modification to mitigate fire hazards in wildland areas.

- Prior to the construction of any structure, whether residential, recreational, or commercial, a site specific fuel mitigation plan shall be prepared. The location and development of any road, or any other man-made structure that may act as a fuel barrier, shall be done in consideration of its maximum benefit as a fuel barrier/fire break.
- All residences shall comply with the fuel modification requirements of PRC Section 4291, whether located in state responsibility or local responsibility areas.
- Forest thinning and grazing and hand or mechanical clearing shall be conducted in lieu of prescribed fire unless prescribed fire is clearly shown to provide the greatest overall benefit.
- County resources will work with landowners to assist in choosing the best method of fuel reduction.
- County shall establish desired initial attack success rate.
- Evaluate how methods impact habitat and open space resources and floodplains.
- Identify preferred methods for areas needing treatment:
  - Education
  - Increase initial attack capability
  - Prescribed fire
  - Wildfire protection zones
  - Forest thinning
  - Grazing
  - Mechanical clearing
  - Hand clearing (piling, burning/chipping)

## C. URBAN INTERFACE AREAS

In addition to the areas of concern listed in the "Fire Hazards-All Areas" section, the following should be considered when dealing with urban interface areas.

### 1. URBAN INTERFACE HAZARDS

Possible affected GP Elements: Land Use

#### Data & Analysis:

Below is a list of data that may be useful in establishing a current picture of fire hazards in the Urban Interface. The purpose of the collection and analysis of the following data is to determine areas containing hazards, risks, and vulnerabilities in the Urban Interface. In order to identify the local areas at risk from wildfire collect and analyze the following:

- Check the list of "Communities at Risk" per the National Fire Plan (see [www.cafirealliance.org](http://www.cafirealliance.org)).
- Check "high fire hazard severity zones" maps. (GC Section 51178, see maps at <http://ceres.ca.gov/planning/nhd/> and check with local governments for updates).
- Update "high fire hazard severity zones" maps as necessary.
- Inventory and prioritize your assets at risk (public and private).
- Undertake cost/benefit analysis of various hazard mitigation measures as opposed to fire suppression.
- Establish low risk category standards (tree spacing, predicted surface fuels flame length to crown height ratios, etc).

**Policy Examples:**

Based upon the data and analysis of the hazards, risks and vulnerabilities, policies should be developed appropriate for local conditions to mitigate potential losses due to wildfire.

In addition to the issues discussed in Fire Hazards - All Areas, urban interface areas may require the consideration of other conditions including construction and zoning requirements, impact of permanent residents vs seasonal residents, and maintenance of mitigated areas.

The following are examples of policies that a local government might adopt to mitigate fire hazards in the urban interface:

- Public and private landowners shall minimize the risk of wildfire moving from one property to adjacent property.
- Public landowners shall provide a minimum of ¼ mile defensible fuel profile (buffer zone) at property lines and near points of special interest.
- Public landowners shall implement safety measures that result in a low risk category designation for wildfires threatening the urban interface.
- County agencies shall work cooperatively with other agencies and private interests to educate private landowners on fire-safe measures to implement in order to achieve a low risk category designation.
- Public and private funding for fire risk hazard reduction shall be prioritized to assist private landowners in implementing safety measures for a low risk designation.
- All residential, commercial and industrial construction and development will comply with the Board of Forestry's State Responsibility Area Fire Safe Regulations (see California Code of Regulations, Title 14, Sections 1270 et seq.) relating to roads, water, signing and fuel modification.
- Public and private property owners shall maintain property in a low risk category (PRC Section 4291 and GC Section 51182).

## D. FIRE HAZARD - URBAN AREAS

In addition to the areas of concern listed in the "Fire Hazards-All Areas" section, the following should be considered when dealing with urban areas.

### 1. FUEL/STRUCTURE MODIFICATION

Possible affected GP Elements: Safety, Land Use, Open Space, Conservation, Housing

#### Data & Analysis:

Below is a list of data that may be useful in establishing a current picture of fuel and structure modifications in urban areas related to wildfire. In order to identify the local areas/structures at risk with regards to fuel and structure modifications collect and analyze the following:

- Identify and classify fire hazard severity areas (Bates Bill?).
- Evaluate age, condition, and size of structures (code related issues) .
- Evaluate use and occupancy of structures.
- Evaluate construction materials and roofing assemblies.
- Evaluate structure density.
- Evaluate access and evacuation routes.
- Evaluate historical fire data.
- Evaluate other pertinent information (maps).
- Evaluate landscaping as potential fire hazard.
- Evaluate neighborhood defensible space (island of safety).
- Identify fire protection jurisdictions.
- Evaluate use of open space and other facilities as part of overall fire protection/mitigation plan.
- Inventory urban forests and evaluate affect with regard to fire hazard.

#### Policy Examples:

Based upon the data and analysis of the hazards, risks and vulnerabilities with regards to fuel/structure modifications, policies should be developed appropriate for local conditions to mitigate potential losses due to fire. In addition to the issues discussed in Fire Hazards - All Areas, urban areas may require the consideration of other conditions including construction and zoning requirements, impact of permanent residents vs seasonal residents, maintenance of mitigated areas, access routes, acreage of open space and/or areas having wildland fuel characteristics vs wildfire response capability. The following are examples of policies that a local government might adopt to mitigate fire hazards in urban areas.

- Urban developments shall be planned and constructed to resist the encroachment of uncontrolled fire.

- Creation of a self assessment district to maintain a fuel modification program.
- Establish public education services through the appropriate fire protection agencies.
- Open space facilities will be planned, designed, and placed to provide for fire protection/mitigation.
- Structures with fire protection sprinkler systems must provide for outside alarm notification.
- In high fire hazard areas fire rated roofing and construction materials shall be used in reconstruction and new development.
- Use of fire rated materials for construction purposes shall not be used as a means to discriminate against affordable housing policies.
- Open spaces shall be maintained so that ground fuels don't promote the spread of wildfire and aerial fuels don't allow the spread of a fire through the tree canopy.
- Public Open Spaces shall be used as demonstration areas and examples to neighborhood residents.
- Create an urban forestry plan to be concert with local fire plan.

## **E. POST EVENT RECOVERY & MAINTENANCE**

### **1. POST EVENT SECTION**

#### **Introduction**

The Recovery and Maintenance phase is an opportunity for the community and landowners to re-evaluate land uses and practices. A current General Plan will usually have the baseline data which to make the analysis.

### **2. SHORT TERM RECOVERY: DIRECTLY RELATED TO IMPACTS OF FIRE**

**Possible affected GP Elements:** Land Use, Open Space, Conservation

#### **Data & Analysis:**

Below is a list of data that may be useful in establishing a current picture of short-term recovery possibilities related to impacts of a wildfire.

- Evaluate post fire fuel hazard ratings.
- Evaluate vegetation/fuel conditions relative to future flood and fire control
- Evaluate vegetation conditions relative to future fire conditions and wildlife habitat

#### **Policy Examples:**

Based upon the data and analysis, policies should be developed for short term recovery methods that are appropriate for local conditions to mitigate potential future losses due to wildfire. Issues that public policy makers may choose to consider include but are not

limited to, benefit of recommended measure commensurate with the protection needed, opportunities for re-introduction of native species, short term recovery needs vs long term environmental health, debris removal vs habitat health, and consider short term flood risks and mitigation opportunities.

The following are examples of policies that a local government might adopt to mitigate wildfire impacts in the shortly after an event.

- The County shall endeavor to reduce post fire recovery time by replanting native species.
- Ensure fire protection measures provide sustainability for restoration projects.
- Ensure reduced future fire risk by removing sufficient dead woody vegetation while retaining reasonable wildlife habitat (cross-link with water quality).
- Retain sufficient downed logs for erosion control as well as habitat.

### 3. LONG TERM OPPORTUNITIES-MAINTENANCE

Possible affected GP Elements: Safety, Land Use, Open Space, Conservation

#### Data & Analysis:

Below is a list of data that may be useful in establishing a current picture of long term maintenance opportunities related to wildfire:

- Identify endangered species, cultural and historic resources, hazardous material conditions.
- Evaluate patterns and trends of development.
- Evaluate impacts, and potential impacts, of event on availability and condition of infrastructure.
- Evaluate impact, and potential impacts of the event on environment and ecosystem, including primary, secondary, and tertiary impacts.
- Evaluate "Fire Plan", Safety Element, for adequacy.

#### Policy Examples:

Based upon the data and analysis of the long term maintenance opportunities policies should be developed appropriate for local conditions to mitigate potential losses due to wildfire. Issues that public policy makers may choose to consider include but are not limited to, the extent to which existing land use designations are appropriate, the potential for the re-evaluation of community assets, the success of past mitigation measures, sustainability of recommended fire mitigation measures and assurance that mitigation measures are continued to be implemented.

The following are examples of policies that a local government might adopt to mitigate fire impacts over the long term.

- Subdivisions and developments shall be designed to exist in concert with the natural ecosystem and to promote forest health and stewardship.

- Protect investment through reduction of fire risk.
- Extend defensible fuel profile zone agreements to subsequent landowners.
- Promote the opportunity to return to native plant species.
- In high risk wildland fire areas rebuild structures with a minimum 100 foot setback (when feasible) from property lines.
- Residential dwellings will be re-built using state of the art construction methods, materials, codes, and standards to reduce their susceptibility to wildfire.
- The legislative body shall periodically review the jurisdictions fire history and lessons learned, for the purpose of ensuring that mitigation measures are being maintained.

## F. FLOOD HAZARD RELATED TO WILDFIRE (PRE- AND POST-FIRE)

### 1. FIRE EFFECTS

Possible affected GP elements: Land Use, Open Space, Conservation

#### Data & Analysis:

Below is a list of data that may be useful in establishing a current picture of flood hazards related to wildfire. In order to identify the local areas at risk from floods due to wildfire collect and analyze the following:

- Collect historical data on flooding, such as frequency and intensity.
- Identify (map) areas within floodplains or subject to inundation by a 100-year flood and the 500-year flood (see <http://ceres.ca.gov/planning/nhd/> ) .
- Identify historic rainfall intensity.
- Determine and map areas that are potentially prone to flooding, and debris flow, following a catastrophic wildfire.
- Determine specific vulnerabilities within the identified flooding areas.

#### Policy Examples:

Based upon the data and analysis of the hazards, risks and vulnerabilities with regards to flooding, policies should be developed appropriate for local conditions to mitigate potential losses due to wildfire. Issues that public policy makers may choose to consider include but are not limited to, the need to re-asses an area after a wildfire to determine increased risk to flooding, and the cost and benefit associated with new mitigation measures regarding flooding due to wildfire.

The following are examples of policies that a local government might adopt to mitigate flood hazards related to a wildfire:

- All wildfire burned areas shall be treated to control storm water runoff prior to winter rains.

- Wildfire areas shall be restored by planting native vegetation cover or encouraging the re-growth of native species as soon as possible to aid in control of storm water runoff.
- Potential for future flood hazard shall be reduced by sufficient removal of dead, woody vegetation along watercourses following a catastrophic fire to reduce the risk of future catastrophic fires.
- Fire hazard reduction measures should balance forest health with fuel reduction activities while keeping in mind the potential effect on flood management.

(Note: Reduction in fire risk will simultaneously reduce flood risk.)

## G. LANDSLIDE HAZARD

### 1. WILDFIRE EFFECTS

Possible affected GP Elements: Conservation, Open Space

#### Data & Analysis:

Below is a list of data that may be useful in establishing a current picture of landslide effects as a result of a wildfire. In order to identify the local areas at risk from landslides due to a wildfire collect and analyze the following:

- Identify landslide prone areas from the Division of Mines and Geology and the U.S. Geological Survey landslide inventory and landslide and debris-flow susceptibility maps where maps exist.
- Identify areas which would be prone to landslides following a catastrophic wildfire.

#### Policy Examples:

Based upon the data and analysis of the hazards, risks and vulnerabilities with regards to landslides, policies should be developed appropriate for local conditions to mitigate potential losses due to wildfires and subsequent landslides. Issues that public policy makers may choose to consider include but are not limited to, the extent to which the area is at risk to landslides due to wildfire, the need to adopt new mitigation measures, and the potential impact of mitigation measures on areas of special concern (cultural, environmental), and cost of mitigation vs benefits.

The following are examples of policies that a local government might adopt to mitigate landslide hazards.

- All wildfire areas prone to landslides shall be treated avert storm water runoff prior to winter rains.
- Native vegetation cover shall be planted or temporary slope stabilization measures will be installed as soon as possible to aid in landslide control.
- Potential for landslides shall be reduced by sufficient removal of dead, woody vegetation following a catastrophic fire.

(Note: Reduction in fire risk will simultaneous reduce landslide.)



## H. TERRORIST RISK

This sub-section is included to ensure that your terrorist preparedness actions do not substantially increase your fire risk or unduly restrict emergency response. Communities should carefully weigh the impact of both terrorism preparedness activities and fire preparedness activities and ensure that clear communication exists pre-incident and during the incident between the legislative body, law enforcement, emergency response units.

**Possible affected GP Elements:** Circulation, Land Use

### Data & Analysis:

Development of the individual elements of the General Plan should be based on a foundation of good data collection and sound data analysis. Policies should be developed after review and reflection of the relevant data and analysis.

Below is a list of data that may be useful in establishing a current picture of terrorist risks that are related to wildfire:

- Identify potential access barriers which, if removed, would prevent fire fighter access (bridges, dams, etc.).
- Develop an alternative emergency access plan.
- Identify areas for treatment as survivor zones (areas that could survive without protection assistance).
- Prioritize zones of treatment if sufficient suppression forces are unavailable.

### Policy Examples:

Based upon the data and analysis of the hazards, risks and vulnerabilities with regards to terrorists, policies should be developed appropriate for local conditions to mitigate potential losses due to wildfire. Issues that public policy makers may choose to consider include but are not limited to, identify and prioritize assets at risk for protection in the absence of response forces, are ground circulation routes adequate in the event of wildfire due to terrorist attacks, identify areas that could be exploited by terrorists that would tie up fire response assets and/or inhibit emergency response.

The following are examples of policies that a local government might adopt to mitigate terrorist risks related to wildfires:

- Wildfires shall be limited in size by the establishment of survivor zones (areas that could stop fires without protection assistance).
- Second-line defense zones shall be strategically placed to be used independent of key structures (bridges, dams).
- Key structures (bridges, dams) shall be protected from terrorist attack to prevent fire emergencies.
- Defense zones shall be adequate for fire protection without dependency on air attack.

### III. CONTACT INFORMATION, RELATED WEB-PAGES AND PUBLICATIONS

Contact names, phone numbers and emails for emergency preparedness and planning.

Organization	Contact
State Fire Marshall's Office (SFMO)	Melissa Frago, Program Coordinator Data Collection & Analysis/Fire Safe Planning OSFM - Code Development & Analysis Division (916) 445-8422 <a href="mailto:Melissa.frago@fire.ca.gov">Melissa.frago@fire.ca.gov</a>
California Department of Forestry and Fire Protection (CDF)	Rich Schell, Staff Chief California Fire Plan California Department of Forestry and Fire Protection (916) 653-7472 <a href="mailto:rich.schell@fire.ca.gov">rich.schell@fire.ca.gov</a>
Governor's Office of Planning and Research (OPR)  State Clearinghouse and Planning Unit	P.O. Box 3044 Sacramento CA 95812-3044 (916)-445-0613 web page: <a href="http://www.opr.ca.gov">www.opr.ca.gov</a> E-mail: <a href="mailto:state.clearinghouse@opr.ca.gov">state.clearinghouse@opr.ca.gov</a>
Office of Emergency Services (OES)	Hazard Mitigation Unit - North Phone: 916-845-8150 Fax: 916-845-8386  Hazard Mitigation Unit - South Phone: 626-683-6700 Fax: 626-683-6702

Web-Page Addresses		
Organization	Address	Description
Governor's Office of Planning and Research (OPR)	<a href="http://www.opr.ca.gov">www.opr.ca.gov</a>	Information on the Governor's Office of Planning and Research and publication produced by OPR.
California Department of Forestry and Fire Protection (CDF)	<a href="http://www.fire.ca.gov">www.fire.ca.gov</a>	Direct link to the Department of Forestry and Fire Protections Web-Page. Look here for listing of local CDF units in your area.
U.S. Department of Forestry	<a href="http://www.r5.fs.fed.us/">www.r5.fs.fed.us/</a>	Direct link to the Department of Forestry's Pacific Southwest Region Home Page which contains contact information for California Field offices.

Web-Page Addresses		
Organization	Address	Description
Governor's Office of Emergency Services (OES)	<a href="http://www.oes.ca.gov">www.oes.ca.gov</a>	Direct link to the Governor's Office of Emergency Services Home Page.
Federal Emergency Management Agency (FEMA)	<a href="http://www.fema.gov/txt/library/fr02-4321.txt">www.fema.gov/txt/library/fr02-4321.txt</a>	Hazard Mitigation Planning and Hazard Mitigation Grant Program
Federal Insurance & Mitigation Administration (FIMA)	<a href="http://www.fema.gov/fima">www.fema.gov/fima</a>	Manages the National Flood Insurance Program and oversees FEMA's mitigation programs.
FEMA's State and Local Mitigation Planning	<a href="http://www.fema.gov/fima/planning_toc3.shtml">www.fema.gov/fima/planning_toc3.shtml</a>	How to Guide. Understanding Your Risks (identifying hazards and estimating losses).
FEMA's Hazards	<a href="http://www.fema.gov/hazards">www.fema.gov/hazards</a>	For information about a specific hazard and how to deal with it.

List of Available Planning Resources		
Element	Authority	Description
General Plan Guidelines	OPR	Comprehensive Guide to city and county planning. Discussion of the General Plan and its contents.
Planning, Zoning, and Development Law	OPR	California Government Code Sections 65000 - 66037 (Planning and Zoning Law) and Sections 66410-66499.58 (Subdivision Map Act) plus Miscellaneous Planning-Related Laws
Planners Training Series	OPR	Publications discussing planning specific topics (i.e. Variances, Conditional Use Permits)
General Planning Publication	OPR	Publications covering a variety of general planning topics (i.e. Citizens Guide to Planning, The Planning Commissioner's Book)
CEQA Technical Advice Series	OPR	Publications dealing with the California Environmental Quality Act.
Fire Hazard Severity Zoning	SFMO	Assessment of fire hazard severity and identification / adoption of hazardous areas for the purpose of public safety and fire prevention is currently required in both SRA and LRA.

List of Available Planning Resources		
Element	Authority	Description
Firewise Planning	<a href="http://www.firewise.org">www.firewise.org</a>	<p>Through presentations by experts and local stakeholders and workshop tools such as state-of-the-art mapping and wildfire simulations, community leaders and professionals will learn first hand the complexities involved in building communities (and citizenry) that are prepared for the inevitable effects of unwanted wildland fire.</p> <p>Participants learn how to:</p> <ul style="list-style-type: none"> <li>• recognize interface fire hazards</li> <li>• design Firewise homes and landscapes</li> <li>• deliver fire education</li> <li>• and incorporate Firewise planning into existing and developing areas of communities</li> </ul>
Model Ordinance for Defensibility of Space and Structures.	Publication - SFMO	Includes Zoning, Fire Protection Planning, Building Standards and Enforcement of fire prevention measures within Very High Fire Hazard Severity Zones.
Real Estate (Wildfire) Natural Hazard disclosure	Publication - SFMO	Requires written disclosure upon sale of real property whether or not the property is located in an identified or adopted Very High Fire Hazard Severity Zone.
A discussion of the County General Plan and the role of Strategic Fire Protection Planning	Publication - SFMO	Outlines strategic planning for fire safety and prevention within a County General Plan update.
I-Zone - Urban/Wildland fire Prevention and Mitigation	Publication - SFMO	Contains several informative articles about fire prevention in the Urban-Wildland Interface areas of California.
Fire Hazard Zoning fieldguide	Publication - SFMO	Outlines and explains state laws relating to LRA and SRA fire hazard zoning.
Structural Fire Prevention field guide	Publication - SFMO	Outlines and explains state laws and strategies relating to structural fire safety in Urban-Wildland Interface areas within California.
Wildland Fire Hazard Assessment	Publication - SFMO	A research document containing information about fire hazard zoning

*State Fire Marshall's office, p 29*

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List of Available Planning Resources		
Element	Authority	Description
		history, laws and levels of compliance in local jurisdictions. This document also includes several different fire hazard assessment methods.
Wildland Urban Interface Code (IFC)	Publication - SFMO	A model fire safety code for reference and/or adoption in Urban-Wildland Interface areas.
RxR, Powerline, Industrial Operations Field Guides	Publication - SFMO	Outlines and explains state laws and regulations pertaining to fire prevention in association with timber operations, railroads, power lines

Statuary and other requirement of the plan(s)		
Element	Authority	Description
California Fire Plan	<u>PRC 4130</u>	<p>A plan for adequate statewide fire protection of state responsibility areas shall be prepared by the board in which all land of each type shall be assigned the same intensity of protection.</p> <p>The CA Fire Plan is a statewide planning framework to assess wildland fire related conditions and apply appropriate pre-fire actions to reduce the costs and losses from wildfire. Currently adopted by OES as the State Hazard Mitigation Plan. Required by the CA BOF&amp;FP to be updated by CDF every 5 years. The plan is built at the local level with significant input from federal and local government and stakeholders</p>
State Responsibility Area Review	<u>PRC 4128.5</u>	Requires the Board of Forestry and Fire Protection to review and adopt updates to State Responsibility Area (that area of the State where CDF has wildland fire protection responsibility), every 5 years
Pipeline Safety		
CUPA		

Statuary and other requirement of the plan(s)		
Element	Authority	Description
Board of Forestry & Fire Protection's Fire Safe Regulations	<u>PRC 4290</u>	Regulations require that specific fire safe standards be met in the planning and development of a subdivision as well as the issuance of a building permit.
Building Standards	<u>GC 51189</u>	Authorizes the State Fire Marshal to adopt building standards for fire safety in Very High Fire Hazard Severity Zones, and to publish a model ordinance for structure defensibility.
California All Incident Reporting System	<u>HSC 13110.5</u>	Requires reporting to State Fire Marshal of all fire, emergency medical services, hazardous materials and other fire department responses.
Fire Hazard Severity Zones	<u>GC 51175-51179</u>	Requires local jurisdictions to assess hazards and adopt fire prevention standards for defensible space within Very High Fire Hazard Severity Zones.

List of current planning and outreach processes		
Element	Source	Description
CA Fire Plan	CDF Units	The CA Fire Plan is an assessment tool based upon scientific data and stakeholder validation of the input values and resulting assessment. The plan is developed locally in 27 independently assessed and assembled plans that evaluate Assets at Risk, Level of Service, Vegetation and Fire Weather. The resulting data aggregate identifies priority areas for pre-fire management projects. Community and local government planning can take advantage of the data and assessments that are readily available.

Baseline data used in planning and evaluating programs and plans		
Element	Authority	Description

Baseline data used in planning and evaluating programs and plans		
Element	Authority	Description
State Responsibility Area	<u>PRC 4128.5</u>	Acts as trigger for application of regulations and standards.

List of programs which provide planning money		
Element	Authority	Description
National Fire Plan	Federal Funding	Through CDF or via the State Fire Safe Council, grant funding is available for community wildfire planning.
FEMA - Hazard Mitigation Planning and Hazard Mitigation Grant Program	Federal Funding	For implementing Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act which provides new and revitalized approaches to mitigation planning.

#### IV. GLOSSARY

Fuel Modification Zone

*"shelter in place"*

defense zones

fuel loading



## APPENDIX

### FEMA REQUIREMENTS RELATED TO LOCAL PLANNING

The Federal Emergency Management Agency's (FEMA) Interim Final Rule (IFR), published in the Federal Register on February 26, 2002, includes new requirements for State and local mitigation planning, and plans which must be approved by FEMA by November 1, 2003. These state and local plans are required in order for the state and/or local communities to be eligible for disaster assistance grants and other Stafford Act assistance, excluding emergency assistance.

The IFR is intended to provide guidelines for implementing Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), enacted under §104, the Disaster Mitigation Act of 2000 (DMA 2000). In addition, the FEMA IFR established local planning criteria so that local jurisdictions could actively begin the hazard mitigation planning process, and to develop comprehensive, local hazard mitigation plans before disaster events.

FEMA and the State of California recognize that local governments are involved in a range of planning activities. The local hazard mitigation plan is the representation of the jurisdiction's commitment to reduce risks from natural hazards, and serves as a guide for decision makers as they commit resources to reducing the effects of natural hazards. Local plans will also serve as the basis for the State to provide technical assistance and to prioritize project funding. However, for some communities, meeting the deadline of having an approved local hazard mitigation plan in place by November 1, 2003 would appear to be difficult.

Fortunately, there is a good deal of information already documented and available in the General Plan, and other community emergency and hazard plans. This information may be linked or referenced to complete sections of a jurisdiction's local hazard mitigation plan.

A review of the local planning requirements of the IFR indicate that the following required sections of a local mitigation plan should at least be partially completed by an up-to-date General Plan, and that a jurisdiction's General Plan should be considered a major resource and source of information for completing a community's local hazard mitigation plan.

Improved integration of mitigation planning with other community planning efforts and documents, will result in a better understanding of risks and vulnerabilities, as well as serve to expedite implementation of mitigation measures and activities to reduce the risk of hazards to the community, both pre- and post-disaster.

Sections of the Local Mitigation Plans, required by the IFR for Section 322 of the Stafford Act, that may be linked or referenced from information found in General Plans include:

*NOTE: The significant hazards, including natural, technological and non-natural are identified and analyzed in a comprehensive, up-to-date General Plan, and mitigation measures to reduce the risk of those hazards are also discussed in detail.*

**IFR §201.6 Local Mitigation Plans.**

(a)(3) Multi-jurisdictional plans (e.g. watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process and has officially adopted the plan. State-wide plans will not be accepted as multi-jurisdictional plans.

*NOTE: A local government should include in its local hazard mitigation plan, documentation of attendance and participation in regional or multi-jurisdictional emergency and hazard prevention/mitigation meetings where the General Plan or other local plans were discussed.*

**IFR §201.6 (b) Planning Process** - An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:

(b)(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;

(b)(2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and

*NOTE: A local government should include in its local hazard mitigation plan, documentation of the public's or neighboring communities official's attendance and participation in meetings or council sessions where the General Plan sections, concerning emergency and hazard prevention/mitigation issues, were discussed.*

(b)(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

*NOTE: Local governments are encouraged to integrate, link and reference information from hazardous materials and other non-natural hazard plans and planning efforts within the community.*

*NOTE: For the items listed below in IFR §201.6 (c), Plan Content, A jurisdiction's General Plan, emergency plans, hazardous materials and other non-natural hazard plans should be considered a major resource and source of information for completing a community's local hazard mitigation plan.*

**IFR §201.6 (c) Plan Content** - The plan shall include the following:

(c)(1) Documentation of the *planning process* used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

(c)(2) A *risk assessment* that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards. The risk assessment shall include:

(c)(2)(i) A description of the type, location, and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

(c)(2)(ii) A description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community. The plan should describe vulnerability in terms of:

(c)(2)(ii)(A) The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas;

(c)(2)(ii)(B) An estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) of this section and a description of the methodology used to prepare the estimate;

*NOTE: Not all local jurisdictional General Plans provide "An estimate of the potential dollar losses to vulnerable structures." This information may exist only in the completed local hazard mitigation plan.*

(c)(2)(ii)(C) Providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

(iii) For multi-jurisdictional plans, the risk assessment section must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.

(c)(2)(iii) For multi-jurisdictional plans, the risk assessment section must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.

*NOTE: Information on how a local jurisdiction's risk varies from a Multi-jurisdictional planning area may not be included in local General Plans or other local plans. This information may exist only in the completed local hazard mitigation plan.*

(c)(3) A mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools. This section shall include:

(c)(3)(i) A description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

(c)(3)(ii) A section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

*NOTE: A local jurisdiction's analysis of a comprehensive range of specific mitigation actions for new and existing buildings and infrastructure may not be included in local General Plans or other local plans. This information may exist only in the completed local hazard mitigation plan.*

(c)(3)(iii) An action plan describing how the actions identified in paragraph (c)(3)(ii) of this section will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

*NOTE: An action plan, developed by local jurisdictions, describing how the specific mitigation actions will be prioritized, implemented and administered, according to a cost benefit analysis, may not be included in local General Plans or other local plans. This information may exist only in the completed local hazard mitigation plan.*

## Executive Summary

In 2000, Governor Gray Davis signed Assembly Bill 1147, which recommended the creation of the California Floodplain Management Task Force (Task Force).

In February 2002, the Governor tasked the Department of Water Resources (DWR) with convening a Floodplain Management Task Force. The Task Force focused on the intent of Assembly Bill 1147. In this bill "the Legislature finds and declares that the impacts of flooding can be reduced through better coordination of floodplain management decisions. It is the intent of the Legislature that the Governor established a floodplain management task force with broad membership from the local, state, and federal governments and stakeholders with an interest in flood control. If the task force is established, it is the intent of the Legislature that it examine specific issues related to state and local floodplain

management, including, but not limited to, features that substantially reduce potential flood damages, and make recommendations for more effective statewide floodplain management policies."

The newly formed Task Force sought to recommend floodplain management strategies designed to reduce flood losses and maximize the benefits of floodplains. The Task Force found that existing programs are not adequate to accomplish these goals, and that for many Californians time is of the essence. They moved forward with an understanding that failure to take action may result in loss of life and increased economic, agricultural and property losses, and environmental decline or lack of ecosystem restoration opportunities.

The Task Force identified the need for California to comply with the National Flood Insurance Program (NFIP). It also developed recommendations for improving floodplain management by adopting Best Management Practices (BMPs) and integrating multi-objective management (M-O-M) approaches.

In developing their recommendations, the Task Force considered an array of previously identified options drawn from 39 reports on the subject, including: the *Flood Emergency Action Team Report* (FEAT Report); *Sharing the Challenge - Floodplain Management into the 21<sup>st</sup> Century* ("Galloway Report"); as well as government agency publications; books; published papers; internet sites; and specific recommendations from stakeholders. Recommendations then grew from three basic themes:

### Floodplain Management

Floodplain management includes actions to the floodplain to reduce losses to human resources within the floodplain and/or protect benefits to natural resources associated with flooding. For example:

1. Minimizing impacts of flows
2. Maintaining or restoring Natural Floodplain Processes
3. Removing obstacles within the floodplain voluntarily or with just compensation
4. Keeping obstacles out of the floodplain
5. Educating and emergency preparedness planning
6. Ensuring that operations of floodwater management systems are not compromised by activities that interfere with, or are damaged by, design floods of these systems.

- **Better Understanding and Reducing Risks from Reasonably Foreseeable Flooding** – Local, State and federal agencies should consider the risk to life and property from reasonably foreseeable floods when making their land use and floodplain management decisions. To do this effectively, decision-makers need better tools and information and specific methods to comply with the federal National Flood Insurance Program (NFIP).

**Reasonably Foreseeable Flood**

A reasonably foreseeable flood is a flood event that is realistically probable for a particular area. In many cases, this event could exceed a predicted "100-year" flood. It is important to note that the determination of a reasonably foreseeable flood can vary depending on its use and application for any given area. Sources of information on reasonably foreseeable floods may include historic floods, paleo-floods, hydrologic modeling using transposition, historical flood damage data, and hydrologic models. Communities such as Sacramento, West Sacramento, Yuba City, Marysville, Los Angeles, and Orange County are all working toward protection against floods that exceed the "100-year floods."

It is up to each community to consider this information in making land use and flood management decisions.

- **Multi-Objective Management Approach for Floodplains – Multi-Objective Management Approach for Floodplains** – State, local and federal agencies should implement multi-objective floodplain management on a watershed basis. Where feasible, projects should provide adequate protection for natural, recreational, residential, business, economic, agricultural, and cultural resources, and protect water quality and supply.
- **Local Assistance, Funding, and Legislation for Floodplain Management** – DWR should identify and actively pursue funding opportunities, technical assistance to local governments and other organizations, and legislative proposals to implement Task Force recommendations and ensure successful floodplain management, recognizing that local governments have the primary responsibility and authority for land use decisions.

An additional separate, but key element was to establish a common understanding of not only the issues but also the terms and definitions associated with floodplain management. The language associated with floodplain management often varies among the various professional disciplines and government bodies discussing it. Definition of terms became a critical element of the discussion. Table 1 includes the working terms and definitions used by the group for this process.

The Task Force's consensus recommendations are summarized below.

## Summary of Task Force Recommendations

### Better Understanding and Reduced Risks From Reasonably Foreseeable Flooding

1. **Awareness Floodplain Mapping** - The State should expand its Awareness Floodplain Mapping Program for use by local governments and the public.

2. **Future Build-Out Mapping** - Local and State agencies preparing floodplain maps should consider current and future planned development.
3. **Watershed-Based Mapping** - Wherever practical, floodplain maps should be prepared on a watershed basis.
4. **Geographic Information System (GIS)-Based Flood Maps** - Local, State and federal agencies should create, develop, produce, and disseminate compatible GIS based flood maps.
5. **Alluvial Fan Floodplains** - Priority for alluvial fan floodplain mapping should be given to those alluvial fan floodplains being considered for development. The State should convene an alluvial fan task force to review information on alluvial fan floodplains, determine future research needs, and develop recommendations specific to alluvial fan floodplain management.
6. **Stream Gauging and Monitoring** - DWR and other agencies should sponsor projects in cooperation with the United States Geological Survey (USGS) to install real time gauges in priority locations throughout California.
7. **Repetitive Losses** - Local agencies should work with the Governor's Office of Emergency Services (OES) and DWR to identify repeatedly flooded structures and inform qualifying residents of voluntary programs to prevent future flood loss.
8. **Flood Warning and Local Community Flood Response Programs** - The State should increase assistance to local agencies to improve flood-warning programs for specific watersheds.
9. **Flood Insurance Rate Map Issues** - Decision-makers should gather information and data beyond Flood Insurance Rate Maps to better assess reasonably foreseeable floods.
10. **Exceeding Minimum Flood Insurance Requirements** - Local communities should be encouraged to require new and substantially improved buildings to set their lowest floor elevations to at least one foot above the NFIP's base flood elevation, thus factoring in the effect of full build-out of the watershed.
11. **Executive Order** - The Governor's 1977 Executive Order should be updated to direct State agencies to meet or exceed NFIP standards for State facilities.
12. **State Model Hazard Mitigation Plan** - DWR, OES and other agencies should incorporate the State Model Hazard Mitigation Plan floodplain management measures that will meet the Federal Emergency Management Agency's (FEMA) requirements.
13. **Multi-Hazard Mapping** - OES should coordinate with other hazard mapping efforts to develop GIS-based multi-hazard advisory maps and distribute them to local governments and the public.
14. **State Building Codes** - Ensure that modifications to the California Building Standards Code applicable to all new development and substantial replacement or improvement projects meets the NFIP and other local floodplain management requirements.

#### Multi-Objective Management Approach For Floodplains

15. **Multi-Objective Management** - Promote a M-O-M approach to flood management projects.
16. **Flood Management Approaches to Ecosystem Restoration and Agricultural Conservation** - Flood management programs and projects should provide for public safety and should maximize opportunities for agricultural conservation and ecosystem protection and restoration.

**17. Role of Nonstructural Approaches, Restoration, and Conservation of Agriculture and Natural Lands** - In planning new or upgraded floodwater management programs and projects, including structural projects, local and state agencies should encourage as part of the design, where appropriate, nonstructural approaches and the conservation of beneficial uses and functions of the floodplain.

**18. Tools for Protection of Flood Compatible Land Uses** - The State should identify, develop, and support tools to protect flood-compatible land uses.

**19. Protection of Floodplain Groundwater Recharge Areas** - Permitting agencies should consider the impacts of land use decisions on the capacity of the floodplain to recharge groundwater.

**20. Vector Control** - During the planning and development of ecosystem restoration projects should consider the costs and impacts involved with vector control and monitoring related to mosquito-transmitted diseases.

**21. Multi-Jurisdictional Partnerships** - The State should encourage multi-jurisdictional partnerships when floodplain management projects are planned and implemented.

**22. Watershed Monitoring** - The State and others should financially support the monitoring of flood management projects on a watershed level.

**23. Proactive and Adaptive Management of Floodplains** - State and local agencies should manage floodplains proactively and adaptively by adjusting to changing physical conditions, information, and knowledge.

**24. Best Management Practices** - DWR should work with stakeholders to identify, monitor, and update voluntary BMPs for multi-objective floodplain management.

**25. Training, Education, and Professional Certification for Multi-Objective Floodplain Management** - The State should encourage the inclusion of multi-objective floodplain management curricula in college and university degree programs.

**26. Coordination among Agencies and Groups** - The State should encourage and create incentives for additional coordination among stakeholders.

**27. State General Plan Guidelines** - The Guidelines should be updated to reflect California Floodplain Management Task Force recommendations as applicable, and to reflect other programs, policies and standards, including the NFIP, for floodplain management.

#### **Local Assistance, Funding, and Legislation For Floodplain Management**

**28. New and Existing Funding Sources** - The State and local governments should encourage federal, State, local, public and nongovernmental cost sharing to achieve equitable and fair financing of multi-objective floodplain management actions and planning.

**29. Task Force Recommendations Priorities** - DWR and The Reclamation Board should lead the development of a consensus process, involving appropriate stakeholders, to identify criteria and prioritize implementation of Task Force recommendations, with expected expenditures, using existing and new funding sources.

**30. Department of Water Resources Outreach Programs** - DWR should expand outreach programs to include public service announcements to increase public awareness of floodplain values, flooding hazards, public safety and hazard mitigation measures.



31. **Designated Floodways** - DWR and The Reclamation Board should include, in the Community Assistance Workshops, information on the Reclamation Board's current authority to adopt and update designated floodways in the Central Valley.
32. **State Floodplain Management Assistance to Local Governments** - The State should provide additional resources to continue and expand implementation of the State's floodplain management programs, including full support of the Community Assistance Contact program.
33. **National Flood Insurance Program Compliance Encouragement** - Public agencies not subject to local government floodplain management requirements or the Governor's Executive Order on Floodplain Management should comply with NFIP requirements.
34. **Community Rating System** - DWR should educate local officials and the public about the elements and benefits of the Community Rating System (CRS) insurance-rate adjusting program.
35. **State Community Rating System Program Coordinator** - DWR should designate a State level CRS Program Coordinator familiar with State agencies and local governments that use the CRS program.
36. **Environmental Restoration Authority** - Enable The Reclamation Board to participate in multi-objective projects that include ecosystem restoration, watershed protection and recreation components as long as the project advances the mission of public safety and flood damage reduction.
37. **California Environmental Quality Act Local Analysis Improvement** - DWR should provide technical assistance to local agencies and practitioners with a practical step-by-step CEQA flood hazard and impacts assessment guide. Modify the CEQA Guidelines, Appendix G, to include the changes as shown in Appendix F of this report.
38. **Establishment of a California Floodplain Management Advisory Committee** - DWR should sponsor a floodplain management advisory committee composed of local and State governments, floodplain managers, developers, farmers, special interest groups, and other stakeholders to develop additional recommendations to improve floodplain management practices.

The Task Force worked with and considered conflicting interests and developed many consensus recommendations. Due to the nature and format of the Task Force and the numerous issues related to floodplain management, it was not reasonably possible to form recommendations on all of the issues discussed and presented by the Task Force members. Some remaining issues include coastal floodplain management, State insurance requirements beyond NFIP, floodwater management, floodwater storage, life-cycle costing, mapping levee flood risks, disclosure and map availability, actions to conserve rural floodplains, urbanization of the floodplains, benefits and risks to floodplains from structural flood control; and the methods need to address adverse impacts to adjacent properties.

November 20, 2001

Winston Hickox, Secretary  
California Environmental Protection Agency  
1001 "I" Street  
Sacramento, CA 95814

Dr. Alan Lloyd, Chairman  
California Air Resources Board  
1001 "I" Street  
Sacramento, CA 95814

**RE: Public Health Concerns Regarding Naturally Occurring  
Asbestos (NOA) Exposure**

Dear Secretary Hickox and Chairman Lloyd:

I am writing on behalf of the American Lung Association of California and the California Thoracic Society to urge your agencies to undertake additional actions to protect public health from naturally occurring asbestos (NOA) exposure, especially exposure to tremolite and other amphibole asbestos. NOA is present in 44 out of 58 counties in California, and tremolite is present in at least seven of those counties. NOA is a human health hazard when airborne, and exposure may cause lung diseases and cancer after a long latency period. We appreciate the recent regulatory action taken by the California Air Resources Board (CARB) to control dust emissions in areas known to contain NOA, and to conduct monitoring of neighborhoods in and around asbestos quarries, however, we remain concerned that a public health threat from NOA may still exist, especially in areas where tremolite outcroppings have been identified. In order to fully understand the public health impacts from NOA and to better characterize areas of potential concern for NOA exposure, additional research including air monitoring, soil sampling and exposure studies must be conducted.

While we are concerned about public health risks from all NOA exposure, we are particularly concerned about tremolite and other types of amphibole asbestos fibers because recent research has demonstrated that amphiboles pose the greatest public health threat. Amphibole includes: tremolite, actinolite, amosite, crocidolite, and anthophyllite. Tremolite is highly carcinogenic and has been shown to cause mesothelioma from environmental exposures in several other

countries, including Cyprus, Turkey, Greece, Canada, and New Caledonia. In Libby, Montana, exposure to tremolite asbestos (as a contaminant of vermiculite) has produced asbestos-related disease and death among workers and local residents, including those exposed as children. Tremolite in California consists of long, thin fibers, the most lethal kind when inhaled. Tremolite from Calaveras County has been found to be more carcinogenic in animal tests than five other types of tremolite obtained from sites in other countries. Given the prevalence of tremolite and other amphiboles in California, we are concerned about the lack of good information on human exposure to assess potential public health impacts. Specifically, we are calling on your agencies to establish the following research priorities:

- **Conduct expanded and aggressive air monitoring and soil sampling for amphibole asbestos fibers, especially tremolite, in areas where soil has been disturbed due to construction or where outcroppings of tremolite asbestos have been identified (such as the Sierra foothills).** *This expanded monitoring should be conducted using the aggressive air monitoring and soil sampling practices used by U.S. EPA staff in Libby, Montana, that provide the most comprehensive level of NOA detection. Cal/EPA should coordinate with the U.S. Geological Survey and the California Department of Mines and Geology to target areas for air monitoring and soil sampling.*
- **Conduct additional research on exposure to NOA to fill information gaps on NOA exposure in non-occupational settings and to better characterize the risks to the general population in areas of ultramafic rock, especially in those areas containing amphibole asbestos.** *Exposure studies should target a range of plausible exposure scenarios involving typical activities in unpaved parking lots, unpaved playgrounds and yards, day care centers, schools, residences, off-road vehicle use, as well as paved roads and sidewalks in neighborhoods located in areas of tremolite asbestos.*
- **Conduct epidemiological investigations of the health effects of tremolite and other amphibole exposure in order to identify any unique health impacts potentially associated with such exposures.**

It is our understanding that there are no formal research projects regarding asbestos exposure or health effects planned by CARB in its current research plan. We believe it is critical for Cal/EPA and CARB to conduct these additional research studies to better understand NOA impacts on public health in California, and to determine whether additional regulatory action may be needed to protect the public, particularly infants and children. In addition to establishing these research priorities, we recommend that Cal/EPA and CARB expand efforts to educate the public about potential NOA exposures, health impacts, and methods for testing for NOA, especially with regard to tremolite asbestos.

FROM : AM LUNG ASSN REDWOOD EMP.

PHONE NO. : 727 542 6111

Jun. 15 2003 11:29AM P10

We will contact you soon to set up an appointment to further discuss our concerns about NOA exposure and to seek your assistance in conducting the recommended monitoring and public health studies.

Sincerely,

Earl Withycombe  
Chair, Government Relations Committee  
American Lung Association of California

cc: Members, ALAC Government Relations Committee  
Members, ALAC Clean Air Technical Advisory Committee

*tremolite*

## SEATTLE POST-INTELLIGENCER

[http://seattlepi.nwsourc.com/national/36409\\_libby24.shtml](http://seattlepi.nwsourc.com/national/36409_libby24.shtml)

### Up to 30% tested in Libby hurt by asbestos

Montana mining town residents hear findings of health survey

Friday, August 24, 2001

By CAROL SMITH  
SEATTLE POST-INTELLIGENCER REPORTER

LIBBY, Mont. -- Ron Masters, 49, never worked in the asbestos-contaminated vermiculite mine here. Neither did his 24-year-old son. But both are among more than 1,000 residents whose lung abnormalities have just been documented by a federal study of widespread asbestos-related disease here.

"I can't walk like I used to. I can't get out of my rig and go hunting. I can't run 50 feet from here to the street," said Masters, a former avid outdoorsman. "I can't get enough air."

The nation's largest environmental health study found a rate of lung abnormalities of 18 percent among the 5,590 tested adults, all of whom had lived, worked or played here before the W.R. Grace Co. mine closed in 1990.

And that's a conservative estimate based on two of three experts agreeing in each case. In 30 percent of the cases, one expert found abnormalities, said the study director, Dr. Jeffrey Lybarger, who presented results to Libby residents last night at a packed meeting at City Hall.

Lung abnormalities are often an early sign of fatal or disabling asbestos-related disease, which can emerge 20 years or longer after exposure to asbestos. The rate of abnormalities found in the study is strikingly high compared with the normal range of 0.2 percent to 2.3 percent among people with no known asbestos exposure.

The Agency For Toxic Substances and Disease Registry launched the \$6 million health study after a 1999 Seattle Post-Intelligencer investigation found that hundreds had died or been diagnosed with fatal asbestos-related disease associated with the mine that for decades covered the town and nearby mountainside with a fine white dust.

No other community in the country has been affected so broadly by asbestos contamination. "This is one of the few cases, and certainly the largest in the U.S., where the exposure and abnormalities are extending beyond the workers and immediate family," Lybarger said.

For decades, mine workers took pinkish vermiculite ore from nearby Zonolite Mountain, not knowing it contained deadly tremolite asbestos fibers. W.R. Grace has maintained that it knew nothing of the danger from the contaminated ore and that, until the P-I investigation, it had no reason to believe there was a continuing environmental problem.

In its heyday, the mine produced 80 percent of the world's vermiculite. It was the area's largest employer from 1924 to 1990. At times its largest stack spewed 10,000 pounds of asbestos each day, according to W.R. Grace figures cited by lawyers for asbestos victims.

The federal health study -- designed to identify asbestos exposure and help determine treatment needs -- included chest X-rays, lung tests and face-to-face interviews with 6,149 adults and children. Residents were asked if they ever worked for W.R. Grace or lived with workers who may have brought asbestos home on their clothes, for example, or if they ever played at the ball field near the W.R. Grace plant or in the piles of vermiculite around town.

Most people in the study were exposed to asbestos in more than one way.

In presenting results to the public last night, the toxic substances agency said that nearly 1,000 of the 5,590 adults in the study had lung abnormalities -- a rate of 18 percent. The agency also said it found abnormalities in 159 of the 328 former W.R. Grace mineworkers participating in the medical tests -- a rate of 48 percent.

Those conservative estimates are based on instances in which two out of three experts reading each chest radiograph spotted abnormalities. The 30 percent rate, cited by Lybarger in an interview, is based on instances in which one of three experts found abnormalities. It is consistent with the 30 percent rate of lung abnormalities revealed in preliminary findings announced by the agency in February.

The latest findings confirmed the worst fears of those who have spent years watching friends and neighbors -- including those who never worked at the mine -- succumb to lung diseases.

"I'm one of the innocent ones who never set foot" in the mine, Masters said. "We lived 2 1/2 or 3 miles from where they stored (ore), and I played baseball near there since I was 8."

Diane Keck, 62, is another victim. Keck's grandmother built the town funeral parlor, and her father was the funeral director in the 1940s.

"He noticed the miners dying," said Keck, who used to play in the Zonolite piles. "He told me, 'Something's wrong. Don't go over there to play.'"

Keck moved from Libby when she was 13, but moved back in the early 1990s to retire in this peaceful valley. A lifelong non-smoker, she was shocked when she started having trouble breathing and was told she'd been exposed to asbestos.

That was before the dangers of Libby were widely known. The recent health study confirmed the diagnosis. One of her four siblings also has been diagnosed.

She wonders now about her grandmother. "She died on the oxygen tank," she said. "Back then, they just called it smokers' disease."

About 120 people attended last night's meeting, listening raptly as federal and state officials presented the stark numbers and discussed "routes of exposure" to asbestos.

"My primary exposure route is the fact I lived in Libby for most of my life," said Clinton Maynard, whose father worked at the mine.

Maynard questioned why just breathing the air was not listed as possible exposure. Lybarger said, "You're correct that ambient exposure probably did occur."

Lybarger said the study findings support the need for more testing as the current population ages. The

toxic substances agency already has enrolled an additional 800 people for more screening in a second phase of the study, which will extend through September.

So far, 84 percent of those screened have been Montana residents, although the agency is advertising in major news outlets to reach people around the country who might be eligible. To be eligible, people must have either worked for W.R. Grace, or lived, worked or played in Libby for at least six months prior to Dec. 31, 1990.

Gayla Benefield lost both parents to the ravages of asbestos disease and has fought for a quarter of a century to bring them justice. Now both Benefield and her husband, as well as their oldest daughter, have been diagnosed with abnormalities in their lungs. In her extended family, 37 people have signs of the disease.

Seated at the kitchen-table headquarters where she commands a regiment of victim volunteers, Benefield runs through a litany of friends and family members who are sick and dying.

The normally unflappable Benefield has to stop talking briefly when she thinks about her 11 grandchildren, many of whom played at a contaminated elementary school site. "My babies being exposed -- I took that real hard," she said.

The Environmental Protection Agency, which is managing a massive emergency cleanup in Libby, identified the field used as an ice rink at the Plummer Elementary School as a hot spot last spring and finished a cleanup this summer. A similar cleanup is under way at the town middle school and high school.

At the high school, in fact, EPA cleanup supervisor Duc Nguyen said the agency will have to destroy all the track and football equipment because it is too expensive to decontaminate..

Six miles out of town, federal workers are detoxifying the land at the foot of Zonolite Mountain where W.R. Grace screened the vermiculite into different-sized grades before sending it for processing.

Yesterday, an eagle circled over the cement crushers and men in hazardous-waste suits as they loaded trucks to be hauled up the mountain, where the waste will be sealed forever in the now-closed mine.

The EPA was not satisfied with Grace's cleanup and has ordered the demolition of remaining contaminated buildings on the site beginning Monday, Nguyen said last night.

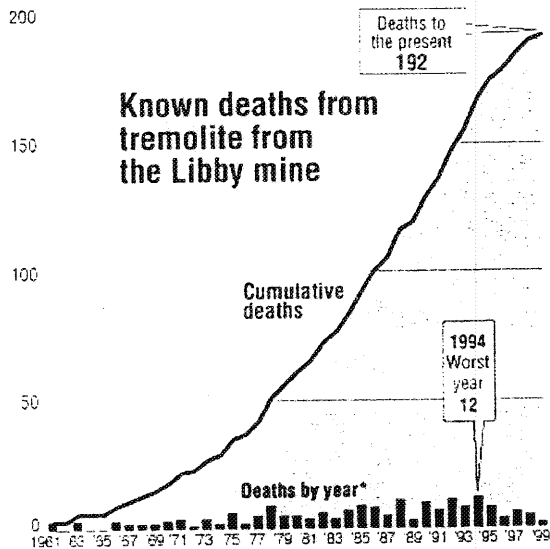
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*P-I reporter Carol Smith can be reached at 206-448-8070 or [carolsmith@seattlepi.com](mailto:carolsmith@seattlepi.com)*

*© 1998-2003 Seattle Post-Intelligencer*

n\_edeath.gif (GIF Image, 340x440 pixels)

<http://seattlepi.nwsourc.com/dayart/19991118/minedeath.gif>  
18 Nov 1999



\*Deaths listed in chart attributable to asbestosis, lung cancer and mesothelioma only.

**Sources:** information based on material presented in various civil actions brought by Libby miners and their families against W.R. Grace, from death certificates from 12 states; and from interviews by the P-I with family members and physicians in Montana, Colorado, Wyoming, Idaho, Oregon and Washington.

6/21/03 11:06 AM



## Asbestos Exposure While Rototilling in Soils Containing Less than 1% Asbestos

As part of EPA's Phase 2 Study in Libby, Montana, samples of personal air were collected by an individual engaged in rototilling a garden. The soil concentrations in this garden were measured in six samples by PLM. Four of the six samples analyzed were "non-detects," and two samples detected "trace" amounts (less than 1% by mass) of asbestos.

Using PCM analytical method, .227 fibers/cc were detected using a personal monitor. Stationary monitors recorded .020 fibers/cc. Using TEM analysis, personal monitors detected .0666 fibers/cc and stationary monitors detected .019 fibers cc.

As seen, elevated levels of fibers were observable in both personal air samples and in nearby stationary monitors during the rototilling activity. The increase is larger when measured by PCM than by TEM (PCME-asb), suggesting that some of the increase detected by PCM is non-asbestos in nature.

*Source: US Environmental Protection Agency Region VIII, Amphibole Mineral Fibers in Source Materials in Residential and Commercial Areas of Libby Pose an Imminent and Substantial Endangerment to Public Health, Christopher P. Weis, Ph.D., DABT, Senior Toxicologist, Science Support Coordinator, Libby Asbestos Site, Dec. 20, 2001*

Let's calculate how many fibers could be inhaled by the measurements from this test. For purposes of this formula, we use the TEM assay of .066 fibers/cc.

The average person takes 16 breaths per minute at rest, higher during activities

Each of the 16 breaths takes in about 500 cc of air in each breath. (500 x 16 = 8,000)

8,000 cc of air are inhaled each minute

.066 f/cc x 8,000 cc of air = 528 fibers/minute

One hour of rototilling would generate 31,680 fibers inhaled

**Four hours of rototilling = 126,720 fibers inhaled**

*Please keep in mind that this fiber count was from soil content of significantly less than 1 percent. Soil samples from a high school in El Dorado Hills tested at 1 to 5 percent tremolite asbestos using TEM analysis. These soil samples were taken from a dirt parking lot used for student parking - for years.*

### **Dust Control Guidelines for Grading and Construction Operations**

- 1) Available and adequate water source and method for application. Plan for dust control in advance of beginning construction.
- 2) Time activities for optimum soil moisture conditions.
- 3) Application of water prior to soil stripping under dry conditions.
- 4) Supplemental watering of loose exposed surfaces subject to traffic as dictated by weather conditions, use and location. Populated locations, dry and windy conditions require more extensive dust controls.
- 5) Stabilizing loose fines from wind erosion after construction.
- 6) Avoid disturbing surface. Wet surfaces to form "crust" and/or place straw, "mulch", vegetative cover, hydroseed or other surface treatment to prevent wind blown dust.
- 6) Maintain stockpiles, yards and access with adequate water, dust palliatives or a combination. Adequately wet dry material transfers. Cover or wet transport loads into and away from job site.
- 7) Establish and maintain clean access to site. Attempt to avoid tracking material onto public roadways by using washed gravel and/or palliative treatment. Palliatives or other "non-tracking" surface treatment is preferable on access areas. Maintain clean roadway access by washing or wet brooming traveled surfaces daily.

### **Special Guidelines for Serpentine Grading and Construction Activities Projects May Require a Lake County Air Quality Management District Asbestos Hazard Dust Mitigation Plan and Review**

- 1) Perform work during wet season, when possible, preferably during light rainfall.
- 2) Pre-wet work area and immediately follow with fine spray application preferably on the immediate area being worked to eliminate visible dust to the extent possible.
- 3) Limit vehicle access and speed on exposed serpentine areas to reduce fiber releases.
- 4) Cover areas exposed to vehicle travel with non-asbestos cover material.
- 5) Maintain a high moisture condition of the disturbed surface or apply a "binder" material to seal loose fibers together and to the parent rock particle. Dust palliatives such as lignin sulfonate, magnesium chloride, pitch, rosin and polymer emulsions can be effectively utilized in a variety of applications.
- 6) Material transfers or stockpiles of loose material should be kept adequately wet, sealed by a palliative or covered where conditions warrant.
- 7) Provide employee notification of potential health risk of airborne asbestos and the requirements of the asbestos dust mitigation plan.
- 8) Worker safety precautions and exposure monitoring should be considered but is not specifically required by District regulation. Other agency regulations may apply.

10/92

**REAL ESTATE TRANSFER  
DISCLOSURE STATEMENT**

THIS DISCLOSURE STATEMENT CONCERNS THE REAL PROPERTY SITUATED IN THE COUNTY OF EL DORADO, STATE OF CALIFORNIA, DESCRIBED AS

THIS STATEMENT IS A DISCLOSURE OF THE CONDITION OF THE ABOVE DESCRIBED PROPERTY IN COMPLIANCE WITH ORDINANCE NO. 4548, SECTION 8.44.060, OF THE EL DORADO COUNTY CODE AS OF JUNE 12, 2003. IT IS NOT A WARRANTY OF ANY KIND BY THE SELLER(S) OR ANY AGENT(S) REPRESENTING ANY PRINCIPAL(S) IN THIS TRANSACTION, AND IS NOT A SUBSTITUTE FOR ANY INSPECTIONS OR WARRANTIES THE PRINCIPAL(S) MAY WISH TO OBTAIN.

**I  
SELLER'S INFORMATION**

The Seller discloses the following information with the knowledge that even though this is not a warranty, prospective buyers may rely on this information in deciding whether and on what terms to purchase the subject property. Seller hereby authorizes any agent(s) representing any principal(s) in this transaction to provide a copy of this statement to any person or entity in connection with any actual or anticipated sale of the property.

THE FOLLOWING ARE REPRESENTATIONS MADE BY THE SELLER(S) AS REQUIRED BY THE COUNTY OF EL DORADO AND ARE NOT THE REPRESENTATIONS OF THE AGENT(S), IF ANY. THIS INFORMATION IS A DISCLOSURE AND IS NOT INTENDED TO BE PART OF ANY CONTRACT BETWEEN THE BUYER AND SELLER.

1. Seller discloses that the subject property may be located in an area containing naturally occurring asbestos. Disturbance of naturally occurring asbestos may result in the release of asbestos in the environment potentially triggering federal, state and local laws and regulations and threatening public health. Seller further discloses that naturally occurring asbestos on the subject property has \_\_\_\_\_ has not \_\_\_\_\_ been disturbed by Seller.

2. Seller discloses the following details regarding disturbed naturally occurring asbestos

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. The seller discloses that the subject property \_\_\_\_\_ does/ \_\_\_\_\_ does not contain aggregate materials imported to the property after June 12, 2003, containing more than 0.25 percent naturally occurring asbestos. Disturbance of naturally occurring asbestos may result in the release of asbestos in the environment potentially triggering federal, state and local laws and regulations and threatening public health. Seller

Real Estate Transfer  
Disclosure Statement  
Page 2

discloses that naturally occurring asbestos on the subject property is in the following location(s); \_\_\_\_\_, and has \_\_\_\_\_/has not \_\_\_\_\_ been disturbed by the Seller.

4. The seller discloses that a geologic evaluation has \_\_\_\_\_/has not \_\_\_\_\_ been performed by a Registered Geologist qualified to perform a NOA assessment to determine whether naturally occurring asbestos does or is likely to occur on the property. The geologic evaluation was performed by \_\_\_\_\_ on \_\_\_\_\_ (date). Based on the assessment, naturally occurring asbestos is likely to or does \_\_\_\_\_ / in not likely to or does not \_\_\_\_\_ occur on the property.

Seller certifies that the information herein is true and correct to the best of the Seller's knowledge as of the date signed by the Seller.

Seller: \_\_\_\_\_ Date: \_\_\_\_\_

Seller: \_\_\_\_\_ Date: \_\_\_\_\_

II

BUYER(S) AND SELLER(S) MAY WISH TO OBTAIN PROFESSIONAL ADVICE AND/OR INSPECTIONS OF THE PROPERTY AND TO PROVIDE FOR APPROPRIATE PROVISIONS IN A CONTRACT BETWEEN BUYER AND SELLER(S) WITH RESPECT TO ANY ADVICE/INSPECTIONS/DEFECTS.

I/WE ACKNOWLEDGE RECEIPT OF A COPY OF THIS STATEMENT.

Seller: \_\_\_\_\_ Date: \_\_\_\_\_

Seller: \_\_\_\_\_ Date: \_\_\_\_\_

Buyer: \_\_\_\_\_ Date: \_\_\_\_\_

Buyer: \_\_\_\_\_ Date: \_\_\_\_\_

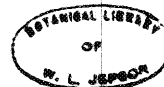
Agent (Broker Representing Seller): \_\_\_\_\_

By: \_\_\_\_\_ Date: \_\_\_\_\_  
(Associate Licensee or Broker-Signature)

Agent (Broker obtaining the Offer): \_\_\_\_\_

By: \_\_\_\_\_ Date: \_\_\_\_\_  
(Associate Licensee or Broker-Signature)

sjon/asbestos disclosure stmt



UNIVERSITY OF CALIFORNIA  
COLLEGE OF AGRICULTURE  
AGRICULTURAL EXPERIMENT STATION  
BERKELEY, CALIFORNIA

# THE UTILIZATION OF DORADO COUNTY LAND

DAVID WEEKS, A. E. WIESLANDER, and C. L. HILL

*Results of a cooperative investigation conducted by the California  
Forest and Range Experiment Station of the United States Forest  
Service, United States Department of Agriculture, and the  
California Agricultural Experiment Station*

BULLETIN 572

May, 1934

CONTRIBUTION FROM THE  
GIANNINI FOUNDATION OF AGRICULTURAL ECONOMICS

UNIVERSITY OF CALIFORNIA  
BERKELEY, CALIFORNIA

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G. THOMAS ROBBINS



COMMENTS ON  
DRAFT ENVIRONMENTAL IMPACT REPORT  
DRAFT GENERAL PLAN ALTERNATIVES

VOLUME 2  
5.9 - Appendix 1

03 JUL 14 PM 12:09  
RECEIVED  
PLANNING DEPARTMENT

15 July 2003

Submitted by: Maidu Group, Mother Lode Chapter  
Sierra Club

Reply to: 1487 Crooked Mile Court, Placerville, CA 95667



## 5.9 Geology, Soils, and Mineral Resources

• Please review our scoping comments, incorporated by reference, under Conservation and Open Space: Geology and Soils, p. 57-59; and Public Health and Safety: Risk of Upset: Avalanches, p. 48, Earthquake, p. 48, for unanswered questions and respond to them.

281-389A

### GEOLOGY

Impact 5.9-1: Increased Development in Areas Potentially Subject to Seismic Hazards (p. 5.9-36) is judged to be Less Than Significant.

We agree that El Dorado County does not have the potential for earthquake hazard presented by areas close to, for instance, the San Andreas and Hayward Faults. Nevertheless, as the DEIR acknowledges, there is potential for seismic activity in the County. And one never knows about previously unknown faults. Therefore, prompt inclusion of improvements in the Uniform Building Code continues to be a concern. At the time of the DEIR on the 1996 General Plan, although a revision of the UBC had been issued in May 1994, the Building Department, astonishingly, had asked the County Library to require readers to sign that they understood that it was not yet to be used in the County!

281-390A

• When was the most recent UBC issued and is it currently in use by the County? If not, why not?

‡ In the case of the 1996 General Plan, prompt adoption of changes to the UBC was proposed as appropriate mitigation. If delay in such adoption still exists, we propose the same mitigation.

281-391

Impact 5.9-2: Increased Development in Areas Susceptible to Landslide and Avalanche (p. 5.9-42).

We agree that this is most likely to be of concern in the American River Market Area and that extending appropriate review to ministerial development is generally appropriate mitigation.

281-392

‡ This is an instance where the calculations of the Resource Conservation District, mentioned under Soils, below, should be considered in appropriate review.

The discussion of avalanches in the DEIR in the same context as landslides is problematical. The word can, to be sure, apply to either snow or rock and soil substrate (together with the vegetation thereon), or to debris flows triggered by heavy rainfall in susceptible areas. When discussed under "Geology", it would seem to refer to the latter two, though an avalanche of snow could be precipitated by ground shaking, as well as by the mere weight of the snow itself. All three, however, can be enormously destructive. Thinking of the collapse of, say, the rock wall at Glacier Point in Yosemite, or the huge debris flows that have occurred more than once in the canyon of the South Fork American River, we remain very dubious, as was the court in its 1999 ruling, about the statement of the Building Official quoted in the DEIR that it is "physically feasible" to "design structures to withstand avalanche events".

281-393

• As neither the U.S. Geological Survey nor the FEMA websites indicate other than avoidance techniques, please provide evidence of buildings that have withstood destruction by large avalanches of either snow or rock, soil, and associated vegetation.

281-394

‡ Please refer to our September 2001 scoping comments (p. 48), incorporated herein by

281-395

reference, for suggestions concerning mitigation relative to snow avalanches. Avoidance of avalanche-prone areas is, we continue to believe in the absence of evidence to the contrary, the most appropriate mitigation.

Extending appropriate review to ministerial projects, as well as discretionary ones, is clearly a step in the right direction and we support this.

#### SOILS

*Soils are geological bodies that take thousands to millions of years to develop. And, unlike living species, they do not reproduce nor can they be recreated.*  
—Ronald Amundson, pedologist, University of California, Berkeley; 2002

*Soil is the essential building block for sustainable agriculture and healthy ecosystems.*  
—California Agriculture, Apr-Jun 2003

*Soil erosion is a major source of nonpoint pollution of lakes and waterways, especially with mineral sediments, humus, phosphate, and other pollutants that are so well retained that they seldom appear in underground waters.*

—Michael Singer and Donald Munns in *Soils, an Introduction*, ed. 3, 1996

The DEIR lists soil types found in western El Dorado County and the Tahoe Basin, along with their general characteristics, and provides a large-scale map of their distribution beginning on p. 5.9-13. See 1974 Soil Survey, incorporated by reference. On p. 5.9-19 the DEIR briefly discusses erosion, quantifying the occurrence of slopes greater than 25% (and thus presenting challenges in development) by market area, and expansive soils. The regulatory environment is described beginning on pp. 5.9-25.

#### Impact 5.9-4: Additional Development Could Affect the Rate or Extent of Erosion (p. 5.9-53).

As indicated in the quoted material at the beginning of this section, once lost, soils are not replaceable in the scale of a human lifetime. Moreover, soil erosion is a major pollutant consisting not only of the sediment itself, but of the various kinds of pollutants that adhere to soil particles. It is thus of great importance to minimize soil erosion connected with human activities. (Refer also to agricultural and forestry practices.)

• Please add in the FEIR the potential for erosion of the various soil series found in the western part of the county. Please include in the FEIR the table of maximum slopes for different soil types developed by the Resources Conservation District in October 1994 and referred to in the DEIR on the 1996 General Plan. The FEIR should state how this information is used by the County in reviewing development proposals throughout the County and, if so, how it influences decision-making. If it is not used, or its use is limited to only certain areas, the FEIR should explain why that is the case.

Draft policies in August 2002 included provision for applicant-funded monitoring of erosion-control measures. However, this was moved to Implementation Measure CO-A in both Alternatives 2 and 3. (And there it is toothless because it doesn't say actually to revise County Code but merely to review it.) This seems tacit admission that there is no current effective oversight, which we believe to be the case.

• Please discuss enforcement of the standards of the Grading, Erosion and Sediment Control Ordinance. Who does it? What enforcement power does that entity have? When violations

281-395

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are found, what happens? What follow-up monitoring occurs? Analyze how the standards therein reflect the standards of the Regional Water Quality Control Board. How is enforcement funded?

↑ 281-400

We are particularly interested in the foregoing topic because of having recently experienced (and heard of even more) consequences of gross violations of the Regional Board's standards in a situation that would seem to have been under county jurisdiction, where the County failed to act.

] 281-401

‡ If the Grading, Erosion and Sediment Control Ordinance fails to reflect completely the standards of the Regional Water Quality Control Board, it should, as appropriate mitigation, be upgraded to do so.

] 281-402

‡ We support the proposed changes in Policy 7.1.2.1 (p. 5.9-61) reducing from 40% to 25% and changing to "prohibited" from "discouraged" the criterion for slope steepness upon which development "or disturbance" may take place. As for the further change relative to septic systems, we note incidents of failure of septic systems placed upon 30% slopes, so the reduction to 25% also is good. Nevertheless, allowable slope can be expected to vary with soil type and susceptibility to erosion, as calculated by the Resource Conservation District, as previously mentioned, and this should be incorporated into policy.

] 281-403

• How does the figure of 25% compare with the RCD's calculations for the several soil types?

] 281-404

• If the RCD has similarly considered ability of various soil types adequately to serve as sites for septic system, please present those recommendations.

] 281-405

We also support Policy CO-1c in Alternative 3 precluding grading activities during the rainy season without effective mitigation to prevent offsite sedimentation. We do, however, have some doubts that such mitigation can be effectively provided during the rainy season.

] 281-406

We are also aware of incidents involving conversion of sloping timbered land to an agricultural pursuit, with consequent erosion, again causing "heartburn" to the Regional Water Quality Control Board.

] 281-407

• What oversight does the County exercise in such a situation? What is the permit process, if any, when timbered land is converted to an agricultural pursuit? Are both considered forms of "agriculture"?

] 281-408

‡ With the aforementioned incident in mind, we also support Mitigation Measure 5.9-4(c) to apply erosion control measures to agricultural grading. But one acre is too large a threshold to invoke this measure. At 43,650 sq ft, that is over four times as big as the 10,000 sq ft of the non-agricultural threshold, itself too big.

] 281-409

In the Tahoe Basin, we noted in scoping comments that the threshold for needing a permit is a mere 3 cu yds, while the County's standard for elsewhere is 250 cu yds. The DEIR states that construction of a single family home seldom needs a grading permit, presumably for that reason. Yet the incident previously referred to, upon which the Regional Board acted while the County did not, involved preparing a single parcel for construction of a single home. Moreover, we also witnessed another single lot where a foundation was dug in serpentine by hand labor—therefore in close contact with dust that might have contained asbestos. In another nearby case, large grading took place in serpentine substrate. In neither case was there any watering down to control fugitive dust. Large developers commonly need a geotechnical study that would apprise them of the hazard of naturally-

] 281-410  
↓

occurring asbestos. A single-home builder may not recognize the substrate or be aware of the danger.

• Justify using the same threshold for a grading permit on serpentine as off serpentine, and for grading on tremolite asbestos as on chrysotile asbestos. See also comments under Human Health and Safety.

‡ Unless all grading shall be done only by permit, there should be much lower thresholds for grading on serpentine and on tremolite.

• How does the County keep track of grading activities on serpentine so as to be able to invoke the precautions in County ordinance to minimize fugitive dust?

‡ If it has no method to do so, one should be established.

• We repeat the request in our scoping comments that the EIR evaluate different thresholds for invoking a grading permit and justify the one chosen, which should be much closer to that in the Tahoe Basin.

• We reiterate the question posed in our scoping comments as to whether the Natural Resources Conservation Service was regularly offered the chance to review development proposals for potential soil-related problems such as erosion hazard, suitability for septic systems, and expansiveness of soils. What is the funding source for this activity and is it adequate for careful review of all such proposals? If not, what portion do receive careful review and how are these chosen from the rest? Does the NRCS have any authority relative to decisions?

MINERAL RESOURCES

The County is peppered with old—and sometimes still operating—mining sites. Not long ago, a mine adit in Placerville collapsed, endangering a building. See References. Abandoned mine sites present hazards of several kinds, from collapse of underground tunnels to mercury contamination, to the physical hazard of falling into a poorly protected shaft (or being stuffed into one, as happened to a murder victim not long ago). In development of the 1996 General Plan, an old asbestos mine site was mentioned but, though the location was requested in DEIR comments, its location was never specified. The State of California recently compiled a report on abandoned mines and the hazards they present. See References.

• In our scoping comments, we asked for inclusion in this DEIR of the Exploration and Mining Activity map mentioned on p. V.7-15 of the DEIR on the 1996 General Plan, and that it include abandoned mines. This map was described as including 26 sites. Please provide an appropriate map in the FEIR. Exhibit 5.9-7 is far from adequate. (E.g., where is the Hazel Creek Mine, source of contamination to water courses? Where is the shaft into which the murder victim was stuffed? Where is the old asbestos mine? It is plainly less satisfactory even than the map referred to in 1996, as it has only 16 mapped sites.) Please also discuss the hazards that abandoned mines can present, as well as means to mitigate such hazards with intensifying development.

The County's oversight of the Surface Mining and Reclamation Act was in considerable disarray at the time of the 1996 General Plan. The disarray continued such that the State Mining and Geology Board, as noted by the DEIR (p. 5.9-34), in June 2001 assumed lead agency status in certain respects, a role in which it continues today.

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• Please describe the current condition of County oversight relative to the various mines in the County and their reclamation, as reflected in reports to the State Mining and Geology Board by its executive officer. What role is the County playing to encourage adherence to law by mine operators?

281-420

• At the time of the previous DEIR, the County recognized that its ordinance implementing SMARA was in need of revisions. What were the deficiencies and how have they been corrected?

281-421

• Describe the County's current oversight program.

281-422

Impact 5.9-5: Reduction in the Accessibility of Mineral Resources (p. 5.9-63).

Impact 5.9-6: Issues of Land Use Compatibility with Mining Operations. (p. 5.9-74).

Especially in view of Measure A, access to potential mineral resources is already restricted. This is especially significant in the case of new sources for construction aggregate in the County. These need to be identified and protected to avoid the added cost of eventual importation of this material from out of county sources.

281-423

• In the Environmentally-Constrained Alternative, Agricultural Lands are deemed compatible with mining, while in the Roadway-Constrained Alternative, they are not. This seems backwards, if anything. Please justify. Are lands in the Agriculture overlay (-A) also deemed available for mining?

281-424

• What is the estimated life of present sources of construction aggregate? Have new ones been identified? As mining is considered a potential use for land designated as agricultural, is this the sole means by which such land is being protected? Does that mean that they are protected only in the Environmentally-Constrained Alternative? Are potential sites indicated on the Land-Use maps in any way beyond the agricultural designation?

281-425

**CUMULATIVE EFFECTS:** None is listed in Chapter 7. However, progressive exhaustion of present sources of construction aggregate and inaccessibility of new sources within the County surely is at least one such effect.

281-426

#### REFERENCES

1. *Collapsed mine causes evacuations*. Mountain Democrat, 6 Aug 2001.
2. News release concerning abandoned mines and their hazards. State Department of Conservation, 24 Jan 2001.
3. *Overview: California's Abandoned Mines: A Report on the Magnitude and Scope of the Issue in the State*. State Department of Conservation, June 2000.

# Collapsed mine causes evacuations

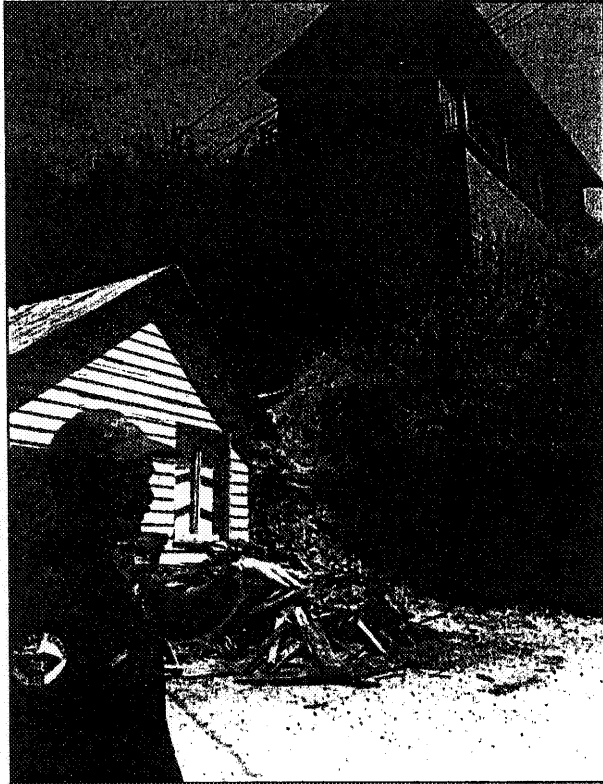
By JONATHAN SCHWARZBERG  
Staff writer 8/6/2001

A mine collapsed near downtown Placerville Saturday morning, forcing nine people out of their homes and into the arms of friends and family.

Captain Sam Huffman, of Placerville Fire Station No. 25, said the mine collapsed just below Sierra Manor sometime Friday night or early Saturday morning. The mine went into the garage of a house under the Sierra Manor, a local retirement home, located on DeBernardi Court. The distance between the garage and Sierra Manor collapsed, exposing between four and six feet of the foundation of an outbuilding at Sierra Manor.

Four men from the outbuilding were evacuated to the main part of Sierra Manor, which was not affected. Five people from the house with the garage were evacuated and went to a friends' house, Huffman said.

Officials also closed part of Cortez Alley behind the Carey House and part of Reservoir Street



Democrat photo by Joanne McCubrey  
CAPT. SAM HUFFMAN of County Fire shows the two structures that were evacuated due to the collapsing mine in Placerville.

see MINE, page A-9

## MINE

continued from A-1

in the same vicinity.

Paula Venegas, a care provider for the Sierra Manor, said she didn't even know there was a mine below the house.

"I was just going about my daily chores and noticed there was a fire truck in front of the facility," Venegas said.

And though she was surprised by the fire truck, Venegas said she had a little forewarning.

"There was like a little spirit of havoc this morning," she said.

She and the residents gathered for prayer because of it. About an hour later, the fire truck arrived.

"It's so wonderful how the Lord kind of prepares our hearts for these kind of situations," Venegas said.

The family in the house below could not be reached for comment.

The fire station received a call on the incident at about 11 a.m. and arrived on scene at 11:08 a.m.

By 11:30, firefighters had evacuated all the people. The mine was on the hill south of Main Street directly across from Robinson's Pharmacy.

Huffman said they still don't know how much damage has been done and how long the people will have to stay away from their houses. It's hard to determine how far underneath Sierra Manor outbuilding the mine went. Hopefully, residents will be able to return shortly, he said.

"If it's long-term, we'll have to find different housing for them," Huffman said.

The Fire Department called Jeff Crovitz, Public Works Director for the city of Placerville, to inspect the damage and determine what measures need to be taken for the protection of the city.

Jonathan Schwarzberg can be reached by e-mail at [jschwarzberg@mtdemocrat.net](mailto:jschwarzberg@mtdemocrat.net)

January 24, 2001

Contact: Carol Dahmen  
Mark Oldfield  
Don Drysdale  
Ed Wilson  
(916) 323-1886

**DEPARTMENT OF CONSERVATION REPORT  
SAYS STATE MAY HAVE MORE THAN 39,000 ABANDONED MINES;  
MANY ARE HAZARDOUS**

WEIMAR, Ca. -- David Stam didn't mean to eavesdrop, but he couldn't help but overhear his three children talking about the "hole in the ground" they had discovered last spring near the family's property in Weimar, about 38 miles northeast of Sacramento near Colfax. He was absolutely right to be alarmed.

"We had the property cleared and the kids were running around playing," Stam recalled. "I asked them, 'What's this hole you're talking about?' Once I saw it, I told them, 'If you ever want to see the outside of the house again, stay away from that hole.' "

The "hole" discovered by Stam's twin 10-year-olds, Danielle and Gabrielle, and 13-year-old son Kyler, is 5 1/2 feet in diameter and at least 32 feet deep. It is probably a test shaft, one of the many thousands of potentially hazardous legacies of mining in California.

"We were lucky," said Kim Hughes, Stam's wife. "We moved here five years ago when the kids were very small. They or one of their friends or one of the dogs could have fallen in."

A recent report following a nearly three-year study by the California Department of Conservation concludes that there are at least 39,000 abandoned mine sites in the state. Prior to this report, the number of abandoned mines reported in California was based solely on old databases and ranged from a low of 7,000 to a high of 20,000.

Of the 39,000 abandoned mines, approximately 32,760 (84 percent) present physical safety hazards, many with several openings such as the one on Stam's property that pose a threat to humans and wildlife. Other physical hazards include unstable highwalls or structures such as mine buildings that could collapse at a touch; dark, twisting tunnels in which an explorer could become hopelessly lost; and disease-carrying, predatory or poisonous animals which sometimes make old mines their homes.

On November 30, a deer was discovered 15 feet down an abandoned mine shaft in Mokelumne Hill. The landowner had no idea the shaft existed on the property. The buck, nicknamed "Lucky" by local children, was pulled to safety after several hours and released. Fortunately for Stam, the Department of Conservation contracted with Foam Concepts Inc. of Aurora, Minn., to permanently close the hole on his property as a demonstration of what can be done with some hazardous openings. The foam sealant requires no equipment, no power source, can be backpacked into remote areas and is environmentally friendly.

"I wanted that hole sealed up for my kids' safety," Stam said. "It's a big hazard. Kids will be kids."

The DOC study states that approximately 4,300 (11 percent) of California's abandoned mine sites present environmental hazards. There are acute environmental hazards such as old explosives, drums of chemicals or direct exposure to toxic mine tailings. There are also subtle hazards inside of a mine --

poisonous gases or low oxygen levels. More often, there are chronic environmental hazards. Contaminated runoff from abandoned mines affects land, groundwater, streams, rivers and lakes in many areas throughout the state. Water can carry heavy metals associated with acid-rock drainage, mercury from placer gold processing, mercury from mercury mines, arsenic, asbestos and chromium. Windblown dust containing contaminants such as chromium and asbestos also is a concern.

"The mining industry today is high tech and generally environmentally conscious," DOC Director Darryl Young said. "But the historic mining industry that helped build this state developed in a time of less-sophisticated

mining methods and before environmental regulations. Since most of these sites date back to the 19th century, the individuals or companies responsible for the problems are no longer present to assist with remediation and reclamation.

"Additionally, there isn't a statewide clearinghouse for information or a coordinated statewide effort to address abandoned mine lands. But the danger of abandoned mines is becoming more evident as the population grows in high-density abandoned mine areas such as the Sierra Nevada foothills."

Another example of the danger is ongoing near Grass Valley, where a Bay Area family's dream home, built over a mine shaft that had been covered with topsoil, had to be condemned after the ground collapsed under it.

Approximately 50 percent of the abandoned mines are on private lands, while 48 percent are on federal lands and 1.5 percent on state lands. The report recommends field visits to assess the physical hazards of each site. It states: "A mine site may be represented by one five foot shaft, presenting only a safety hazard; or a site may include 42 shafts, three waste piles, two tailings dams and a processing area, all encompassing in excess of 200 acres and presenting both safety and environmental hazards."

With a limited staff, DOC's Office of Mine Reclamation/Abandoned Mine Lands Unit worked from September 1997 to June of 2000 to produce the statewide inventory and report. Staff collected and entered data for 790 mine sites and 3,980 features in 2 1/2 years. Thus, while confident in its extrapolated figures, the report points out that only 1.5 percent of the state's sites and features have been located and recorded using modern methods.

The report -- entitled "California's Abandoned Mines: A Report on the Magnitude and Scope of the Issue in the State" -- was mandated by and has been given to the Legislature. It concludes, "in general, the existing authorities and funding mechanisms are inadequate to address this huge statewide issue." The abandoned mines report can be accessed at <http://www.consrv.ca.gov/omr/AMLU/amlrpt/index.htm>.

DOC's Office of Mine Reclamation urges citizens who come across a suspected abandoned mine to call its toll-free number, 1-877-OLD-MINE (653-6463). That's how DOC learned of Stam's problem.



**California's Abandoned Mines**  
**A Report on the Magnitude and Scope of the Issue in the State**

Department Of Conservation  
Office of Mine Reclamation  
Abandoned Mine Lands Unit

June 2000

**Overview**

Since the Gold Rush of 1849, tens of thousands of mines have been dug in California. Many of these mines were immediately abandoned when insufficient minerals were found, others were abandoned later when poor economics of the commodity made mining unprofitable, while still others were abandoned in 1942 after the issuance of War Production Board Order L-208. The result is that California's landscape contains tens of thousands of abandoned mine sites, many of which pose health, safety, or environmental hazards. Every year people fall victim to the hazards of abandoned mines. Many sites possess serious physical safety hazards, such as open shafts or adits (mine tunnel). Thousands of sites have the potential to contaminate surface water, groundwater, or air quality. Some are such massive problems as to earn a spot on the Federal Superfund list.

In the interest of environmental and public health and safety, the Department of Conservation (DOC) undertook a three-year effort to determine "the magnitude and scope of the abandoned mine problem in California." An inventory of abandoned mines was accomplished, culminating in this report to the Governor and Legislature. Prior to this effort, the number of abandoned mines reported was based solely on legacy databases and ranged from a low of 7,000 to a high of 20,000 abandoned mines. To get a more accurate picture of the nature and extent of this problem, existing literature and data were collected, input, and spatially analyzed through the implementation of a Geographic Information System (GIS). Data gaps were identified, and a field program was implemented to acquire site specific information. Data were collected at selected abandoned mine sites, by watershed, in various bioregions throughout the state. Significant mine features were photographed and precisely located by differentially corrected Global Positioning System (GPS). A standardized assessment and ranking protocol were applied to potential physical and chemical hazards observed. Field data, in addition to information collected from existing sources, were entered into a relational database and spatially and statistically analyzed for this report.

COMMENTS ON  
DRAFT ENVIRONMENTAL IMPACT REPORT  
DRAFT GENERAL PLAN ALTERNATIVES

VOLUME 1

Contents - 5.8

15 July 2003

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PLANNING DEPARTMENT

Submitted by: Maidu Group, Mother Lode Chapter  
Sierra Club

Reply to: 1487 Crooked Mile Court, Placerville, CA 95667

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Appendix I - Maidu Group Scoping Comments, 7 Sep 2001

## Introduction

Arrangement of the DEIR has been confusing to work with in not following the arrangement in the several Alternative Plans. Issues skip around. E.g., Open Space is combined with Parks and treated under Public Services in the DEIR, while in the general plans it is part of the Conservation and Open Space Element. Land Use and Housing, separate elements in the draft general plans, are treated together in the DEIR. Flooding is treated under three different chapters: Utilities, Human Health and Safety, and Water Resources. Communication Towers are treated under Utilities, Human Health and Safety, and Visual Resources. Stormwater Runoff is treated under Utilities (!) as well as Water Resources. Hazardous Waste is treated under both Human Health and Safety and Utilities.

281-1

Please incorporate by reference all comments from Taxpayers for Quality Growth relative to the DEIR and SDEIR on the 1996 General Plan because of the similarity of Alternatives 1 and 4 to that plan.

281-2

Please also incorporate by reference all scoping comments from the Maidu Group of the Sierra Club because of the numerous questions proposed therein that were not addressed in the present DEIR, and because of our frequent reference to those comments. For convenience, they are provided again as an Appendix herein.

281-3

In all cases, references cited during a particular section will be found at the end of that section.

281-4

We have used throughout two symbols:

- as a symbol for questions that should be answered and
- ‡ as a symbol for suggested mitigation

Beginning on page 3 of our earlier Scoping Comments, we raised a number of issues relative to Energy Conservation and "Green" Building that appear, again, to have been overlooked in the DEIR's analysis. As we said then, "This is a curious oversight in view of the fact that both the California Environmental Quality Act (Appendix F of the *Guidelines*) and the Subdivision Map Act (Section 66473.1) have requirements for consideration of energy efficiency."

281-5

- This oversight should be remedied in the FEIR.

## ECONOMIC DEVELOPMENT

Please see our scoping comments, p. 75, incorporated herein by reference. The Notice of Preparation for this DEIR omitted mention of the Economic Development Element. We argued in our comments that this was misguided, that economic activity in the past history of the County had a profound impact on the physical environment, which, after all, CEQA is designed to address. Yet the DEIR again omits any analysis of this factor.

Past economic activities resulted in disruption of streams, erosion and deposition of sediments and dredging tailings, blocking of rivers with dams, destruction of fisheries, air and water pollution, profound change in forest cover, probable climate change associated with loss of forest cover and the "heat island" effect of urbanization, etc.

It would be well to strategize efforts to develop the local economy in ways that are as kindly as possible toward the physical environment, yet apparently there has been a conscious decision not to approach the matter in that way. Our scoping comments were intended to provoke this kind of thinking and policy formulation.

The policies of Alternatives 2 and 3 are, we think, considerably improved over the lengthy and complex ones of Alternates 1 and 4. Yet policies that would fall within the prior discussion here are only a couple: ED-3a, to encourage economic development that increases the percentage of total personal income spent in the county; and ED-5a, to support and promote arts and tourism-related industries.

• Among other things, the nature of the economic development pursued might create excessive demand for scarce water. It might discharge effluent that present sewage treatment plants are ill-equipped to process safely for subsequent use of reclaimed water or for discharge into local creeks. It might contribute to making sewage sludge undisposible in the way now being used. It might add to the problem of coming into conformance with air quality plans, or dealing with hazardous waste. It might create more potential for erosion. It might cause more change, loss of, and degradation of habitat for wildlife and effect the movement thereof. Or economic development could be planned to minimize such effects. These factors and others are, we feel, legitimate topics of discussion.

The County also needs to decide—and perhaps adopt a policy—whether or not to offer subsidies to attract a particular business. (We are interested in the fate of the "jewel-box" plant that pulled out after only a few years operation, and how much that cost the County.)

We believe this topic *should* have been included in the DEIR.

281-564

281-565

281-566

To: El Dorado County Planning Department  
2850 Fairlane Court  
Placerville, California 95667

Attn: Peter Maurer, Principal Planner

**SCOPING COMMENTS**

**NOTICE OF PREPARATION OF A  
DRAFT ENVIRONMENTAL IMPACT REPORT**

**ADOPTION OF THE EL DORADO COUNTY  
GENERAL PLAN**

7 September 2001

Submitted by: Maidu Group, Mother Lode Chapter  
Sierra Club

Respond to: Alice Q. Howard, Conservation Chair  
1487 Crooked Mile Court, Placerville 95667

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- and shielded outside lights
- model homes to incorporate horizontal-axis washing machines
- resist institution of CC&R's that forbid clotheslines for drying laundry
- utilization of solar systems such as photovoltaic tiles on roofs
- mixed-use facilities—combining homes and businesses, such that residents can walk to local shopping facilities
- incorporation of a “town plaza”, a greenspace of some kind, as a focal point for community interaction
- incorporation of attributes facilitating alternative modes of transportation
- narrow streets
- vegetated drainage swales, together with wetlands to slow and filter runoff
- incorporation of pedestrian/bikeways

### LAND USE ELEMENT

*“[F]or the past fifty years, we Americans have been building a national landscape that is largely devoid of places worth caring about. Soulless subdivisions, residential ‘communities’ utterly lacking in communal life; strip shopping centers, ‘big box’ chain stores, and artificially festive malls wet within barren seas on parking; antiseptic office parks, ghost towns after 6 p.m.; and mile upon mile of clogged collector roads, the only fabric tying our disassociated lives back together.”*

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*"A growing body of evidence suggests that quality of life is a dominant factor in attracting businesses."*

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We've learned nothing with the passage of time. Development patterns in the Sierran foothills were a concern in 1934 (*The Utilization of Land in El Dorado County*, University of California Agricultural Experiment Station Bulletin 572) and remain so today (*Final Report to Congress of the Sierra Nevada Ecosystem Project*, 1996; and *Shaping the Sierra*, 1999). With this new DEIR and new proposed General Plan and alternatives, we have an opportunity to improve upon past efforts.

281-576

This, the Land-Use Element, implements the other elements and thus should reflect policies and mitigation measures incorporated into those elements. But these are not yet known because the proposed General Plan exists only in barest outline. Maps being an integral part of the Land-Use Element, some people strongly urged at the outset that any choice of maps follow, rather than precede, development of policies that could reflect constraints on the maps.

281-577

Some of the decisions that should be so reflected could be public-utility service areas and spheres of influence (EID is in the process of determining its, and is the purveyor of water to the areas most likely to be where growth is concentrated), setbacks from wetlands and streams, identification of location of regional and local parks, considerations of a county-wide multispecies Habitat Conservation Plan, the need for new utility substations, and identification of cemeteries and possible need for more land devoted to them.

281-578

The DEIR should describe in detail the proposed General Plan and its alternatives, including the Vision, Plan Strategies, and Plan Concepts of the NOP. It should identify the objectives (lower case) it hopes to achieve through application of the Vision, Strategies, and Concepts. It should also identify and define the terminology it will be using in addressing land-use issues (i.e., Community Regions, etc.), and defining uses of land (e.g., Multi-Family Residential, etc.). If the various scenarios are predicated upon any assumptions, these should be given. Any overlays should be defined.

281-579

The differences between the various alternatives should be recounted in detail. The degree to which each meets the standards set forth in the Vision, Strategies, and Concepts should be discussed.

The present General Plan effort was preceded by Area Plans, which reflected differences between the various communities in the County. **The DEIR should assess the desirability or lack thereof of a "one size fits all" approach to designing for growth.** El Dorado Hills isn't Placerville; Cameron Park isn't Georgetown. Coloma isn't Latrobe. There are differences in topography, climate, vegetative cover, life styles; these might properly be reflected in approaches to design of development. Do our "places" reflect us or do we reflect our "places"? **How has this concept been incorporated into formulation of policies, if at all?**

281-580

The Principles given for the Project Description (NOP, p. 5) again make reference to "economic growth" and we again refer the reader to the distinction between "growth" and "development" made herein under Economic Development Element. According to the NOP, an environmental analysis seems not to be projected for this element. We think that would be a mistake and urge that our comments be carefully considered.

281-581

The 1996 General Plan went far beyond what the EPS study performed in connection with it deemed fiscally and financially feasible. As the study said, however, "Land-use planning has significant fiscal and financial implications because the designation of land for urban purposes carries with it an implied commitment to provide infrastructure and public services." **The DEIR should make a parallel study of the various scenarios presented for a General Plan this time around.**

281-582

**The DEIR should calculate population projections for each scenario. EPS suggested 150% of anticipated growth as a reasonable amount to be accommodated.** The prior DEIR made use of the concept of "achievable density" in making population projections to reduce the figures, arguing that some parcels would not be buildable because of topography, rock outcrops, or other constraints. Duane, in *Shaping the Sierra*, argues that "unbuildable" is an economic concept rather than a physical one, however, and we agree. When land is scarce, its value rises sharply, making "economical" extraordinary investment in order to build. Anyone seeing houses perched on steep hillsides in the Oakland-Berkeley Hills knows that happens.

281-583

**Sprawl.** The DEIR should analyze how per capita amount of land used for housing has changed over the last 25 years to assess the impact of sprawl in the County. It should discuss how the proposed General Plan scenarios will continue or halt the trend. It should explain how the scenarios operate to concentrate growth to maximize energy efficiency and minimize impacts to the environment and to the free services it affords us. It should describe how the policies in the proposed General Plan scenarios help to control sprawl and its effects on air quality and traffic congestion.

281-584

**Availability of infrastructure.** The DEIR should include maps of the service-district boundaries of the principal purveyors of water and sewer services, as well as the boundaries of their spheres of influence. It should analyze how these boundaries and the availability of infrastructure are reflected in land-use designations to minimize impacts to provision of public services. Include the effect, in the case of EID, of its overwhelming need for revenue to service the bonds it sold in 1996 and 1999 and its dependence upon selling new connections to supply that revenue. This "Ponzi scheme" like situation compels it to want

281-585

more growth in order to pay for facilities to meet that growth. (See, also, the discussion herein under Wastewater—both its sewage treatment plants apparently are near capacity despite recent upgrades.)

281-585

Road infrastructure is also an issue, and a circular one: The fact that road-building contributes to generation of more traffic is in conflict with growth that would seem to require increasing capacity. The DEIR should take analyze the predicament.

281-586

Provision of public services, however, brings up the subject of Measure Y and the issue of concurrency. Measure Y requires concurrency (Plan Strategy #3, p. 2). Concurrency needs a definition. (That in the 1996 General Plan stated, "The public facilities and services must be available, operational, and have sufficient capacity to meet the needs of new development at the time that such development is created.") Policy to implement concurrency must be developed before analysis of impacts because it is intimately involved in minimizing those impacts. The DEIR must assess the effectiveness of any such policy in all General Plan scenarios. This topic should be discussed relative to schools, park and recreation facilities, roads, and other public services.

281-587

Separation of Communities. The DEIR should explain how the land-use designations will work , in the various General Plan scenarios, to preserve separation of communities. Please include maps showing areas protected to serve this purpose. In particular, the history of development endeavors in the Bass Lake area, their fate, and their current status should be discussed. How will the proposed General Plan or alternatives for this area serve the purpose of separation of communities? How do areas proposed for separation of communities relate to utility district service area boundaries? If infrastructure already exists that could serve such areas, will development still be minimized therein and, if so, how? How can the General Plan keep infrastructure extensions from invading these areas if development can be expected to follow?

281-588

In connection with developing policies for the General Plan, the DEIR should evaluate the merits of Conservation Subdivision Design (e.g., Arendt's *Growing Greener*), mixed-use zoning (contributes to "community", ability to walk to destinations, and possibility of affordable housing), existing-use zoning (*Saving America's Countryside*, p. 169---provides for stable land-use, protecting farmers from speculation that land use will change), flexible land-use regulations (*Saving America's Countryside*, p. 176---allows alternatives that vary as appropriate for the specific site).

281-589

Analyze the merits of protecting viewsheds through restricting further building on ridgetops in connection with developing General Plan policies.

281-590

Golf courses. (See also discussion under Surface Water Supply) Consider the merits of subjecting proposals for new courses to a "point" system for incorporation of "green" attributes that will allow them to earn prorated credit as open space. Traditional golf courses are heavy water users. They have little value as wildlife habitat and contribute to water pollution through their use of fertilizers and pesticides. Initial design is an important approach in creating a "green" course. Some attributes that could be incorporated into such a system would be the

281-591

following: 1) No cutting of trees during construction, or replacement of all cut; 2) Landscaping predominately of plants native to the area; 3) Turf of low water need; 4) Turfed areas to be minimal; 5) Roughs left in natural vegetation to provide habitat for native wildlife; 6) Best Management Practices required in maintenance to minimize use of harmful chemicals and fertilizers (in some courses, use of pesticides is completely banned); 7) Public involvement during planning stages; 8) Monitoring devices to detect leaching of chemicals; 9) Boardwalks across pre-existing wetlands rather than dredge-and-fill activities.

281-591

The DEIR should assess how well the design features incorporated into the proposed General Plan scenarios contribute to protection of water quality, control of the volume of storm runoff, and protection against flooding.

281-592

The DEIR should analyze street design in subdivisions, i.e., whether the traffic-calming effect of narrow streets contributes more to public safety by reducing accidents than does the fire-protection access afforded by wide streets. Do firefighters respond to more medical/accident emergencies or to more fire calls? In Portland, the fire chief backs narrow streets over wide streets (*Suburban Nation*, pp. 65-68).

281-593

The DEIR should analyze how the policies in the General Plan scenarios will contribute to a sense of community rather than isolation among its citizens.

281-594

The DEIR should analyze how the policies in the General Plan scenarios will help to meet the County's responsibilities to provide affordable housing. How well has the County been meeting this obligation? What sort of policies in the General Plan scenarios would help in this regard? Evaluate the contributions that could be made toward this end of requiring, as some jurisdictions do, that a given percentage of any subdivision be this type of housing? Of mixed-use land-use zoning? Of zero-lot-line housing? Of co-housing? Of row-housing? Of two- to four-unit attached dwellings (we have seen photographs of 4-unit dwellings designed to look like a "monster" house in the same development)? How do policies of the General Plan scenarios accommodate such development?

281-595

What portion of the County's population consists of seniors? How many live alone? What problems are presented for senior who no longer can drive and what ways exist of overcoming these problems? What kinds of housing are available for them? If a senior doesn't like segregated senior housing ("assisted living"), what other options are there?

281-596

What policies of the various General Plan scenarios would provide for permanent protection of open space? What policies protect scenic corridors?

281-597

The DEIR should discuss the pros and cons of gated communities. Some jurisdictions prohibit them. Please list those developments in the County that are of this type and give the total number of dwelling units so accommodated.

281-598

The DEIR should describe how the requirements of the Subdivision Map Act, Section 66473.1 ("The design of a subdivision for which a tentative map is required pursuant to Section 66426 shall provide, to the extent feasible, for future passive or natural heating or

281-599

- and shielded outside lights
- model homes to incorporate horizontal-axis washing machines
- resist institution of CC&R's that forbid clotheslines for drying laundry
- utilization of solar systems such as photovoltaic tiles on roofs
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This, the Land-Use Element, implements the other elements and thus should reflect policies and mitigation measures incorporated into those elements. But these are not yet known because the proposed General Plan exists only in barest outline. Maps being an integral part of the Land-Use Element, some people strongly urged at the outset that any choice of maps follow, rather than precede, development of policies that could reflect constraints on the maps.

281-577

Some of the decisions that should be so reflected could be public-utility service areas and spheres of influence (EID is in the process of determining its, and is the purveyor of water to the areas most likely to be where growth is concentrated), setbacks from wetlands and streams, identification of location of regional and local parks, considerations of a county-wide multispecies Habitat Conservation Plan, the need for new utility substations, and identification of cemeteries and possible need for more land devoted to them.

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The DEIR should describe in detail the proposed General Plan and its alternatives, including the Vision, Plan Strategies, and Plan Concepts of the NOP. It should identify the objectives (lower case) it hopes to achieve through application of the Vision, Strategies, and Concepts. It should also identify and define the terminology it will be using in addressing land-use issues (i.e., Community Regions, etc.), and defining uses of land (e.g., Multi-Family Residential, etc.). If the various scenarios are predicated upon any assumptions, these should be given. Any overlays should be defined.

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The differences between the various alternatives should be recounted in detail. The degree to which each meets the standards set forth in the Vision, Strategies, and Concepts should be discussed.

The present General Plan effort was preceded by Area Plans, which reflected differences between the various communities in the County. **The DEIR should assess the desirability or lack thereof of a "one size fits all" approach to designing for growth.** El Dorado Hills isn't Placerville; Cameron Park isn't Georgetown. Coloma isn't Latrobe. There are differences in topography, climate, vegetative cover, life styles; these might properly be reflected in approaches to design of development. Do our "places" reflect us or do we reflect our "places"? **How has this concept been incorporated into formulation of policies, if at all?**

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The Principles given for the Project Description (NOP, p. 5) again make reference to "economic growth" and we again refer the reader to the distinction between "growth" and "development" made herein under Economic Development Element. According to the NOP, an environmental analysis seems not to be projected for this element. We think that would be a mistake and urge that our comments be carefully considered.

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The 1996 General Plan went far beyond what the EPS study performed in connection with it deemed fiscally and financially feasible. As the study said, however, "Land-use planning has significant fiscal and financial implications because the designation of land for urban purposes carries with it an implied commitment to provide infrastructure and public services." **The DEIR should make a parallel study of the various scenarios presented for a General Plan this time around.**

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**The DEIR should calculate population projections for each scenario. EPS suggested 150% of anticipated growth as a reasonable amount to be accommodated.** The prior DEIR made use of the concept of "achievable density" in making population projections to reduce the figures, arguing that some parcels would not be buildable because of topography, rock outcrops, or other constraints. Duane, in *Shaping the Sierra*, argues that "unbuildable" is an economic concept rather than a physical one, however, and we agree. When land is scarce, its value rises sharply, making "economical" extraordinary investment in order to build. Anyone seeing houses perched on steep hillsides in the Oakland-Berkeley Hills knows that happens.

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**Sprawl.** The DEIR should analyze how per capita amount of land used for housing has changed over the last 25 years to assess the impact of sprawl in the County. It should discuss how the proposed General Plan scenarios will continue or halt the trend. It should explain how the scenarios operate to concentrate growth to maximize energy efficiency and minimize impacts to the environment and to the free services it affords us. It should describe how the policies in the proposed General Plan scenarios help to control sprawl and its effects on air quality and traffic congestion.

281-584

**Availability of infrastructure.** The DEIR should include maps of the service-district boundaries of the principal purveyors of water and sewer services, as well as the boundaries of their spheres of influence. It should analyze how these boundaries and the availability of infrastructure are reflected in land-use designations to minimize impacts to provision of public services. Include the effect, in the case of EID, of its overwhelming need for revenue to service the bonds it sold in 1996 and 1999 and its dependence upon selling new connections to supply that revenue. This "Ponzi scheme" like situation compels it to want

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more growth in order to pay for facilities to meet that growth. (See, also, the discussion herein under Wastewater—both its sewage treatment plants apparently are near capacity despite recent upgrades.)

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Road infrastructure is also an issue, and a circular one: The fact that road-building contributes to generation of more traffic is in conflict with growth that would seem to require increasing capacity. The DEIR should take analyze the predicament.

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Provision of public services, however, brings up the subject of Measure Y and the issue of concurrency. Measure Y requires concurrency (Plan Strategy #3, p. 2). Concurrency needs a definition. (That in the 1996 General Plan stated, "The public facilities and services must be available, operational, and have sufficient capacity to meet the needs of new development at the time that such development is created.") Policy to implement concurrency must be developed before analysis of impacts because it is intimately involved in minimizing those impacts. The DEIR must assess the effectiveness of any such policy in all General Plan scenarios. This topic should be discussed relative to schools, park and recreation facilities, roads, and other public services.

281-587

Separation of Communities. The DEIR should explain how the land-use designations will work , in the various General Plan scenarios, to preserve separation of communities. Please include maps showing areas protected to serve this purpose. In particular, the history of development endeavors in the Bass Lake area, their fate, and their current status should be discussed. How will the proposed General Plan or alternatives for this area serve the purpose of separation of communities? How do areas proposed for separation of communities relate to utility district service area boundaries? If infrastructure already exists that could serve such areas, will development still be minimized therein and, if so, how? How can the General Plan keep infrastructure extensions from invading these areas if development can be expected to follow?

281-588

In connection with developing policies for the General Plan, the DEIR should evaluate the merits of Conservation Subdivision Design (e.g., Arendt's *Growing Greener*), mixed-use zoning (contributes to "community", ability to walk to destinations, and possibility of affordable housing), existing-use zoning (*Saving America's Countryside*, p. 169---provides for stable land-use, protecting farmers from speculation that land use will change), flexible land-use regulations (*Saving America's Countryside*, p. 176---allows alternatives that vary as appropriate for the specific site).

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Analyze the merits of protecting viewsheds through restricting further building on ridgetops in connection with developing General Plan policies.

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Golf courses. (See also discussion under Surface Water Supply) Consider the merits of subjecting proposals for new courses to a "point" system for incorporation of "green" attributes that will allow them to earn prorated credit as open space. Traditional golf courses are heavy water users. They have little value as wildlife habitat and contribute to water pollution through their use of fertilizers and pesticides. Initial design is an important approach in creating a "green" course. Some attributes that could be incorporated into such a system would be the

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following: 1) No cutting of trees during construction, or replacement of all cut; 2) Landscaping predominately of plants native to the area; 3) Turf of low water need; 4) Turfed areas to be minimal; 5) Roughs left in natural vegetation to provide habitat for native wildlife; 6) Best Management Practices required in maintenance to minimize use of harmful chemicals and fertilizers (in some courses, use of pesticides is completely banned); 7) Public involvement during planning stages; 8) Monitoring devices to detect leaching of chemicals; 9) Boardwalks across pre-existing wetlands rather than dredge-and-fill activities.

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The DEIR should assess how well the design features incorporated into the proposed General Plan scenarios contribute to protection of water quality, control of the volume of storm runoff, and protection against flooding.

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The DEIR should analyze street design in subdivisions, i.e., whether the traffic-calming effect of narrow streets contributes more to public safety by reducing accidents than does the fire-protection access afforded by wide streets. Do firefighters respond to more medical/accident emergencies or to more fire calls? In Portland, the fire chief backs narrow streets over wide streets (*Suburban Nation*, pp. 65-68).

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The DEIR should analyze how the policies in the General Plan scenarios will contribute to a sense of community rather than isolation among its citizens.

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The DEIR should analyze how the policies in the General Plan scenarios will help to meet the County's responsibilities to provide affordable housing. How well has the County been meeting this obligation? What sort of policies in the General Plan scenarios would help in this regard? Evaluate the contributions that could be made toward this end of requiring, as some jurisdictions do, that a given percentage of any subdivision be this type of housing? Of mixed-use land-use zoning? Of zero-lot-line housing? Of co-housing? Of row-housing? Of two- to four-unit attached dwellings (we have seen photographs of 4-unit dwellings designed to look like a "monster" house in the same development)? How do policies of the General Plan scenarios accommodate such development?

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What portion of the County's population consists of seniors? How many live alone? What problems are presented for senior who no longer can drive and what ways exist of overcoming these problems? What kinds of housing are available for them? If a senior doesn't like segregated senior housing ("assisted living"), what other options are there?

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What policies of the various General Plan scenarios would provide for permanent protection of open space? What policies protect scenic corridors?

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The DEIR should discuss the pros and cons of gated communities. Some jurisdictions prohibit them. Please list those developments in the County that are of this type and give the total number of dwelling units so accommodated.

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The DEIR should describe how the requirements of the Subdivision Map Act, Section 66473.1 ("The design of a subdivision for which a tentative map is required pursuant to Section 66426 shall provide, to the extent feasible, for future passive or natural heating or

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cooling opportunities in the subdivision") are fulfilled by policies in the various General Plan scenarios.

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The DEIR should describe how policies in the various General Plan scenarios would facilitate siting of small dispersed electrical-generating facilities, including single-home based, such as roof-installation of photovoltaic-cells, microturbines, and fuel cells.

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The DEIR should discuss the merits of requiring model homes to be landscaped with native and drought-resistant plants to exemplify to prospective buyers attractive alternatives to lawn-centered (and water-using) landscaping. How might such a requirement be incorporated into policies of the various General Plan scenarios?

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How do policies in the various General Plan scenarios provide for adequate monitoring for compliance with all pertinent regulations and with conditions of approval? What process assures that Certificates of Compliance are issued only after adequate review to assure compliance?

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#### TRANSPORTATION/CIRCULATION ELEMENT

*"Trying to cure traffic congestion by adding more capacity is like trying to cure obesity by loosening your belt."*

—Suburban Nation, Andres Duany, Elizabeth Plater-Zyberk, and Jeff Speck, 2000, quoting an engineering aphorism

*[R]oads are often built to relieve congestion or facilitate the movement of traffic, but they lead, almost invariably, to new development. Road construction is thus responsible for much of the sprawl that covers the rural landscape."*

—Stokes, Watson, and Mastran, Saving America's Countryside, National Trust for Historic Preservation, 1997

*[V]ehicle fuel economy... has been consistently falling ...[since] the middle 1970s through the late 1980s.... [A]verage new vehicle fuel economy fell in 2000 to 24 mpg, its lowest level in 20 years. The increasing market share of light trucks and SUVs accounts for much of the decline in fuel economy of the overall new light vehicle fleet.*

—EPA, 2001

*"America's cars and light trucks alone produce nearly 20 percent of U.S. carbon dioxide pollution—more carbon dioxide than all but four countries worldwide."*

—In These Times, 10 Apr 2001

*"Because pedestrian-friendly streets are not specified in the [engineering] manuals, they are simply not possible, despite all the evidence encouraging their use.*

*...[R]ather than convincing the engineers to fundamentally rethink their approach, we need only amend the manuals in order to reform the profession. ...The Institute*

*of Transportation Engineers has recently completed a manual entitled Traditional Neighborhood Development Street Design Guidelines, which allows narrower roads, tighter corners, and a number of other once-unthinkable modifications to current design criteria."*

*—Suburban Nation, Andres Duany, Elizabeth Plater-Zyberk, and Jeff Speck, 2000*

At present, U.S. Highway 50 is the sole road carrying traffic east-west and the County, and State Route 49 is the major carrier of north-south traffic. Both are now crowded during peak traffic hours. **The DEIR should describe the present road system in the County, together with the current levels of service (LOS) associated with this system, as well as accident rates for road segments and intersections where they are now prevalent. LOS analysis should include duration of times when LOS E and F occur.**

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It should do the same for each of the scenarios of the proposed General Plan, adding to the segments and intersections as indicated from anticipated effects of growth. Analysis should include effects from the buildout now going on of areas in El Dorado Hills that were previously authorized, such as Carson Creek, Promontory, Valley View, Marble Valley, and various other projects.

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Increased congestion on Highway 50 may discourage those using it to get to South Lake Tahoe. **The DEIR should analyze the possible effects of this on recreation and business in the Tahoe Basin. Similar effects associated with Highway 50 and western slope businesses (including the rafting industry), and with Highway 49 should also be analyzed in the DEIR.**

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Effects of increased traffic congestion related to growth on public safety should also be assessed. Recently evacuation of a school in the El Dorado Hills Business Park threatened by fire was halted (per radio traffic) because of traffic congestion on Highway 50 during evening commuting hours.

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The DEIR should assess the total mileage of County-maintained roads and assess their present condition, their unmet needs for repair/maintenance, and ways to fund those needs. How will this situation change if maintenance is deferred? How will it change with growth under the proposed General Plan? How current with maintenance needs is DOT now? If it is behind, how long is it anticipated to take to catch up to current?

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What County roads or segments thereof, if any, are now surfaced with crushed serpentine? Identify any privately-maintained roads that are so surfaced and the mileage thereof. In view of the recently adopted new State regulation affecting such surfacing, how can these roads be brought into compliance to eliminate the health risk?

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The DEIR should explicate the provisions of Measure Y and their implications for the road system.

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How will traffic on Highway 50 and the Missouri Flat Road Interchange be affected by the improvements contemplated in the recent environmental document on interchange

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improvement? How is this project related to the amount of growth anticipated in the Diamond Springs-El Dorado-Somerset area under the various General Plan alternatives? How is it related to the proposed connector road from Missouri Flat Road to Pleasant Valley Road that utilizes a portion of the railroad corridor?

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The various sources for funding road building, maintenance, and repair costs should be described, including road-impact fees now in existence. Adequacy of these sources fully to meet the costs for which they are intended should be evaluated. The cost of road improvements should include acquisition of rights-of-way, moving utilities, and altering drainage systems, as well as financing. In view of the Grand Jury's criticisms of DOT's accounting system relative to fees, the DEIR should also examine how these funds are managed and used for the purposes for which they are collected.

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The DEIR should present figures as to the size of the resident workforce that commutes to jobs outside the County, as well as of the workforce employed within the County and the major employment centers within the County. It should project, for each General Plan scenario, how these figures will change with growth.

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It should identify the principal highway corridors that will have to handle the increased workforce population to be supported by each of the proposed General Plan scenarios and how the added traffic will affect present LOS. How can this situation be mitigated in any realistic way? (With the 1996 General Plan, the projected costs of road improvements by 2015 was given as ca. \$1.4 billion., excluding the cost of correcting existing deficiencies.) Describe any situation where enlarging road capacity has been known to solve a capacity problem over time. Describe and evaluate possible funding sources for such roadway improvements. Evaluate the acceptability and desirability of a reduction in LOS, proposed in the 1996 plan, as a part of the mix of approaches to solving the problem.

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The Department of Transportation now has modeling capabilities, acquired very late in evolution of the 1996 plan and, therefore, not used therein, to correlate land-use decisions with traffic. Please incorporate these analyses into the DEIR for all proposed General Plan scenarios.

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Please also include an analysis of the effects of additional levels of traffic on air quality for all General Plan scenarios. Include in this analysis the effect of the increase in representation of SUVs in the mix of commuting vehicles. El Dorado County is already a non-attainment area relative to air quality.

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The DEIR should analyze the Transportation Element for consistency with respect to State plans for Highways 50, 49, and 193, the County's Transportation Plan, Sacramento County's transportation plan, the SACOG plan, Regional Air Quality Plans, and the State's California Transportation Plan.

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NEIGHBORHOOD ROADS. Highways and arterials are not the only kinds of roads that are of concern. Typical subdivision roads are built for automobiles (and fire-engine access), not for pedestrians (see introductory quotation). The DEIR should explore the County's applying the

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concepts contained in the Institute of Transportation Engineers's *Traditional Neighborhood Development Street Design* Guidelines, in conjunction with the Planning Department, in subdivision design. Benefits would include less impervious paving, reduced "heat-island" effect, more pedestrian-friendly design, and slowing-down of automobile traffic.

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Please give information in the DEIR about the degree to which private roads also must adhere to the various existing ordinances and policies proposed in the various General Plan scenarios. Do what extent do design standards apply? What of drainage standards? How, if at all, do these differ in rural areas from standards in more built-up parts of the County?

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Analyze to what extent neighborhood schools are now planned to allow children walking to them safely. How can the situation be improved by changes in design?

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ALTERNATIVES. The DEIR should assess the merits of conforming to Caltrans Deputy Directive 64 (DD-64) concerning alternative transportation.

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• Transit. Analyze the need for added public transit with additional growth under the several scenarios of the General Plan, both bus service to employment centers both within and outside the County, and local van service. Will expanded and/or additional "park and ride" facilities be needed and, if so, where and how paid for? With an aging population, is local van service adequate for the needs of non-driving seniors and others? How could it be better publicized?

281-621

• More efficient cars. In anticipation of increasing numbers of electric-powered cars, Sacramento has for some time required that garages include wiring for recharging such vehicles. The DEIR should analyze the merits of a similar provision in El Dorado County for both new construction and renovation. Another idea would be a few places equipped with charging facilities set aside for such cars in parking lots. Where charges are assessed for parking privileges, they could be waived for electric cars.

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• Bicycles. The DEIR should analyze the potential for facilitation of greater use of this mode of transportation. New subdivision design could include multi-use trails that separate such traffic from roads and lead to, for instance, "park and ride" lots or other destinations and incorporation into the design of the latter storage facilities for bicycles.

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• Rail transportation. The DEIR should examine the various ways in which the County or other entities have compromised or are planning to compromise use of the railroad corridor for possible future use by rail transport. Any such planned projects should be halted and redesigned as being in conflict with the federal Rails-to-Trails Act under which the corridor was obtained.

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The DEIR should analyze the various schemes advanced to utilize the railroad corridor for transportation extending into the County, such as Light Rail, excursion trains, and occasional freight trains serving businesses in the County, several of which have

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expressed interest in such a service. To what extent would the service meet needs of County residents to go to employment centers? What studies have been made of who might use such a service and what were the results?

• **Better planning and design.** The DEIR should analyze possible ways to reduce out-of-county commuting by increasing the number and desirability of in-county jobs for residents. See also discussions under Economic Development Element and under the Housing Element.

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## HOUSING ELEMENT

### Population:

*"[The] world population increased at 2 to 5 percent a century during the first fifteen centuries of the Christian era, the rate in some countries today is between 3 and 4 percent per year, very close to the biological maximum."*

—Lester R. Brown, *The Twenty-Ninth Day, 1978, The Worldwatch Institute*

*"It now appears that the period of rapid population and industrial growth that has prevailed during the last few centuries, instead of being the normal order of things and capable of continuance into the indefinite future, is actually one of the most abnormal phases of human history."*

—M. King Hubbert, *Resources and Man, 1969*

*"California's population is 16 million, its growth rate 3.8% per year; the United States has 180 million people and a growth rate of 1.6% per year. California's population extrapolates to 72 million at the end of the century\*, to 100 million in the year 2010, and in about 115 years—that would be 2075—it overtakes the national population. That is, all Americans then would be living in California."*

—Dan Luten, *Landscape, 1962-1963, 12(2):3-7.*

\*It actually was 33.8 million in 2000.

The 1996 General Plan had as one objective to "[o]versupply residential and non-residential land use designations in order to provide market and landowner flexibility to more feasibly accommodate the market." But market-driven "planning" isn't planning at all. Decisions are being abandoned to market forces.

As the introductory quotations demonstrate, the period of rapid population growth experienced in modern times is highly unusual and forecasts based on trends of the recent past can be quite inaccurate.

The population that would have been accommodated at buildout of the 1996 General Plan was 384,667. Even the so-called Low Growth Alternative provided for a population of 266,549. But the actual population of the County in 2000 was 156,290, and that for the year 2010 projected

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from the rate of growth between 1990 and 2000 would be only 190,554, and for 2020 only 232,224. No alternative considered came close to reality. And the court found that a reasonable range of alternatives had not been considered.

Changes of the land stemming from a concept of "oversupply" can't be undone. One should err on the side of caution. Any "low-growth" alternative should aim for a population lower than that projected for ten years out or it will be buying into the idea of oversupply and therefore be in conflict with the court's finding.

### Housing

The DEIR should give basic demographics of the County's population: age, income level, gender.

In order to ascertain housing needs, detailed knowledge is needed about the County's present housing stock. Thus the DEIR should provide the following information, *in each case broken down by region*:

- An inventory of the current supply of undeveloped parcels, including unoccupied parcels within tentatively-approved subdivisions. Break this down by EID and Georgetown Divide PUD service areas, and other. How does this inventory relate to housing needs for the life of the General Plan. (Recognize that the "unbuildable" parcel is an economic concept, not a physical one. As vacant land becomes scarcer, the value of such land rises, justifying more and more extraordinary measures to develop it. One has only to look at the Berkeley Hills or San Francisco to see this truth.)
- Figures on numbers of homes built each year over the past ten years, together with the numbers of such homes supplied with piped potable water, piped reclaimed water, or wells, and the numbers having sewer service. These figures should include the service provider, as appropriate (i.e., EID, GDPUD, Grizzly Flat CSD, or other small private supplier) and be broken down by type (see following).
- Figures, by region, on the numbers of housing units by type, including single-family detached residential, "granny flats", townhouses, condominiums, apartments (there have been complaints that some communities are being given more than their "fair share" of apartments, mobile homes, mixed-use (housing above commercial), and cabins.
- The foregoing information should be broken down by owner-occupied, rental, and unoccupied (a second or vacation home). If a rental, give the age-distribution for the head of household.
- Give the vacancy rate for all rentals.
- For single-family detached residential, give numbers of homes within certain size ranges, as less than 1000 ft<sup>2</sup>, between 1001 and 1500, between 1501 and 2000, between 2001 and 3000, between 3001 and 5000, over 5000. State how many are rentals. Is El Dorado County becoming a "haven for the rich" with an

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- oversupply of upscale housing?
- For affordable housing, define it by cost/income and break down the numbers by type, including, but not necessarily limited to, apartments, granny flats, mobile homes, cabins, mixed-use (housing above commercial).
- How much housing in the County is within a gated community? List those developments that are of this type. Evaluate the pros and cons of gated communities.
- What has been the effect of granny flats on land-use densities and the demand for services (e.g., schools, emergency services, law enforcement) and for infrastructure (roads, water, sewer)?
- How many elderly people live alone?

The DEIR should also include a county-wide assessment of the condition of the housing stock, by region.

The foregoing information should be analyzed, by region, to ascertain unmet or inadequately met housing needs for various ages and income levels and to formulate goals to be met for various types of housing. Such goals should contribute to decisions on development proposals.

Have the Planned Developments of the recent past included affordable housing? Evaluate requiring a certain percentage of affordable housing (12.5 to 15 is a figure encountered where this requirement has been in effect) for assuring provision of a "fair share" of this type of housing.

Evaluate the consistency of the Housing Element with the State Housing Plan.

Housing-Employment Balance:

It is commonly realized that houses generally do not pay their way, that they require more in services than they pay for in property taxes. If tax revenues derived from a business do not make up the difference, it won't be advantageous for the County to attract that business unless its employees commute from outside the County. (Commuters add fewer trips to County roads—only two per day, while the Department of Transportation uses 9 to 10 a day for the typical house.) It follows that it may not be cost-effective to try to attract businesses that will cause new residences to be built in the County. Rather, it is an advantage to employ existing County residents. Therefore, **what businesses should the County try to attract to improve its Housing-Employment balance?**

Businesses unlikely to generate enough in tax revenues could be expected to include service agencies and government offices, while light manufacturing, bio-tech, and high-tech soft- and hardware firms might be examples of desirable businesses.

The DEIR should analyze these issues. The 1996 General Plan resolved the issue of funding shortfall by lowering Levels of Service, the alternative being to raise impact fees to the point that housing truly paid its way. **Analyze the likely acceptability of these approaches both to**

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present residents and to the housing market.

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How much unemployment is there in the County? How has it changed over time? Is it high enough now to be worrisome?

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What has been the effect on housing needs of employment shifts, such as the decline of the timber industry?

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What is the ratio of the number of residents employed in the County to the number of employable residents of the County?

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PUBLIC SERVICES AND UTILITIES ELEMENT

Fire protection

*"According to CDF, an average of 300 fires occur in the County every year, 95 percent of which are started by people."*

—General Plan Draft EIR, December 1994

*"The most important [effect of land conversion due to human settlement] in the Sierra Nevada is associated with impacts on the fire regime in both settled areas and adjacent wildlands. Human settlement affects the structure and level of fuel load, viability of presuppression fuel-management strategies, ignition risk, availability of suppression resources, and the manner in which suppression efforts are allocated and deployed (e.g., to protect structures rather than wildlands)."*

—SNEP Report, Vol. 1, p.39.

Every summer we hear accounts of wildland fires threatening or destroying homes and causing evacuations and even deaths of residents or firefighters. These catastrophes can occur even in a metropolitan area such as Oakland (1991). Common themes run through these accounts, of building in risky places, of inadequate access, of deficient firefighting infrastructure, of poorly managed vegetation, etc. Weather conditions often are a factor, and sometimes an originator, of conflagrations and can't be managed, but many of the other factors are the result of human influences that could be altered.

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What was the original fire regimen as influenced by Native Americans? How does this compare with the regimen as practiced over the last 100 years or so? How have these practices affected the constitution of the forest today? What of its fuel load and flammability? How are practices changing today? What is the likelihood that the original forest can reconstitute itself to the original condition of mixed-age and mixed-species better able to withstand natural fire?

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In the DEIR, please set forth the fire protection services available in the County. How do the various districts differ in funding and staffing? What are their funding sources? How do available funds compare between districts with mostly newly built structures (and

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up-to-date property assessments) versus districts with older homes (where assessments may be constrained by Proposition 13)? What of the effects of infill—second homes and lower-to-medium range housing—on such districts? What are staffing standards and are they met everywhere? What are response-time standards and are they met everywhere?

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Provide a map of the county as delineated into fire-hazard risk zones by severity of risk. What are the standards for such delineations? Does the information available to the County fully agree with fire-hazard maps of the California Department of Forestry and Fire Protection? Compare also with the map in Bulletin 572, referred to under Forestry in the Agriculture and Forestry Element. If not, these should be reconciled. The combined map should be continuously updated as new information becomes available.

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In reviewing proposed development does the County include comparison with fire-history or fire-hazard maps? If not, why not? Are there policies relative to such a review that guide decision-makers? If so, what are they? If not, why not? Evaluate the merits of maintaining large parcel size in areas of fire risk to reduce the number of dwellings needing protection in case of fire.

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Which districts and fire houses depend upon volunteers? Are these more likely to be in high or very high fire hazard zones? How does dependence upon volunteers affect services? With what training and equipment are volunteers provided?

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Describe any fees associated with building permits to fund additional needs of fire districts associated with new building. Do property taxes adequately fund fire protection needs in high-risk area? Do homes there tend to be more modest, contributing to funding shortfalls? Does that affect staffing numbers and dependence upon volunteers? Is likelihood of fire greater in these more rural areas where fuel loads are likely to be greater and topography often presents more of a challenge?

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Evaluate inclusion of a provision that for approval of new development a finding, supported by evidence, shall be required that the development will produce no net reduction in levels of fire protection services.

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Is there a master plan incorporating techniques to minimize exposure to fire hazard? Evaluate the provisions of any such plan. For example, do large parcels and low densities make fire protection easier than in the case of clustered development? Are there special construction standards for use in high-hazard areas? How is fuel load reduction incorporated?

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Quantify the origins of fires, whether weather- or human-caused. (The old *Background* volume says in El Dorado County they are 95% human-caused. Is this still true?) Is the spread of homes and roads into wildlands likely to affect the occurrence of fire and, if so, how? How will the fragmentation associated with such a spread affect fire protection and vegetation-management strategies such as controlled burns?

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What strategies are used to reduce risk in zones deemed high and very high?

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Discuss standards for adequate access, large parcel size to reduce concentrations of homes, available water supplies, special construction standards (e.g., fire-retardant exterior siding, roof-top sprinkler systems, etc) required at the time of issuance of a building permit or a special-use permit (such as are used in some Southern California communities that have experienced repeated devastating fires), vegetation management, and, *especially*, adequate monitoring. Have use of such strategies affected by the scattered presence of homes?

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What is the present review procedure by fire protection agencies of development proposals? If it is by individual project, how are cumulative effects on fire-fighting capabilities assessed? Are site-specific fire protection plans required of applicants for projects in high-risk areas? If so, evaluate their effectiveness with respect to both the property in question and adjacent properties.

281-663

How are responsibilities shared among local, state, and federal firefighting agencies?

281-664

Does the proposed General Plan contain a fire-protection master plan, including land-use management incorporated? State the fire-safety standards recommended by CDF. Are these incorporated into any such plan? How are the provisions of any such plan incorporated into discretionary decisions on development proposals?

281-665

What of Strategic Fire Planning, including fire stations, helipads, water sources, greenbelts, and fuel breaks, and coordination of the various jurisdictions? Analyze the provisions of any such plan. What of evacuation routes? (In the case of one recent fire, evacuation of a school was halted because Highway 50 was too jammed with evening commuter traffic to accommodate the added load.)

281-666

How do the various districts compare in needs for possibly different kinds of fires (e.g., hook-and-ladder trucks for districts that have large commercial/industrial buildings v. wildland fire equipment for the more rural areas)?

281-667

What methods for self-help are available to a homeowner in a high risk area aside from appropriate vegetation management? What of products like "Barricade", a system "that attaches to a garden hose and with which—well in advance of an approaching wildfire—you can coat your house with a nontoxic gel that offers superb, albeit temporary, protection from heat, flames, and burning embers."

281-668

#### Law Enforcement

Has population growth been accompanied by an increase in crime and gang-related activities? What is the correlation, if any? What of drug-related activities?

281-669

How is the County approaching dealing with gang activity? What of drug-related activity?

281-670

Is other teenage delinquency a problem? If so, how is the County addressing this?

281-671

What help is given schools? Are activities for teenagers needed? If so, what efforts are being made to provide them and what kinds of activities are being considered? Is funding an issue and, if so, in what way? How does "sprawl" and dependence upon automobiles affect problems with teenagers?

281-672

Discuss the interplay of the various law enforcement jurisdictions in the County (the two cities, the Sheriff's department, and the California Highway Patrol). How are responsibilities shared? How have numbers of personnel changed over time? Are current numbers considered adequate? Is there a standard of numbers of officers per numbers of residents? If so, what is that number and how does it compare with standards elsewhere in the state? How is our standard affected by local conditions such as road conditions, travel time with sprawling development, lack of visible house numbering, inadequate signing in remote areas? Are inequities in pay a problem and, if so, how?

281-673

What is deemed an acceptable response time? Is it attained throughout the County? If not, why not? How can the situation be corrected?

281-674

Relative to funding for adequate law enforcement, what portion of revenues does the County budget for this purpose? How has it met increasing needs? Is there any provision for increased funding relative to approval of new housing developments? Does the presence of a relatively large number of retirees affect funding capabilities?

281-675

Evaluate requiring that for approval of any new development there shall be a finding, supported by evidence, that the development will cause no net reduction in level of law-enforcement services.

281-676

How is the proposed casino at the Shingle Springs Rancheria expected to affect the Sheriff's Department's staffing needs?

281-677

Discuss the Sheriff's crime prevention program. Is there a law-enforcement master plan for the County?

281-678

The recently passed County ordinance regulating shielding of exterior lighting will, if implemented, reduce glare that inhibits monitoring by patrolling law enforcement officers for illicit activities. Shielded lighting is one design feature that is mentioned on several web sites concerning crime prevention. Are there other design features that, relative to development proposals, would assist law enforcement personnel in providing better service? If so, what are they? Has the Sheriff's Department ever communicated these to county planners or the supervisors for inclusion in appropriate regulations and/or ordinances? How do gates on subdivisions help or hinder provision of services?

281-679

What provisions are there to assure for adequate associated services such as court children's protective services and other social services, holding facilities for both adults and juveniles, etc.? Are these needs also expected to increase with population growth? How are they funded? Are property tax revenues expected to be adequate or will funding, and services, decline? Are there any fees associated with development that are devoted to these

281-680

purposes?

↑ 281-680

**Emergency Medical Services:**

This topic was not mentioned in the NOP but belongs in this section. Increasing population brings with it increased likelihood of traffic accidents and other needs for emergency medical response. Our sprawling development patterns also hamper rapid response.

281-681

Describe the present structure of the system that delivers emergency medical services. Who delivers paramedic services and who delivers emergency medical technician services? Where are available trauma centers? What air evacuation service is available? How are these services funded? Are funding sources adequate to fund salaries and benefits for personnel and maintenance and replacement of equipment? Are fees paid by new development to fund increases in services?

281-682

Evaluate a provision that for approval of all proposals for new development a finding shall be required, supported by evidence, that the development shall cause no net reduction in level of service for emergency medical services.

281-683

Do levels of service and standards for response time differ with location? What are the current standards? How is it expected they will change with a growing population? What is the impact of "granny flats" and infill on service to rural regions and rural centers?

281-684

What is the current review process by emergency medical services agencies of development proposals to determine impacts on services? If project-by-project, how are cumulative effects evaluated?

281-685

**Schools:**

This topic is another one for which an updated and corrected "Background" volume is especially needed.

281-686

The DEIR should map the several school districts in the County. It should describe each with respect to enrollment and state capacity for adequately housing students and state, for each district, whether facilities meet this standard.

281-687

Will new schools be needed to keep up with the growth that has been occurring and that is anticipated under the General Plan? Give projects of numbers of new students by grade level for the various General Plan alternatives that are considered. If new schools are needed, have sites been or are they being identified and set aside as part of the land-use planning? If not, why not?

281-688

Note that state noise requirements relative to schools consider the effect of surroundings on the schools but not the reverse. However, the latter should influence siting, especially for high schools with their athletic fields. Has this been the case? How has this problem been

281-689 ↓

addressed? Note that there no longer is any excuse for banks of glaring lights illuminating athletic fields, as alternative shielded systems are now available.

281-689

Every year, newspapers print "wish lists" for local and regional schools. Wishes range from enrichment-related needs to ones that sound quite basic to the schools' missions. How are schools now funded? Discuss interest in home-schooling, including how, if any, it has affected funding?

281-690

How are site acquisition and new construction to be funded? Recount the history of bond issues to fund new construction. What fees are currently assessed builders for impacts on schools? Are they adequate for complete funding? What of funding for ongoing maintenance and staffing? What of equipment needs, including, but not limited to, textbooks and library books? If funds are inadequate, specify the shortfall and identify remedies for addressing it. Include not only alternative or additional funding sources but implementation of year-round operation, reducing approval of development proposals, or requiring their reduction, and requiring donation of land suitable for school location.

281-691

Present details on management of fees paid—whether and how much actually spent on site acquisition and construction of new schools, how invested in the meantime, and whether kept separate from other moneys.

281-692

Evaluate the merits of requiring for the approval of residential subdivisions a finding, supported by evidence, that school impact fees are sufficient to pay for any needed expansion of existing schools or construction of new schools and that equipment needs are also adequately funded.

281-693

How do students get to and from school? By bus, by personal car, driven by parent or friend? Walk? Bicycle? How does sprawl affect transportation? Have longer bus routes and traffic congestion affected costs and time? How are costs recouped?

281-694

Libraries

Judging from recent newspaper stories concerning libraries, these do not seem to have kept up with serving a growing population. The DEIR should analyze this situation and how it will be affected by growth under the proposed General Plan and its alternatives. What are funding sources? Is there a development fee associated with providing for the construction, staffing, operating, and maintenance of community libraries? Not even school libraries seem well provided with books.

281-695

Electricity

Futurists (e.g., World Watch Institute, July 2000) say that "distributed" energy is the path of the future, especially as renewable sources of energy must increasingly be relied upon. Electricity wheeled from large central power plants to end-users suffers losses estimated by the California Energy Commission as upwards of 50%. "Distributed energy" plants are more efficient (even

281-696

modern fossil-fuel plants are only about 40% efficient in producing electrical energy—the difference goes to wasted heat), cleaner, and more reliable than large central plants, which, if they go off line for whatever reason, can greatly destabilize the whole grid system.

281-696

Growth supported by a new General Plan will place new demands upon the electrical grid. The DEIR should analyze new power requirements to serve new homes and businesses under the proposed plan and each of the alternatives. It should consider the possibility of new transmission lines and substations, and identify sites for the latter, if needed.

281-697

Please also discuss what considerations govern undergrounding service lines with new construction, and what governs retrofitting existing overhead lines to be underground (which might reduce the number of vehicles that manage to run into poles).

281-698

The possibility of reducing new demand through encouragement of use of solar energy, site design that optimizes use of solar energy, energy-efficient lights and appliances, “cool roofs” and landscaping that provides cooling benefits and thereby reduces need for air conditioning, and other measures should also be explored.

281-699

The DEIR should analyze the merits of facilitating, through the zoning ordinance, siting of small “distributed energy” power plants, including roof-top photovoltaic cell installations, microturbines, and even home-based fuel cells.

281-700

#### Natural Gas and Propane

Natural gas is more efficient than electricity for heating applications, but is not very widely available in the County. The DEIR should include a map of the area of availability and discuss new demands that growth will bring. It should discuss the likelihood of wider distribution as growth proceeds.

281-701

Propane, delivered to on-site storage tanks and periodically replenished by distributors, is the alternative in those parts of the County where natural gas is not available. The DEIR should analyze how the need for this service will grow under the different General Plan scenarios and whether additional central storage tanks will be needed. If so, what would the considerations be for public safety in planning sites and where should these be located?

281-702

#### Communication Towers:

This topic was largely absent from the 1995 DEIR but, with proliferation of wireless communication devices, requests for new towers, and aesthetic concerns of property owners, has assumed considerable importance. Innovative approaches to making communication towers more acceptable have been developed and the County is beginning to utilize them (e.g., the fake pine tree near the Missouri Flat Road overpass on Highway 50, concealment within the drying-rack structure at a firehouse in El Dorado Hills). A regulatory ordinance has recently been passed.

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The DEIR should discuss the regulatory framework. Federal law restricts the ability of local communities to have much say in the matter. The provisions of the new County ordinance should be discussed.

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The DEIR should include a map of present towers in the County and analyze the need for new ones as growth proceeds and their possible siting to be as unobtrusive as possible.

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Ways to camouflage towers should be presented—the fake tree approach, concealment within buildings (e.g., church steeples) or behind signs, etc., along with ways to minimize their proliferation by requiring sharing of facilities whenever possible.

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The DEIR should also discuss the possibility of retrofitting existing towers to make them less obtrusive. In one case, a service building was allowed to violate an existing cemetery, a use that is illegal. How will such situations be avoided in the future?

281-707

Surface Water Resources

*"The frog does not drink up the pond in which he lives."*  
—American Indian proverb, quoted in David Zwick, *Water Wasteland, 1971*

*"Only by managing water demand, rather than ceaselessly striving to meet it, is there hope for a truly secure and sustainable water future."*  
---Sandra Postel, *Conserving Water: The Untapped Alternative, Worldwatch Institute, Sep 1985*

This portion of the proposed General Plan also depends upon a part of Volume II, Background, that is very outdated. This deficiency should be rectified before issuance of the DEIR and the proposed General Plan and alternatives.

281-708

The hydrography of the County should be explicated completely somewhere (we ask for it also under Conservation and Open Space). For the present section, we ask that this should include a description of the hydropower systems that exist in the County, including the Sacramento Municipal Utility District's Upper American River Project, Project 184, Georgetown Public Utility District's Project 4303, and any other small ones that may exist. Give also the history of small hydropower efforts in the County, such as the failed Sayles Flat, the abandoned Weber Dam and others that may exist or have existed, together with their fates. (We should learn from history.)

281-709

Beneficial uses of water in the County should be described, including municipal and industrial uses, agriculture, recreation (including its relation to the County's economy), in-

281-710

stream uses supporting the aquatic ecosystem, and support of native plants and animals. In addition, beneficial uses of waters outside the County that serve, in part, to supply needs within the County, should be described (e.g., the importance of Caples and Silver Lakes to the counties in which they are located).

281-710

A factor that has become increasingly clear and that has profound implications for our water supply is the evidence that global warming is occurring and that, according to model projections, increasingly unstable weather, with more precipitation falling as rain and less as snow, may be in store for our part of the world. For example, the EPA's publication *Climate Change and California* (EPA 230-F-97-008e) may be consulted. In this connection, it is of interest to note that EID was advised a few years ago by two hydrological consultants to shorten the hydrological history it uses in calculating anticipated yield because the consultants believed a climatic change was occurring. The DEIR should analyze the implications for the water collection and delivery system upon which our water purveyors depend.

281-711

The DEIR should explicate the regulatory environment in which surface water supplies exist, including the roles of the Federal Energy Regulatory Commission (FERC), the State Water Resources Control Board (SWRCB) (explain the nature of the various kinds of water rights), the Regional Water Quality Control Boards (RWQCB: Central Valley for the western slope of the County and the Lahontan for the eastern slope), the Department of Health Services, the U.S. Bureau of Reclamation, and the U.S. Forest Service. What is the role of the County Water Agency?

281-712

The two major hydropower systems, that of SMUD and of EID are both undergoing relicensing considerations under FERC. The DEIR should discuss the process and its possible implications for future changes in operations. For example, relative to Project 184, it is widely anticipated that present fish releases may be altered in light of on-going studies, and that Lake Aloha may be withdrawn as a storage facility (it is in a wilderness area) and returned to a natural condition.

281-713

Concern about water supply has been long-standing in El Dorado County. This concern was reflected in a citizen initiative a few years ago that, with every indication of overwhelming support, was adopted as a County ordinance by the Board of Supervisors in 1994. The ordinance requires that an annual assessment of supply versus demand be presented to the citizens that combines the situations of all water purveyors. However, public-notification requirements have not been adhered to for over two years now.

281-714

The DEIR must fill this void. Thus it should start by describing the systems and service areas of the several water purveyors in the County, including the three small ones (Grizzly Flats Community Services District, South Lake Tahoe Public Utility District, and Tahoe City Public Utility District), Georgetown Divide Public Utility District (GDPUD), and the largest, the El Dorado Irrigation District (EID). Also discuss the Spheres of Influence of these districts. State how these considerations affect the General Plan.

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How many customers, broken down into residential, commercial and agricultural users, does each system have? What figure does each use for average household water

281-716

usage and how was it derived?

For each system, give the sources of water delivered to customers, including both potable and raw water, and the nature of the treatment and delivery infrastructure relative to any delivery constraints attributable thereto. Customers should include the numbers of those now served as well as latent demand from now unserved parcels in both approved developments and outside such developments. Figures should be developed for both within district boundaries and within district spheres of influence. (In EID's case, breakdown may have to be given by Eastern District, Western District, and El Dorado Hills District because EID's latest supply v. demand report is so broken down to take into account infrastructure constraints relative to sources that affect delivery areas. EID also wholesales water to Placerville, which also should be included.) List and describe water rights and water contracts, and give the firm and safe yields for all sources, defining those terms. Tabulate actual usage for the last 25 years. Existing ditch systems that deliver raw water for agricultural use should be included, together with their associated water rights and figures as to customers. (Except for Crawford Ditch, this has never been the case in those County-wide annual reports that have been produced.) All figures as to amounts should be given in the same units, preferably acre-feet, but in no event should units be mixed unless equivalents are given. (Miner's inch is a more common unit for ditches, but is not easily compared with acre-feet.)

The DEIR should include analysis of the arrangement whereby a developer has made funds available to EID in exchange for a specified amount of water from a seismic retrofit of Weber Dam, in anticipation of granting by the SWRCB of a request for change in point of diversion from Weber Dam to Folsom Lake. Thus water rights (and firm and safe yields) associated with Weber Dam should be included in the analysis in the preceding paragraph.

Another project that EID has undertaken is to abandon ditch delivery of raw water in favor of letting the water run through natural stream courses eventually into Folsom Lake in the expectation that losses would be reduced over those associated with ditch delivery and water, therefore, would be gained. Again, a change in point of diversion would eventually be necessary through action of the SWRCB. The DEIR should examine this proposal and its timeline and analyze the likely augmentation of the water supply resulting therefrom. As ditches tend to be leaky and are also quite old, micro-ecosystems maintained by leakage probably have developed over time. The DEIR should also analyze the effects of cessation of such leakage.

For the three small districts, assess their likelihood to grow significantly under the jurisdiction of the Tahoe Regional Planning Agency and their ability to supply the water needs of increased population from their present sources.

The two larger districts, EID and GDPUD, need to be examined in greater detail. Does either have an obligation to release flows to help maintain downstream water quality to support fish and to improve conditions in the Bay-Delta? Explain. How might this affect their supplies in time of drought?

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**How has water supply been influenced by the need to protect listed rare species?  
How might development of a multi-species county-wide Habitat Conservation Plan serve to  
alleviate this situation?**

281-722

EID is the principal water purveyor in the County, and serves those areas that have grown most rapidly in recent years and where the proposed General Plan presumably continues to authorize most growth in the County, namely from the Sacramento County line east to about Cameron Park and Shingle Springs.

281-723

**In assessing adequacy of supply, one needs to know usage rates. Therefore, the DEIR should describe how EID breaks its service area into three subareas, supply a map of where they are, and give the average Equivalent Dwelling Units(EDU) for each subarea. This figure is the anticipated amount of water needed to supply each new meter sold. How much uncommitted water is, thus, a function of how many meters EID says it still has to sell.**

281-724

But EID's figures as to the value of an EDU have changed considerably over time without any change in total water supply. Cynics have long felt that this manifested an overwillingness to accommodate development interests at the expense of the interests of present customers in time of brief or extended drought. As evidence they cite how conservation efforts practiced with the advent of the 1977 drought, when a water emergency was declared, caused unwatered landscaping to die, but led to EID's lowering the subsequent value of an EDU, thus "creating" more meters to sell. A few years ago it also halved the minimum pool in Sly Park from 4000 acre-feet to 2000 acre-feet, thereby reducing the drought "cushion" but again "creating" more water. **Please in the DEIR give the history of changes in the value of an EDU over the last 25 years without any change in supply. Please also show how the numbers of meters available for sale have changed.**

281-725

Another factor influencing what some find an overwillingness to accommodate development interests lies in the two bond issues that EID undertook in 1996 and 1999 through a joint powers authority to avoid a vote of the public. **Please discuss in the DEIR how the EID's financial situation and the need to service these revenue bonds may influence EID's desire to get revenue by selling new connections and how this may jeopardize existing customers.**

281-726

**EID and GDPUD share a provision in the Central Valley Project Improvement Act (Public Law 101-514) granting them jointly 15,000 acre-feet of water to be taken at Folsom Lake (the so-called Fazio water). What is the current status of obtaining this water? Is the figure a firm-yield figure? Would it be subject to cutback in time of drought or other need and, if so, under what rules? Explain the origin of the 1:1 split between the two districts.**

281-727

**Assess the likelihood that GDPUD would have a need for its half of the Fazio water under the growth projected in the proposed General Plan and its alternatives? Include provision for public uses such as schools, churches, convalescent homes, and fire protection. How would it access its half economically given the cost of pumping the water so far uphill?**

281-728

We have already asked for an accounting of EID's existing water rights and contracts. Relative to the existing contract for water with USBR from Folsom Lake, **please describe the area**

281-729

in which water from this source is delivered under the constraint of cost of pumping it uphill. What has been the history of amount of usage over the last 25 years relative to the 7550 afa available under the contract? What is the firm yield? Has the amount delivered ever been constrained because of drought or other reason and, if so, when and by how much? State USBR's policy governing the amount by which such contracts may be cutback in light of Bay-Delta water quality standards. Does the contract have a minimum figure? What is the present capacity of EID's treatment plant that processes Folsom water? Does it have the capacity to treat the full contracted amount? Can it also treat EID's half of the anticipated Fazio water or will it have to be expanded? What plans and timeframe does EID have for doing so?

281-729

El Dorado Hills has been growing very rapidly in recent years. As suggested (and funded) by one of the developers of the area, EID now has infrastructure to produce high quality treated water from its two main sewage treatment plants (Deer Creek and El Dorado Hills) to deliver to homes in portions of El Dorado Hills for landscape use in separate plumbing, as well as for golf course irrigation. Please give the details of this system in the DEIR. How is this system affecting EDU size in the El Dorado Hills service area?

281-730

What is the maximum anticipated demand for water in the El Dorado Hills service area of EID when all anticipated parcels authorized under the proposed General Plan are developed? Include provision for public uses such as schools, churches, convalescent homes, and fire protection, as well as commercial use.

281-731

Moving on to the contract for water from USBR's Jenkinson Lake at Sly Park, please discuss the terms whereby this facility may be purchased, as authorized by Congress, by EID from USBR. Explain the benefits to EID of doing so in relieving it from various responsibilities it had so long as USBR was the owner, such as meeting USBR's requirement for a conservation plan, obligations to protect listed rare species from threats related to growth facilitated by water supply, an obligation to furnish specified amounts to agriculture but applied to "irrigable land", having a tiered pricing structure that encouraged conservation, etc. In particular, state what the obligations have been relative to supplying water to agriculture and what portion. How much water has actually been delivered to agriculture and how much to residential use over time? Is there a deficit owed to agriculture and, if so, how much?

281-732

What is the timeline for change in ownership and what paperwork needs to be accomplished? What effect on usage of water is the change in ownership expected to have?

281-733

Relative to water obtained through operation of Project 184 and its infrastructure, describe the basis for the 15,080 afa derived from the 1919 contract with Western States Gas and Electric. Give the recent history of outages and negotiations with the prior owner, Pacific Gas and Electric. State how the relicensing process may affect operations.

281-734

Give the history of application to the SWRCB for additional water from Project 184, together with the numerous legal challenges thereto up to and including the decision of the Third District Court of Appeal upholding the trial court decision that set aside Decision

281-735

1635, the recent issuance, conditionally, of a revised D-1635 granting 17,000 afa to be taken at Folsom Lake, and probable challenges thereto. What role does adoption of a General Plan play in this saga?

281-735

What effect will implementation of D-1635 have for upstream storage reservoirs and the riverine ecosystem downstream of Kyburz?

281-736

The DEIR should analyze how this water can be used within the El Dorado Hills service area of EID and what the consequences to the environment will be.

281-737

GEORGETOWN DIVIDE PUBLIC UTILITY DISTRICT

GDPUD also is undertaking to convert from ditch delivery. It also has been exploring restoring a hydropower-generating system that has been out of operation for a few years. In the DEIR, please describe both these systems and the programs related to the proposed changes. Analyze the likely augmentation of the water supply by converting ditches, together with the effects on microhabitats that have grown up dependent upon leakage.

281-738

Describe the hydropower system, the water rights on which it depends, and the history of its past construction and operation, then its phasing out, and now the proposal to restore it.

281-739

CONCLUSION:

For each version of the General Plan, buildout should be analyzed against existing water rights and safe yields of existing facilities, with and without the 17,000 afa that are the subject of the disputed Decision 1635, and taking into account the constraints of delivery via existing infrastructure.

281-740

The DEIR should analyze the effects of the General Plan's containing the following principles:

- 1) Existing customers have first priority for a secure water supply.
- 2) To protect the contribution of agriculture to the economy of the County, agricultural water is to be protected; no new hookups for residences at the expense of agriculture.
- 3) A buffer adequate to protect existing customers against drought or emergencies caused by catastrophic outages, and for fire protection, shall be maintained.

281-741

To protect existing customers against over-commitment of water resources to new development, the following provisions should be evaluated in the DEIR:

281-742

For approval of a tentative map or other parcel map for which a tentative map is not required, and for approval of any development agreement pertaining thereto, any development proposal of 50 or more residences to be served by piped water, shall require a finding that there is a sufficient, reliable water supply available to meet the reasonable needs of the project. The finding shall be based upon substantial evidence, including written

281-743

verification from the applicable purveyor based upon the purveyor's most recently adopted urban water management plan, and

- 1) written contracts or other proof of entitlement to the identified water supply,
- 2) copies of an adopted capital outlay program for financing the delivery of said water supply,
- 3) securing of applicable federal, state, and local permits for construction of necessary infrastructure for delivery of said water supply; and
- 4) any necessary regulatory approvals.

"Sufficient, reliable water supply" is defined to mean adequate to meet demand during multiple consecutive dry water years without impairing the purveyor's ability to meet existing and forecasted demands, including agricultural needs, in its service area, consistent with its water-supply planning criteria. These criteria may include reasonable reductions in deliveries during multiple dry years if these reductions are fairly apportioned and not disproportionately affect agricultural or other existing water users unless provided for by contract.

The following measures to conserve water should be evaluated in the DEIR:

- 1) In new construction, requiring gray-water systems to supply landscape needs in areas not served with recycled water.
- 2) Requiring retrofitting of existing houses and commercial buildings with ultra-low flush toilets & low-flow shower heads at the time of sale.
- 3) Requiring developers to fund a pool to assist in retrofitting existing homes with ultra-low flush toilets and low-flow shower heads at a level of, say, 2 retrofitted homes per 1 new home.
- 4) Requiring that model homes be landscaped without lawns and primarily with drought-tolerant plants to show prospective buyers the possibilities and offer encouragement to this type of landscaping.
- 5) Requiring such landscaping of government buildings.
- 6) Requiring such landscaping of commercial buildings.
- 7) Forbidding the construction of golf courses unless reclaimed or other nonpotable water is available for their irrigation.

#### Groundwater Resources

*"When the well's dry, we know the worth of water."  
—Benjamin Franklin, Poor Richard's Almanac, 1746*

*"A feature that is all too common in wells drawing water from fracture systems is a high or moderate initial yield that decreases rapidly with time. Usually the cause is insufficient storage of groundwater near the well."  
—Davis and DeWiest, Hydrogeology, 1966*

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281-744

281-745

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*"Careful management [of groundwater] to control overdrafts is a self-evident need, but the reality is that groundwater has never been subject to any management worthy of the name and remains at the whim of contradictory laws."*

*—Norris Hundley, The Great Thirst, 1992*

There are no identified groundwater basins in El Dorado County. The source of groundwater is interstices in fractures in rock underlying what is usually a rather thin layer of soil. Neither has there been any comprehensive study of groundwater in the County that would help understand its nature. For purposes of well-dependent development, many questions need to be answered; the best entity to conduct such a study and to provide insight to answer those questions is the U. S. Geological Survey, which did such a study for Nevada County.

281-746

Groundwater is a finite resource replenished only over time. The County has no regulation governing collection of data needed to put groundwater-dependent development on a truly rational footing. A groundwater ordinance was promised during evolution of the 1996 General Plan but none ever was adopted.

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The DEIR should state the present regulatory framework for this resource. What are County requirements and what are State requirements relative to well-drilling and provision of information about groundwater? Are the data acquired and kept in a systematic way so that they can be used to answer questions and detect trends? If not, why not? What are reporting requirements re dry wells? What of "closure" requirements for dry wells? Is there any reason to believe that all such wells are reported by drillers?

281-748

It should look at what factors influence the availability of groundwater. It should examine the possibility of interference between wells. How does topographic relief and the possibility of bank cuts that intersect groundwater affect the resource? What of replacement of vegetated surfaces by impervious surfaces (roads, roofs, even lawns): how is the resource affected? How does the kind of surface vegetation affect infiltration?

281-749

The DEIR should provide a map that shows areas of the County where finding adequate groundwater is known to be problematical, or where its quality is known to be troublesome because of natural conditions. Areas where wells have failed and annexation to a purveyor of piped water should be indicated. Such information should be used in reviewing development proposals.

281-750

Incidents should be cited in the DEIR where new wells have been known to affect the yield of existing wells. Especially in anticipation of extended or short-term but severe drought, policies to prevent this should be developed.

281-751

Various factors, including lack of suitable infrastructure, could influence whether or not a purveyor of piped water would be willing to supply water to a well-dependent user should the well fail. The DEIR should examine the policies of the various purveyors in the County in such a circumstance.

281-752

The USGS study in Nevada showed that well yields were dependent upon *local* precipitation. Discuss the portion of local precipitation that actually infiltrates to replenish supplies drawn upon by wells and the portion lost to runoff and evapotranspiration. The USGS estimates infiltration as, on average, about 5 percent.

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In the absence of a comprehensive study, the DEIR should analyze, from such information and data as to the amount of average annual precipitation in various parts of the County, how big a parcel is needed for well-dependent development to produce adequate recharge from year to year.

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Are there any recharge areas now identified in the County? If so, how are they being protected to facilitate recharge and prevent groundwater contamination?

281-755

Analyze the adequacy of the County's standard for minimum parcel size to protect water supply and quality with combined well-septic system construction.

281-756

What would be the recourse for an existing well-dependent resident if new development had an adverse impact upon the quantity and quality of water from his/her well? Evaluate holding members of permitting agencies and owners of new wells and septic systems financially responsible for any and all damages to existing systems caused by new wells and septic systems.

281-757

The DEIR should analyze whether anticipated recharge requirements as to parcel size are met in those areas where the proposed General Plan anticipates well-dependent development. If recharge needs are not met, land-use planning should be altered to reflect this information.

281-758

The DEIR should analyze methods of testing newly-dug wells for reliable yield under long-term use. A tapped source of a "gusher" could be (and has been known to be in the County) a large pocket replenished at only a trickle. Once the pocket is used up, the well may not yield enough to supply the needs of a residence. Current yield-testing procedures are not adequate to detect such instances.

281-759

Analyze the merits of developing a new groundwater ordinance for the County, including discussion of the following factors:

- provision for periodic collecting of data on wells in the County such as quality, quantity, rate of use, seasonal depth to water
- specifies particular yield-testing methodology to establish likelihood of long-term sustainability
- identifies a minimum yield for development on a given parcel size
- relates yield to storage capacity both to sustain a household and to be adequate for fire emergencies
- allows for "granny flats"
- addresses the possibility of interference with nearby wells
- specifies adequate recharge area and its protection
- sets a safe distance between well and septic system

281-760

The DEIR should analyze the potential effects on native vegetation, including wetlands, and wildlife if more groundwater is withdrawn to sustain development. The Los Angeles Department of Water and Power created widespread death of vegetation by pumping groundwater out of Owens Valley.

281-761

Do any water purveyors in the County manage groundwater-dependent systems? Please map where such systems are found relative to watershed in which found. When and why were these systems installed (e.g., failure of a neighboring well)? What has been the purveyors' experience with such systems relative to such factors as quantity, quality, dependability, risks, etc.? How have any problems been addressed? Are data similar to those proposed above for private wells collected from such systems so that they, also, can be queried and analyzed? If not, why not?

281-762

What are state requirements for small water systems?

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How many units of well-dependent housing will the proposed General Plan allow?

281-764

Wastewater treatment:

Here we are separating our comments into two sections, Sewage Treatment Plants and Septic Systems. Both are topics where, again, Volume II, Background, is badly in need of updating. The El Dorado Irrigation District has, under order from the Central Valley Regional Water Quality Control Board as influenced by the needs generated by rapid growth, carried out significant improvements at its two primary sewage treatment plants, the Deer Creek and the El Dorado Hills Wastewater Treatment Plants. The County also recently adopted a revised ordinance governing septic systems. And in 2000 the EPA issued new guidelines for septic systems.

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SEWAGE TREATMENT :

Of the water purveyors in the County, only EID and the City of Placerville operate sewage treatment plants. (Placerville buys its water from EID. It is outside the jurisdiction of the proposed General Plan.)

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The Deer Creek and El Dorado Hills plants are EID's two primary plants, though EID also operates a small one in Camino, where effluent is disposed of through spray irrigation.

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There are other small community systems overseen by some sort of public entity. EID has at least the Ponderosa facility. Georgetown Divide Public Utility District operates a system serving Auburn Lake Trails. All this background information should be updated in a revised Volume II in a quantitative manner, setting forth design capacities and amount of sewage collected for treatment, areas served, treatment process used, and means of disposal of effluent, discharge standards to be met, and success in meeting those standards. The DEIR should analyze how close these facilities are to serving design capacity and the implications of this

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for additional growth.

Please note and correct figures given in the earlier DEIR for the Camino plant, where there was an inconsistency between the figures shown in Table V-4-6 and those given on p. V.4-17. The discussion therein (p. V.4-17) says capacity is determined by the spray fields; thus the Camino plant apparently is now over its capacity. Thus the DEIR should assess what growth authorized by the proposed General Plan will be served by this plant and how it will be accommodated. What, if any, plans does EID have to expand the plant's capacity?

EID has been struggling with renewed NPDES permits for both plants because the Regional Water Quality Control Board finally upgraded its discharge standards as it had long promised. Please recount what has been happening with this situation. How is the growth anticipated under the proposed General Plan expected to affect the volume of discharge from the plants and their ability to meet discharge requirements?

Provide information about water quality in the Cosumnes River both above the confluence with Deer Creek and below. Discuss how this might be expected to change up to the point of full buildout of the proposed General Plan and what might be the implications for aquatic life in the river and in Deer and Carson Creeks.

Describe the system whereby EID supplies recycled water from its two large plants to end users for certain uses and under specified conditions. How has this affected the amount of treated effluent discharged into Deer and/or Carson Creeks? How much reclaimed water is supplied versus how much could be supplied if there were more buyers? What is expected to be the buildout-use versus the supply? What other users might be developed?

EID has been replacing deteriorated collection mains and upgrading lift stations. In the DEIR, please discuss how much of this program has been completed and how much remains to be done. Wet-weather flows in the treatment plants have been much larger than dry-weather flows and have threatened to overwhelm the treatment plants, although there is no storm-water collection system in the County. What has been the cause and how, if at all, have collection-system upgrades affected the situation?

Tributyltin has been found in inflows at the treatment plant in the past. What unusual chemicals, if any, are now being found in inflows? Have they been successfully traced to a source and eliminated? Is the treatment plant able to treat these chemicals effectively or do they remain in effluent when it is discharged?

There has been growing concern as to the fate of medicines that may get into the sewage system and whether or not they are removed in the treatment process, or whether they pass through unchanged to effect downstream users or to be taken up by members of the aquatic ecosystem, including fish, and what effects might follow. Please discuss this in the DEIR.

Comments on the prior DEIR included asking for an analysis of the financial risk associated

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with under- or oversizing new facilities in relation to growth. Since that time, utilizing a joint-powers-agreement to escape the need for voter approval, EID sold revenue bonds to finance, among other things, upgrades of the sewage treatment plants. As a consequence, it has found itself in the position of needing to sell new connections to fund servicing the bonds. **Please discuss how this might have influenced decisions to halve the minimum pool in Sly Park and to disobey EID's own policies when, as has just happened, a modest cut-back in Folsom Lake supplies have put EID up against the wall of running out of water to serve the rapid growth that continues in El Dorado Hills. Although EID has repeatedly stated that it is not a land-use planning agency, please discuss how this circumstance makes it a defacto one.**

281-776

Closely related to treatment of collected wastewater is the problem of disposal of sludge from all the treatment plants. **The DEIR should discuss this.** Some processing methods are less likely to remove or reduce pathogens than do others. **What methods are used in processing sludge at the plants and how successfully do they remove pathogens? Is the dewatered sludge disposed of at a landfill? If so, where? Is dewatered sludge applied to land as a soil amendment? If so, where? What amounts are involved? What have analyses of the sludge shown as to composition? How will the amount of sludge change with increasing population allowed under the proposed General Plan?**

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**A growing number of counties in the Central Valley are instituting bans on disposal of sewage sludge on farmlands. What environmental effects are of concern in such actions? What would EID do if it met such resistance?**

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The El Dorado Hills sewage treatment plant, beside Latrobe Road and surrounded by the proposed Valley View project, is much closer to people than is the Deer Creek plant and thus is more likely to be a source of offensive odors eliciting complaints. This will be increasingly the case as the Valley View project builds out. The DEIR should analyze the consequences of this location and the processing load increases. Would it be expected to generate a rising number of complaints? If so, what would EID's response be?

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#### SEPTIC SYSTEMS:

*"More than half existing systems [in the U.S. as a whole] are over 30 years old, and homeowners indicate that at least 10 percent of all systems are not working at all at any given time. Other data have shown that at least 25 percent of systems are malfunctioning to some degree. In a majority of cases, the homeowner is not aware of a system failure until it backs up in the home or breaks out on the ground surface."*

*—Draft EPA Guidelines, September 2000*

In its draft Guidelines, the EPA outlines five different management programs, the least intrusive of which is intended for conventional installations without any particular siting problems. Even for these, however, it suggests that the regulatory agency should have an inventory of the location of all such systems and that it periodically send information to owners about operation and maintenance. This approach, however, fails to ensure compliance with maintenance or to have a

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mechanism for identifying problems prior to failure.

The next "step up" in EPA's guidelines is a management program that incorporates a requirement for a contract for routine maintenance by properly trained and equipped personnel. Such a program would be of special importance in the case of substandard systems. Even for properly constructed ones, a mechanism for educating their owners as to operation and maintenance could forestall failure, according to the EPA.

The DEIR should set forth the regulatory framework within which septic systems operate, including both Regional Water Quality Control Board rules and those of the new revised local ordinance. What changes were made in the revision of the ordinance and what problems were these changes designed to address?

Explain how the provision in the new ordinance requiring 4 feet of soil below the bottom of the leach trenches meets the standard of 5 feet set by the Regional Water Quality Control Board.

Explain how allowing fractures in underlying rock up to 5 inches wide will assure adequate filtration of sewage before it reaches groundwater with the possibility of contaminating the source of well water on the same parcel.

Explain how soil characteristics affect functioning of septic systems. Are soils rated as poorly drained by the soil maps considered suitable for septic systems?

Discuss available scientific studies that support the 4-foot, 5-inch standards mentioned above in the revised ordinance in relation to minimum distances between septic systems and wells in the thin, poorly drained soils prevalent in rural El Dorado County.

The DEIR should include maps of those parts of the County where soil conditions are considered unsuitable for septic systems (poorly drained, or too shallow, or too steep) and where septic systems are known to have experienced failure. It was failing septic systems that precipitated EID's first venture into building a sewage-treatment plant. The proposed General Plan should minimize development in such areas when infrastructure is not present.

The DEIR should discuss how septic systems work, what maintenance is required to prevent failure, and how frequently it should take place. Why is it that 100% replacement area is required for each septic system? What is the average life of a septic system even with regular maintenance? How do life-style practices affect life span of such systems?

At one time septic systems and wells were allowed together on smaller lots than is now the case. These "grandfathered" systems, now substandard, have heightened potential for contributing to water pollution. Moreover, many homeowners do not understand how septic systems work and contribute to their failure through life-style practices or inadequate maintenance. This situation would be especially significant when the original system is a grandfathered substandard one. The new ordinance seems to be silent on the need for post-construction inspection of such systems.

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Moreover, it was failing septic systems that provided the impetus for EID to build its first sewage treatment plant.

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**What is current practice relative to required post-construction inspections? Is inspection required at times other than a change in ownership? The DEIR should discuss the adequacy of this requirement considering that ownership is unlikely to change nearly as often as maintenance should be conducted.**

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**Evaluate a policy in the proposed General Plan requiring both 1) regular inspection to ascertain proper functioning and 2) routine maintenance and repair, if needed, both utilizing properly trained and certified personnel and a standard protocol. This should be in conjunction with a computerized data-management system that inventories all septic systems in the County and maintains for them a record of inspections, maintenance, and performance.**

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**We have heard of homeowners who think an occasional dose of coffee grounds is "good for" a septic system, whereas they are specifically cautioned against. How many homeowners buy doses of bacteria because an advertisement touts them for improving performance of a septic system? How many homeowners read the labels on household cleaners carefully to see whether they will harm septic systems? How many homeowners have septic systems that require excavation to access the lid to the tank, thus discouraging periodic pumping?**

281-792

**There is widespread lack of understanding of how septic systems function. Thus the DEIR should evaluate the advisability of the proposed General Plan's making distribution of information mandatory as part of disclosure to the new owner of such property at the time of sale, with periodic reminders sent subsequently.**

281-793

**It is often recommended that garbage disposals not be used in conjunction with septic systems. Please evaluate the merits of disallowing garbage disposals in homes served by a septic system.**

281-794

**Present rules allow septic systems on slopes up to 30 percent in steepness without consideration of soil type. The DEIR should present and analyze evidence that 30 percent is acceptable, especially as experience within the County has demonstrated washout on slopes ranging from only 26 to 28 percent.**

281-795

**Please explain in the DEIR how sludge pumped from septic system tanks during periodic maintenance is subsequently treated and disposed of. What impacts does this process have for the environment?**

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Garbage:

*"The disposal of solid waste can have an impact on water quality and public*

health. Land developers must submit a plan which conforms to the regional or county master plan and contains adequate provisions for solid waste disposal for complete build-out of the development."

"The disposal of septic tank sludge is an important part of any area-wide master plan for waste disposal. Land developers must submit a plan that conforms to the regional or county master plan and contains adequate provisions for septic tank sludge disposal for complete build-out of the development."

---Guidelines for Waste Disposal from Land Development, Central Valley Regional Water Quality Control Board.

This topic doesn't appear to be mentioned in the NOP. It is one of those for which the Background Volume is quite dated. This should be corrected before issuance of the DEIR. When last we heard, the state-mandated goal of 50% diversion of the wastestream by 2000 had not been met but, instead, had plateaued at about 41%. (More recently, we heard that it was only 38%.) **What is it? Is waste sent to Nevada counted as "diverted"?**

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The DEIR should set forth the existing regulatory framework and the County's approach to garbage collection, including complete discussion of the organization of franchises, the Resource Recovery Facilities, the Union Mine Landfill and its leachate-septage treatment facility, and the arrangement with the Lockwood landfill in Nevada.

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Are additional Resource Recovery Facilities planned? If so, where will they be located? A map showing the location of all existing and planned Resource Recovery Facilities should be included in the DEIR.

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The Union Mine Landfill has detention ponds in which leachate accumulates. Can/do liquids from these ponds discharge into Martinez Creek? If so, what treatment do these liquids undergo before this occurs? What mechanism exists for testing their quality before any such discharge in order to assure no degradation of the waters of Martinez Creek? What have been the results of such monitoring over time since the ponds were built?

281-801

Describe how leachate and septage are treated and disposed of. To where does the effluent go? What of solid residues? How is sludge from sewage treatment plants treated and to where does it go? As there is growing concern at the possible presence of both pathogens and contaminants in treated sludge (see, e.g., *WorldWatch*, 1-2/1998), a growing number of farming counties in the state have been passing ordinances to ban its disposal on farmlands. Does EID now dispose of any sludge in this way and, if so, what backup plans does it have if this avenue becomes no longer available?

281-802

Describe the Nevada landfill relative to its own environmental and regulatory setting, i.e., the potential for contamination of groundwater, etc. The County should be considering end-use problems no matter where they occur. There is no such place as "away".

281-803

Describe operation of the system that catches off-gases from the decay processes occurring in the landfill and flares them. Are all gases captured by this system or is there

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outgassing from areas outside the collection system? What State or Federal permitting process regulates these discharges and have all needed permits been obtained? Answer the same questions for gases that are flared. Is the flaring a open candle-flame type or a shrouded flare?

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Gases from burning garbage can contain toxic substances that can be made more toxic in the process of incineration. Describe any part of the system that filters these substances out before the combustion process. Also describe and discuss all such substances found, through analysis, to be contained in either flared gases or "outgassed" gases, together with their possible effects on downwind areas. Why was flaring chosen over alternative strategies?

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The landfill occupies a site atop a network of old mine tunnels. As we recall, at least one of these old mines was a source of groundwater heavily contaminated with arsenic that had to be disposed of. Therefore, the DEIR should discuss all problems presented by the dump's overlying old mine tunnels relative to leaking groundwater or to serving as a conduit to contaminate groundwater. How are such problems addressed?

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The DEIR should discuss failure to meet state-mandated goals for diversion of garbage from disposal in a landfill and explore ways of correcting this situation in light of growing population and active construction. Include at least the following among measures to be explored:

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- More comprehensive street-side pickup programs for all franchisees. Not all franchisees offer pickup of all kinds of recyclables.

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- A separate container for yard waste in areas of the County where landscaping is more prevalent, accompanied by a composting program at the landfill and offering the end-product to customers as mulch. Some jurisdictions make composting bins available to homeowners for purchase at a discounted cost and even hold classes in composting.

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- As a variant of the prior measure, a program whereby chippers could be made available to customers to make their own mulch from landscape debris. This could be encouraged as an alternative for those who otherwise might burn such material; such a program thus would simultaneously help to alleviate air pollution.

281-807c

- A fee program structured to encourage recycling, such as smaller fees for smaller amounts of non-recyclable garbage, or rate reduction for customers willing to separate recyclables. The DEIR should also analyze the merits of having reduced fees for low-income households to discourage their engaging in illegal dumping because of economic stress.

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- Consideration of different pickup strategies for the elderly (a growing segment of the population) and infirm when long access roads and topography might make curb-side placement increasingly difficult.

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- Requiring for issuance of a building permit that construction waste be recycled as much as possible. During the 1996 General Plan process, its DEIR treated only post-occupancy generation of waste. Suggestions for reducing construction waste were given repeatedly and uniformly responded to as applying to demolition waste. However, construction waste is a major contributor to landfills, estimated at ca. 4 lbs/ft<sup>2</sup>, and must be particularly so in this County, with its very active

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building industry and the "McMonster" houses so popular now. Most construction waste is wood and drywall, with corrugated cardboard the third largest category. But scrap lumber can be reused (e.g., for fire blocking inside walls, if large enough,) or chipped for mulch (except for pressure-treated wood), or remanufactured into particle- or fiber-board, or used by manufacturers of wood-plastic composites. Scrap gypsum board can be remanufactured. Cardboard is recyclable. The more who are required to participate in such a program of segregation-at-the-source, the easier carrying it out would be. And it has a potential for creating new jobs through start-up ventures to service construction sites. The large-scale building of many homes simultaneously that is occurring in the El Dorado Hills should make initiation of such a program easier. Some of the problem is just forming new habits. Moreover, recycling would save dump fees for contractors. Scraps of building materials such as sheet flooring can be utilized by programs to assist low-income residents with housing maintenance, or by programs such as Habitat for Humanity.

- **Reuse of demolition waste as much as possible.** For instance, chunks of concrete could be crushed and reused for roadbase and shoulder surfacing, or to surface walkways and trails, or to be mixed in asphalt.

**Discuss how the County "shows the way" in reducing waste through its own procurement and disposal policies.**

**Evaluate the policies and effectiveness thereof by means of which the County implements and enforces the *Guidelines for Waste Disposal from Land Development* issued by the Regional Water Quality Control Board quoted at the outset.**

**HAZARDOUS WASTE. The DEIR should discuss the present mechanism for collecting and disposing of household hazardous waste. Where, and how often, are present collection efforts held? Are these times and locations convenient for the public? Where can such materials be taken between collection days? If local fire houses are recipients, how safe is this considering that many are staffed by volunteers who may not have adequate training or equipment to deal safely with all such materials? What is the final disposal site and what environmental impacts are associated with the use? How have quantities of such materials changed over time and how are they expected to change under the proposed General Plan?**

**ILLEGAL DUMPING. The DEIR should present details on the extent of this problem, how it has changed in the past with population increase, and how it would be expected to change in the future. How is the problem now addressed? What clean-up of illegal dump piles now occurs and who pays the costs? How has the Eldorado National Forest been affected and how does it address the problem? Note that these questions were dismissed in the prior General Plan process with the comment that the problem was less than significant because of a County ordinance invoking "severe penalties". This is an unsatisfactory response because, despite such a law, the problem does exist. Many people know of such dump piles that are never cleaned up. And newspaper accounts suggest that it has been a growing problem for at least the National Forest.**

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PUBLIC HEALTH AND SAFETY ELEMENT

Air Quality:

*"It happens that the most susceptible [to air pollution] are the very young and the very old—not as some would suggest, peculiarly squeamish groups whose interests the society can afford to compromise if it begins to look like it might be expensive to protect them."*

—Lois Jeffrey, 1 Nov 1973, to an audience, University of North Carolina

This section is another one relevant to which significant changes have occurred that should be reflected in an updated version of Volume 2 of the General Plan, *Background*. Both baseline information and regulatory information have appreciably changed since its issuance.

These revisions should be set forth in the DEIR.

In all cases calling for detailed technical analyses, the DEIR should include documentation of methodology, models, together with the input data, and assumptions used, together with the results. Where emissions are temperature-related, temperature data, too, should be explicitly set forth to support the temperatures assumed in modeling. Please note also, that the 1994 DEIR assumed that data concerning base and top altitudes of temperature inversions taken from Sacramento could be applied without change to El Dorado County, when elevations in the western part of the County generally exceed base altitudes of Sacramento and sometimes exceed top altitudes. **If repeated in the analysis forthcoming for the present DEIR, this statement should be clarified as to whether the implication is that base and top altitudes would be the same distance from the ground as in Sacramento County. Any assumptions must be justified by supporting evidence.**

Both state and federal laws require good air quality to be maintained in areas that are in attainment with applicable standards or, like El Dorado County, are designated as unclassified (see what follows). Therefore, a General Plan whose EIR indicates that applicable standards will be or are likely to be violated is unacceptable in that it would violate state and federal law. These laws do not allow adoption of such a General Plan based on a finding of overriding considerations.

In the 1994 *Background* volume, the basic sources of man-made air pollution in the County were said to be stationary, mobile, area, and pollution transported from elsewhere on prevailing winds. There were said to be 47 major *stationary* point sources of air pollution on the western slope. They were primarily industrial in nature and included lumber mills, quarries, and a crematory.

**Is this information still correct? Have any of the mills or quarries closed? What of new industries?**

Emissions from *mobile* sources, primarily vehicles, were stated to include carbon monoxide (CO), nitrogen oxides (NOx), small suspended particulate matter (PM10), and sulfur dioxide (SO2), for which the State and Federal government have ambient air quality standards, as well as hydrocarbons (also referred to as reactive organic gasses or ROG) for which there are emission regulations. Nitrogen oxides and hydrocarbons are the chemical precursors of ozone, the primary

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component of smog. Vehicle and heavy equipment use also raises dust on the roads. Where soils have naturally high background concentrations of metals, dust entrained by vehicle and equipment use on dirt roads can expose receptors to toxic substances such as lead, cadmium, and nickel. Serpentine soils may also pose a risk due to the entrainment of asbestos particles by vehicle and heavy equipment use. Diesel engines can produce foul odors.

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*Area* sources were defined as local sources not falling under the prior two categories, such as trash burning, wildfires, dust from grading, residential emissions, etc.

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**OZONE.** The air quality standard for *ozone* is health-based. Prolonged exposure, even at levels below federal standards, can reduce the lung's ability to resist infection and cause premature aging of lung tissue. As of 1996, El Dorado County frequently exceeded allowable levels of ozone under both state and federal standards. Indeed, regional "weather" predictions regularly predict air quality and call for "spare-the-air" days when predicted levels rise to worrisome levels, recommending that especially susceptible people stay indoors and that all avoid unnecessary travel. Plants, too, can be affected. Some important local trees and crops known to be particularly sensitive to ozone are grapes, ponderosa pine, white fir, incense cedar, and California black oak.

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Ozone forms from hydrocarbons and NOx in the presence of sunlight. Motor vehicles are the primary sources of both hydrocarbons and NOx in El Dorado County and the problem is most prevalent in summer with high temperatures. The County is classified as a serious non-attainment area for ozone by both state and federal governments. **This classification brings with it several requirements, which the DEIR should set forth. Has the County met these requirements or has it taken action to meet them? What is (was) the deadline for doing so? What of the requirements of the California Clean Air Act?**

281-821

**How have the EPA's new ozone standards affected compliance in El Dorado County?**

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Show that the proposed General Plan is consistent with the provisions of the Sacramento Area Regional Ozone Attainment Plan (SAROAP). SAROAP indicates that ROG and NOx emissions must be reduced to meet the "carrying capacity" of the region (El Dorado, Placer, Sacramento, Yolo, and Solano counties). The DEIR must show that the emissions for the entire region, including El Dorado County, will still be within the carrying capacity of the region as a whole. If projected emissions at the end of the life of the General Plan are not lower than current levels, the DEIR needs to show how the County will meet the emission reductions required in the SAROAP.

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The DEIR must assess whether the General Plan will exacerbate the County's non-compliance with respect to ozone by leading to increased emissions of hydrocarbons and NOx. There are sophisticated models that can make these assessments given comprehensive information about emissions and traffic.

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Both state and federal law require more stringent air pollution controls if local emissions, as distinct from emissions transported into the area from elsewhere, cause violations of ozone standards. Does El Dorado County now have an air quality plan that identifies how the goal

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of no violation of ozone standards after 15 November 1999, as required by federal law, will be met? How will the proposed General Plan be consistent with this requirement? What mitigations can prevent an increase in emissions? What are the County's obligations with respect to regional problems and the regional attainment plan?

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See prior discussion concerning the "heat island" contribution to smog formation and steps that could be taken to mitigate this.

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**PARTICULATES.** Because of cold-weather inversions, automotive exhausts, wood-burning stoves, and agricultural and silvicultural practices, particulate standards are frequently exceeded in El Dorado County. There is evidence that various health problems are correlated with particulates even smaller than the 10 micron size upon which the standard was based and the EPA has recently revised the standards.

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How have the EPA's new particulate standards affected compliance in El Dorado County?

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Evaluate and quantify, as a means of reducing particulate emissions from trash burning, having the County, in conjunction with its garbage-collection franchisees, ban this activity and instead encourage composting of organic materials.

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Many homes in the County, especially encouraged by rapidly escalating energy prices, are increasingly using wood-burning fireplaces as a sole or supplementary source of heat. Even before the energy crisis hit, a pall of woodsmoke has been a common sight in winter in many residential areas. The SNEP report states, "High-elevation towns of modest population can generate very high levels of fine particles in winter smoke, with concentration levels larger than typically seen even in the largest urban areas of California." (Cahill, et al., *Air Quality*, SNEP Vol. II, p. 1227.) In the Bay Area, the air pollution control district has ascertained that woodsmoke is the largest single stationary source of particulates, comprising in some places as much as 40% even though there are only 1.5 million fireplaces as compared with 6 million motor vehicles. Wood-burning also produces carbon monoxide. In the Bay Area, several jurisdictions no longer allow wood-burning fireplaces in new home construction, though gas fireplaces, pellet stoves, and EPA-certified wood stoves or fireplace inserts are allowed and reduce woodsmoke by 75 to 99 percent over a traditional fireplace.

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The DEIR should evaluate and quantify this approach to reducing particulate matter in the airshed. A model ordinance is available from the Bay Area Air Quality Management District that is now being used by several jurisdictions.

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The DEIR should evaluate and quantify the possibility of forbidding agricultural burning and instead encouraging chipping waste for use as mulch.

281-832

Since the 1994 DEIR, new regulations on both local and state levels have been issued concerning naturally-occurring asbestos and diesel engines. The DEIR should provide updated information. However, both local and state regulations now concentrate on serpentine sources. Therefore, the DEIR should also discuss the issue of asbestos particles originating in non-serpentine naturally-occurring deposits, such as those in El Dorado Hills, where

281-833

construction of homes and schools, both, has occurred on non-serpentine parent material containing tremolite.

281-833

**CARBON MONOXIDE.** This is a poisonous gas that interferes with the blood abilities to carry oxygen from the lungs to the rest of the body. The primary source of this gas is gasoline engines, especially during cold starts and cold operating temperatures. Exceedences tend to be associated with crowded traffic intersections and winter driving conditions.

281-834

For lack of information (in 1994, there was only one monitoring station in the County and it was sited "west of Placerville") El Dorado County is now "unclassified" with respect to carbon monoxide standards. However, occasionally an EIR will include site-specific studies associated with traffic that will be generated by a particular project. One such document was certified by the County (November, 1993) despite the fact that it indicated that an intersection already exceeded both state and federal standards and two others would be expected to as influenced by the project proposed.

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Is it still correct that there is only one station monitoring carbon monoxide? If there are more, the data collected should be included in discussion of CO. What criteria were used to choose the site(s)? Does it (do they) monitor emissions driven upslope from outside the County? Does it (do they) monitor emissions generated within the County at sites of heavy traffic congestion?

281-836

If exceedances are projected along Highway 50, the DEIR should evaluate and quantify the effect of mitigating the impact on receptors by setbacks and/or a greenbelt adjacent to the highway rather than high-density land uses.

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What does Section 161 of the federal Clean Air Act say about requirements "to prevent significant deterioration of air quality" for unclassified areas? Similarly, what does Section 4001 of the California Health and Safety Code say? Has El Dorado County complied? What are the implications for addressing air quality in the General Plan? How will this be done?

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**TOXIC AIR CONTAMINANTS.** These can derive from both mobile and stationary sources. They comprise chemicals known to be or strongly suspected to be causes of cancer. These emissions are associated with gasoline- and diesel-powered vehicles and are most serious in the cold temperatures of winter. Both the California Air Resources Board and the EPA have published ways to estimate these emissions from mobile sources and to relate these data to health risk.

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Therefore, the DEIR should analyze the effects of the proposed General Plan and its attendant increase in population and traffic on increased toxic air contaminants and, therefore, on public health.

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**VEHICULAR EMISSIONS.** Air pollution originating with vehicles is closely tied to land-use practices that contribute to the need to use single cars because alternative transportation modes are not available (sprawl) or because solely residential developments have been approved rather than mixed-use ones that require use of automobiles to run all errands. The DEIR should examine the process by which and to what extent these factors have received attention in approving

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development proposals in El Dorado County. It should propose ways to strengthen this approach to reducing dependence upon automobiles.

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Increase in vehicular emissions will occur proportional to the increase in numbers of additional vehicles. Increase in numbers of vehicles will occur proportional to increases in residential development.

] 281-842

According to the U.S. Department of Transportation, the average fuel economy of all cars and light trucks (pickups, SUVs, minivans) for the model year 2001 was 24.5 miles per gallon. That is the lowest figure since 1980. The average fuel economy of just the light-truck category on the road today is only 17.4 mpg. The DEIR should analyze the ways in which the situation has deteriorated since 1994 when the earlier DEIR was developed because of the increase in popularity since then of SUVs as the single-occupancy vehicle of choice for commuters in view of their poor gas mileage and the fact that they are not required to meet emission standards for passenger cars.

] 281-843

The DEIR should evaluate and quantify all possible ways of encouraging transportation alternatives to limited-occupancy automobiles. Reducing both the number of trips and the miles traveled per trip are important. See suggestions under, e.g., trails (Parks and Recreation), design (Land Use), Transportation and Circulation.

] 281-844

In the 1996 General Plan, in response to a comment the County at the last minute added Objective 6.7.8 concerning the effects of air pollution on vegetation. Its sole policy, 6.7.8.1, promised to monitor ongoing scientific research and, "[i]f and when such research conclusively determines...that air pollution is causing significant harm to vegetation within El Dorado County" it would "consider whether to add policies to the General Plan to try to mitigate such harm." We should, therefore, like to call to the County's attention discussions in the SNEP report (Cahill, et al., *Air Quality*, Vol. II, p. 1227 ff., and Paul B. Miller's, *Biological Effects of Air Pollution in the Sierra Nevada*, Vol. III, p. 885. The economically important ponderosa and Jeffrey pines are especially sensitive to chronic ozone pollution. Though effects on forest trees are more severe the farther south one goes (there were numerous dead trees in the San Bernardino National Forest thirty years ago), damage was reported in 1993 to trees at Sly Park at only 60 ppb (the California standard is 90 ppb). It would be well to keep this in mind in considering the effects on ozone pollution stemming from the proposed General Plan.

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[\*Also from SNEP rpt: (cited in abbreviated form from the Rock Creek FEIS): Carroll, J. and A. Dixon. 1993. Sierra Ozone Impact Assessment Study--Year Three. Contract A132-188 CARB NTIS PD94-208865]

Noise:

*"The multiple and insidious ill effects of noise constitute an inadequately recognized, baneful influence on lives of millions of persons throughout the country."*  
---C P McCord et al., Journal of the American Medical Association,

7 May 1938

Lack of noise is an important factor in defining a "rural atmosphere" as opposed to an urban or suburban atmosphere. The State's *General Plan Guidelines* provide guidance for defining the existing environment and for determining noise contour maps for various types of sources. But the 1995 DEIR modeled these with respect to surrounding land contours only for a single airport. Except for temporary construction work (and emergency services, traffic may be the most important source of background noise. With spreading residential development, this noise source, too, will increase and spread. (And with it, one of the more frequent complaints to the sheriff—barking dogs.)

281-846

The 1996 General Plan accepted 60 to 65 decibels as an acceptable goal for noise-sensitive receptors. However, the World Health Organization in a 1995 report recommended a limit of 50 decibels for constant daytime noise exposure and 45 decibels at night. "Above those thresholds," it said, "most people begin to become annoyed and many suffer ill effects." The Environmental Protection Agency, after a very broad study, in 1974 reached a similar conclusion—that 55 decibels should be an outdoor limit and 45 an indoor one "to protect public health and well-being". The state's Office of Planning and Research takes 60dB as the *upper* limit of "Normally Acceptable" for a single-family residence. All these sources support a lower limit than that adopted in the 1996 General Plan.

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The DEIR should present all these recommendations relative to the issue of public health and justify whatever standard it adopts for the County.

281-848

The DEIR should provide a *comprehensive* sampling of present sources of noise in the County, as well as background noise levels in quiet neighborhoods for comparison. Information should be presented about traffic noise from sampling the freeway, highways, and major arterials, in both free-flowing and stop-and-go conditions. Industrial and commercial sites also should be sampled and information presented. The effect of changes in elevation and curves on noise, as well as weather, should be included and related to attenuation of noise by topography, dense vegetation, or other types of mitigation.

281-849

Noise being somewhat subjective, the DEIR should present information as to the attitudes of residents concerning the acceptability of noise levels where they live. It should quantify the nature of complaints to the Sheriff or other agencies about noise and the cost of responding to such complaints.

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The DEIR should discuss the pros and cons of various types of mitigation of noise, such as setbacks, berms, sound walls, and dense vegetation. Does tire noise vary with type of pavement? If special types of pavement, such as rubberized asphalt, can reduce traffic noise, this also should be discussed.

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The DEIR should discuss the present regulatory framework, starting with local ordinances. It should also present for comparison as to standards and enforceability ordinances from elsewhere, such as the City of Davis.

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**Risk of Upset:**

**AVALANCHES.** The County's approach to this hazard in the 1996 General Plan, to require building techniques that could withstand the forces of an avalanche, was rejected by the court. **The DEIR should discuss the merits of an avalanche overlay zone to apply to all residential and commercial areas subject to avalanche, to rate the risk as high, potential, and none, and to set standards for construction within areas rated as having potential risk. In high-risk zones, no buildings or parking lots should be permitted. In potential-risk zones, no buildings that encourage the gathering of people would be permitted, though private homes might be allowed.** This proposal follows the approach in Switzerland, which is in the forefront of protective zoning techniques. It utilizes a three-level hazard approach: "high" where the return interval is less than 30 years and the impact pressure could exceed 3 tons per cubic meter, "potential" where the return interval is between 30 and 300 years and the impact pressure is 3 tons per cubic meter, and "none". Jurisdictions in the United States that have progressive zoning laws to protect from avalanches include Colorado and Utah, especially Alta, in Utah. Considerable information is available on the internet.

281-853

**DAM FAILURE. Volume II, Background, omitted mention of Silver Lake Dam, presumably because it is Amador County, though most of the downstream reach is in El Dorado County. This should be corrected.**

281-854

**The DEIR should describe the regulatory framework relative to dam safety under both state law and County ordinance. It should track where emergency plans for each state- or federal-regulated dam are kept, including for Silver Lake. Does the Planning Department have a set of these plans, which show areas likely to be flooded by a dam failure in relation to the time for the flow to arrive at downstream locations? How are these plans utilized in the review process for development proposals?**

281-855

**Dams that don't meet the requirements to fall under state jurisdiction fall under a County ordinance administered by the Department of Transportation. The DEIR should explain what oversight DOT exercises relative to these dams. Do they, like state-jurisdictional dams, also get periodic inspection for safety?**

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**What dams, if any, in the County are now considered in need of retrofitting to improve seismic safety? What is the current status of such retrofitting?**

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**The DEIR should include a map of dam-failure inundation zones and the proposed General Plan should include a zoning overlay to be used by Planning in its review of development proposals. As there are no large tracts of land so influenced, the DEIR should discuss how individual home-builders would be apprised of this information. Do single homes undergo any review by Planning? If not, how can the Building Department be included in the process of checking whether a proposed home is sited within a dam-failure inundation zone?**

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**EARTHQUAKES.** The Uniform Building Code provides guidance for building techniques

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that mitigate the hazard from this source. During evolution of the 1996 General Plan, we found tardiness in adoption of the most recent revision on the UBC rather dismaying, even to the point that the Building Department had requested that the County Library have readers of the latest version sign that they understood that the edition was not yet to be used in the County.

**The DEIR should state how the proposed General Plan will remedy the situation of tardy adoption of the latest information. What version of the UBC is currently "approved" for use in the County? How does the County propose to respond to occasional emergency revisions issued in the wake of some disaster?**

FLOODING.

*"Floods, or flows in excess of bankfull, are relatively common. Most rivers, on the average, experience discharges in excess of bankfull capacity approximately 2 or 3 times a year."*

—Luna Leopold, *Water, a Primer*, 1974.

*"[I]t is a virtual certainty that the defined 100-year floodplain—the planning tool of the twentieth century—is not the actual 100-year floodplain at any given point in time."*

—Jeffrey Mount, *California Rivers and Streams*, 1995.

*"It is the engineers' and planners' craving for hard numbers and the development interests who want to colonize floodplains that drive the conversion of honest estimates of chance into precise but highly inaccurate predictors of the future. What is most disturbing is that many communities actually promote colonization of the edge of the 100-year floodplain, permitting concentrated development right up to the line in the sand as if this line will somehow protect the inhabitants. This approach to planning is a tragedy in the making."*

—Jeffrey Mount, *California Rivers and Streams*, 1995.

Flooding is not unknown in the County. Major flooding occurred locally and regionally in March 1986, January 1995, and January 1997. During the last event, houses were flooded and destroyed in the famous New Year's Day flood of 1997, which also did severe damage to the hydropower system upon which the El Dorado Irrigation District depends for delivery of part of its water supply.

Past flooding had precipitated a study reported on in 1985 by the Natural Resources Conservation Service (then the Soil Conservation Service) of the upper Deer Creek drainage in the Cameron Park area. This study identified the cause as "primarily poor planning"—poor subdivision layout, failure to consider natural drainage patterns, failure to maintain storm runoff channels, and indicted all levels from the homeowner on up through county planners and the building department, to contractors and developers.

**The DEIR should explicate the federal regulatory framework applicable to the flooding problem. Thus it should describe the Federal Emergency Management Agency's**

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role in providing flood insurance, and, relative to that, in preparing maps showing 100-year floodplains. Stemming from that role is the County's obligation, if it wishes to participate in the insurance program, to implement floodplain management regulations acceptable to FEMA.

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What is the date of the most recent FEMA maps for the County? Are all streams mapped for their 100-year floodplains or are only developed areas mapped, where flooding damage is most likely to occur?

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Have all areas that experienced flooding over the last 20 years been mapped as flood-prone on these FEMA maps? (E.g., in 1995 a car was swept downstream by the waters of Knickerbocker Creek, near Cool, where no flood zone appears on FEMA maps.)

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How have areas subject to possible flooding changed over the last 30 years as development has proceeded? How are they expected to change under each of the proposed General Plan alternatives?

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What is the County's methodology for systematically gathering information as to flooding and requesting updates to FEMA maps? Does the Planning Department have this accumulated information? How, if at all, is this information incorporated into the various proposed General Plan alternatives?

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Please describe and discuss the various ways in which development can increase the likelihood of flooding, including at least these:

- increasing the area of impermeable and poorly permeable (e.g., lawns) surfaces and how this reduces infiltration that replenishes groundwater and causes an increase in both volume and velocity of runoff
- poor lot layout that sites buildings in natural drainage swales or within the floodplains of creeks and streams
- erection of obstructions, such as fences, across streambeds that inhibit free flow and accumulate trash, which increases the obstruction
- destruction of wetlands and/or alteration of streambeds such that natural flood attenuation processes are foregone or reduced in effectiveness

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Please evaluate the degree to which the last of the previous categories has occurred in the County.

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The DEIR should discuss the nature of the 100-year floodplain, including the floodway and the floodway fringe, as described by FEMA. It should elucidate the meaning of "100-year flood" to clear away widespread misunderstanding of this term.

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It should include in this discussion the County's response to this obligation through zoning and its Flood Damage Prevention Ordinance. How does the latter apply to building in the 100-year floodplain? Is building prohibited? What restrictions and/or special building provisions apply? How does the ordinance acknowledge and address the contribution of loss of wetlands, alteration of streambeds, and spread of poorly- and non-

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permeable surfaces?

What is the provision whereby the State Department of Water Resources audits the County to assess implementation of floodplain management restrictions? When did this last happen? What were DWR's conclusions?

Please discuss and clarify the apparent conflicts between provisions of the Flood Damage Prevention Ordinance and other County regulations. For example, Sec. 17.25.040 (A)(4) appears to sanction alteration of watercourses, which the Grading Ordinance, at 15.14.090 and 15.14.610 provides for setbacks.

Does FEMA prohibit local jurisdictions from implementing regulations that go beyond FEMA's minimum requirements? Would doing so be rewarded by lower insurance premiums? What changes to local ordinances might be rewarded in this way?

See also the discussion of Water Quality herein under Public Health and Safety and the recommendations referred to there of the Urban Runoff TAC. Discuss the merits of including provisions in the Flood Damage Prevention Ordinance and other County regulations of avoidance of floodplains in building, standards for peak runoff rates after development, avoidance of disturbance of natural drainage features, including wetlands, as much as possible, and limits on the area of impervious surfaces, etc.

Please describe the recommendations made by the NRCS in its 1985 study of Deer Creek in Cameron Park. Have any of these recommendations been implemented, either County-wide or in the Cameron Park area? If so, what has been the mechanism of implementation? To what extent, if any, have the recommendations been incorporated into the Flood Damage Prevention Ordinance or into other County code?

Please evaluate in the DEIR benefits of the concept of Flood Zone Parkways that would protect natural drainage courses, provide more "channel storage" for flood waters, and serve as more effective filters of sediment and pollutants, as well as serve as groundwater recharge areas.

Discuss and analyze ways, in developing areas, of increasing infiltration of storm water and reducing the amount of impermeable and poorly permeable surfaces that contribute to increasing runoff. These could include use of gravel or pavers with holes for areas of relatively low-use where topography would not be conducive to erosion, discouragement of landscaping with lawns and encouragement of use of French drains, utilization of natural drainage channels with vegetation, narrow streets to serve local residential areas, etc.

How does the recently developed County Drainage Manual contribute to solving runoff problems?

Accounts of flooding in extra-County localities in the recent past have assigned blame to upstream development. The DEIR should address what happens to flood waters after they

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pass from the boundaries of individual development proposals to "downstream". How does present regulation affect the amount and timing of discharge to "downstream"? How do increases in amount accumulate to contribute to flooding in downstream areas? How is this cumulative problem addressed in project review?

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The 1996 General Plan, as Objective 5.4.1, indicated intent to "[i]nitiate a County-wide drainage and flood management program...." Has this occurred? What are its provisions?

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The DEIR should sketch out the provisions of the California Storm Waters Best Management Practices Handbooks and state how the County has been implementing their recommendations.

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**HAZARDOUS MATERIALS.** The DEIR should describe and give locations for any known business activities in the County that use hazardous materials that might, through some sort of upset, endanger nearby citizens. (Examples could include large propane storage tanks and the chlorine used at sewage treatment plants.) Does this knowledge influence land-use decisions and, if so, how? (See also discussion of hazardous materials under Garbage in Public Services and Utilities.)

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What is the existing mechanism and responsibility for responding to spills of hazardous materials?

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Does the County have an inventory of lands in the County that are contaminated by hazardous wastes? Who maintains such a list? Does it go beyond locations of leaking underground storage tanks and old dump sites to include such as arsenic and mercury contamination from old mining activity? What of contamination by such as MTBE, old batteries, antifreeze, and the like at sites formerly devoted to automobile-connected business, or cleaning fluid chemicals at sites of former dry cleaners? Include discussion of the lead contamination at the shooting range at the Union Mine Landfill. Is there any program that tracks such historical usage of a parcel to keep track of potential contamination problems that may not yet have been discovered? What branch of County government would have such a responsibility?

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How is the information of concern in the prior paragraph made available to owners and/or prospective purchasers? What use, if any, is made of the information by Planning?

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**NATURALLY-OCCURRING ASBESTOS.** Although an old asbestos mine was mentioned in the DEIR for the 1996 General Plan, the fact that the EPA had come to the County in 1986 to pave over roads in the Garden Valley area that were surfaced with crushed serpentine was not mentioned. (It had been part of a version of Volume II, Background, earlier than that made available to the public, however.) There was no mention that the County had moved around the time of the 1986 incident to protect Department of Transportation employees by requiring that road-base material have no asbestos content.

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The re-emergence of naturally-occurring asbestos as an issue happened in 1998, when the Sacramento Bee published a series of articles on its presence in El Dorado County. Controversy has followed: Some argued that the most common form chrysotile, presented little, if any, risk. Owners of undeveloped sites and of homes both feared loss of value and difficulty selling. Some people did sell and moved away from the hazard. Some vigorously protested validity of the assessment of risk made by various State agencies. Residents living near serpentine-located quarry sites and chronically exposed to dust forcefully sought regulatory protection.

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Because the principal sources of crushed rock available to homeowners have been serpentine and limestone, there are many instances throughout the county of driveways and gravel-surfaced rural roads that are surfaced with crushed serpentine and present a continuing hazard.

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**The DEIR should describe the new regulatory framework, both State and local, that addresses the problem of naturally-occurring asbestos during construction activities and for road-surfacing, as well as for quarrying.**

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Developers of large-scale projects generally have geotechnical studies done and are, therefore, likely to be aware of the possibility/probability of serpentine's presence—though maybe not of tremolite (see below). What of the small developer, such as the single-home builder? **The DEIR should discuss how a single-home builder will be made aware of the special need for control of fugitive dust when he may be ignorant of the presence of asbestos-containing deposits or of the need for special measures. How might the building- or grading-permit process effectively address the problem, especially with the relatively large amount of grading that can be performed without seeking a grading permit?** (E.g., one of our members experienced grading occurring on a nearby lot that looked to have gotten down to serpentine [which crops out nearby], but with no dust control practiced. Subsequent foundation work had several men working in trenches in close contact with the presumed serpentine, again without wetting.) **Do building inspectors watch out for such things or can they be empowered to? Does the County have a computerized parcel base in which individual parcels subject to special treatment (known to be in a serpentine area, a contaminated area, a tremolite area; or with some special provision, as a court-approved agreement) can be flagged so that all County Departments would have immediate access to the information and could act accordingly?**

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**It should discuss the prevalence of crushed serpentine as a surfacing material for roads and driveways throughout the County, giving at least general locations.** (For example, there may be little meeting this description in El Dorado Hills because there are few unpaved roads and/or driveways.)

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**The DEIR should also analyze the hazard presented by tremolite, a form of asbestos that all agree is hazardous, in view of the fact that its known occurrences in the County are not on serpentine. How does the proposed General Plan address this fact?**

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**In the interests of protecting the long-term health of residents who might purchase homes on such sites, and workers who might be employed on such sites, the DEIR should discuss the merits of the proposed General Plan's addressing building and site standards for parcels in the County presenting a threat of containing naturally-occurring asbestos that**

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could be disturbed by construction activities, including both serpentine and non-serpentine areas.

Water Quality:

*"The two major changes that result from urbanization are changes in stream hydrology and an increase in pollutant loading. Changes in stream hydrology resulting from urbanization include: increased peak discharges; increased total volume of runoff; decreased time needed for runoff to reach the stream; increased frequency and severity of flooding; changes in streamflow during dry periods due to reduced level of infiltration in the watershed; and greater runoff velocity during storms. Ample evidence also exists about the pollutants that are entrained in urban runoff. The pollutants include sediment, nutrients, oxygen-demanding substances, road salts, heavy metals, petroleum hydrocarbons, pathogenic bacteria, viruses, and pesticides."*

*---The Report of the Technical Advisory Committee on Urban Runoff to the State Water Resources Control Board (Urban Runoff TAC Report), Nov 1994)*

The DEIR should describe present quality of waters in the County and the primary threats to that quality, including urban runoff, sediment from development and logging activities, and the possibility of discharges from sources such as commercial activities, leaking underground tanks, and old mines.

281-895

Explain the regulatory framework that governs water quality, including the sanctions that exist. What permits are required for what activities and from which agencies? Explain the applicability of the State Water Resources Control Board's Watershed Management Initiative and its draft revised Water Quality Enforcement Policy. How have the provisions of SB 709 affected conformity to regulatory requirements?

281-896

Explain the role of the County, if any, relative to the problem of the El Dorado Irrigation District's numerous uncovered and unlined reservoirs in which it stored treated drinking water until the State Department of Health Services required it to undertake corrective action. Did any County entity, such as Environmental Health or Environmental Management have any oversight of this situation that it failed to exercise? If so, why was this not done in a timely way?

281-897

Describe the County's program to monitor water quality. What County department has this responsibility? Are all streams sampled? If not, what fraction is sampled and how are they chosen? How often does sampling of any given spot occur? If not done on a regular basis, what triggers doing it? If contamination is found, how are citizens notified?

281-898

To set priorities for any such efforts, the County should have information as to what, where, how much, and the level of risk presented. Does it have such information? If not, how does it formulate a corrective program?

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According to the State Water Resources Control Board, as attributed in Jeffrey Mount's *California's Rivers and Streams*, there are over 15,000 abandoned hard rock mines in California of which about 2,500 are known to be potential problems; some 150 of these are known to be discharging very polluted fluids into rivers and streams. **Are there any abandoned mines in the County that are known to be a source of pollution? If so, does the discharge vary seasonally, where are these mines, what waters are affected, and what remediation is occurring?**

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**What other trouble spots, if any, are known to exist? What is the source of the problem? What measures have been or are being taken to correct the situation? Are any illicit discharges known to occur? What have they been and how has the County responded?**

281-901

**To what extent is utilization of salt on roads in snowy areas as problem? What of the use of sand?**

281-902

MTBE is rumored to have been found to occur in Jenkinson Lake, and we know that the Tahoe Basin has experienced such contamination. **What other places, if any, in the County are known to be so contaminated? How has or will the County respond?**

281-903

**How are leaking underground storage tanks regulated? What is the deadline for upgrading these and have all such tanks complied with the new requirements? Are, or were, any of these tanks situated so as to be a source of contamination of nearby waters and did they do so?**

281-904

**As arsenic was used for embalming purposes between about 1863 and 1910, the DEIR should analyze the possibility that wells on properties adjoining or near historic cemeteries might be contaminated.**

281-905

The TAC Report from which the introductory quotation is taken recommends a three-pronged approach to control of pollution from urban runoff: 1) Prevention, 2) Control, and 3) Treatment. To this end, the TAC Report on Urban Runoff and the TAC Report on Hydromodification, Wetlands, and Riparian Areas take very similar approaches to the problem presented by development:

281-906

"To the extent feasible, preserve, and where possible, create or restore areas that provide water quality benefits, such as riparian corridors and wetlands, and promote the design of new development so that it protects the natural integrity of drainage systems and water bodies."

--TAC Report on Urban Runoff, p. 9, "General Principles for Control of Urban Runoff from New Development and Construction", Nov 1994

"New development shall be designed to minimize changes in watershed hydrology, maintain natural channel configurations, and, as much as possible, avoid floodplain encroachment to allow natural flooding, in order to protect beneficial uses and avoid increased downstream flooding."

--TAC Report on Hydromodification, Wetlands, and Riparian Areas, p. 26, "Site Development", Nov 1994

**Describe in the DEIR how this approach is incorporated into the proposed General Plan and/or its alternatives, if it is. If not, explain why not.**

281-907



Analyze how well the measures in the County's approach to controlling erosion and sediment are implemented and monitored as to their efficacy. What standards, if any, are there for Total Suspended Solids in runoff. What sanctions are there for not meeting these standards?

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Are unpaved, ungraveled roads permitted anywhere, including on private land, and, if so, considering their high erosional potential, is their use at all limited by topography? Give an estimate of the mileage of such roads at present and under the several alternative General Plans. Is this an unregulated source of erosion and sedimentation?

281-909

With increasing development, urban runoff from impervious surfaces, with its usual load of dirt; oil, heavy metals, and other chemical from vehicles; rubber from tires; animal feces and urine; etc., can only present a growing problem to preserving water quality. What is the proposed General Plan's approach to controlling and reducing this problem? Among aspects to be discussed are the following:

281-910

Wetlands are quite good at filtering pollutants. Has the County anywhere used the concept of constructed wetlands in its arsenal of weapons to filter pollutants from urban runoff? If so, where and how has it worked? If not, why not? How might they be used in conjunction with detention ponds that serve to mitigate the volume of runoff from development and to provide settling time?

281-911

Setbacks from streams and wetlands are another way of minimizing entry of pollutants into surface waters, both in the case of new development and for ongoing land-use. For discussion of appropriate widths, see the Wetlands section herein under the Conservation and Open Space section. Please analyze the efficacy of the County's existing setback program and how well it has been implemented and how monitored. Assess possible room for improvement and how such measures have been incorporated into the General Plan.

281-912

Has grazing affected riparian zones and wetlands anywhere within the jurisdictional part of the County and, if so, how? What policies of the proposed General Plan would prevent degradation of water quality from this source?

281-913

To what extent has culverting been used in the County to contain intermittent or perennial streams except at road or driveway crossings? Analyze the effects of prohibiting any such culverting and, instead, maintaining natural vegetated drainage swales that would have the added benefit of filtering pollutants and slowing down flows, which would be in accord with the TAC recommendations.

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What sort of filtration systems, if any, are now used or required to filter runoff from parking lots and off roads? Explain how they work to remove pollutants before the runoff enters surface waters. If not already required, explain why they should not be.

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Explore the possible use of requiring permeable paving, such as "turf blocks" or gravel, in appropriate places, with the benefit of increasing infiltration and reducing runoff, especially that associated with vehicles, as driveways and parking lots might be a place for

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this approach to be used.

CONSERVATION AND OPEN SPACE ELEMENT

GEOLOGY AND SOILS:

The principal geologic factors to be taken into account in urban planning and development are...soil types and characteristics, earthquake faults, potential landslide areas, land subsidence, and natural resources [e.g., prime agricultural land, mineral resources].\*

---H. G. Crowle in Engineering Geology in the Urban Environment, proceedings of a symposium, 1969. U.S. Geological Survey (Dept. of the Interior) and Office of Research and Development (Dept. of Housing and Urban Development).

SOILS. Protection of agricultural and timber soils is very important for both industries and is discussed further later under the Agriculture and Forestry section. As stated there, soils form over geologic time scales, not human time scales. Soils have been greatly abused in El Dorado County since the advent of European man. Mining activity was particularly devastating. (See paragraph 4 under discussion of the Economic Development Element.)

Depth of soil, which filters out pathogens, is an important factor in the disposal of wastewater on septic system-dependent sites. We address the issue of soils with respect to this topic under Wastewater in the Public Services and Utilities section.

Soil erodability and slope stability are important considerations in construction and grading activities in order to protect water quality. Expansion potential of soils (dependent upon the clay content present) is also an important consideration for building activities.

The DEIR should describe the regulatory framework within the County governing construction and grading activities. What are the governing rules and standards? Who permits such activities? Who enforces adherence to the rules? What differences exist, if any, between public and private roads relative to the regulatory framework?

What is the potential for erosion of the soil series found in the County? How is this potential affected by steepness of slopes? The DEIR should include the table of maximum slopes for different soil types that was developed by the District Conservationist of the Resources Conservation District based on erosion potential (letter to Planning dated 25 Oct 1994). Is this information used by the County in reviewing development proposals throughout the County and, if so, how does it influence decision-making? If it is not used, or its use is limited to certain areas only, the DEIR should explain why this is the case.

We believe that within the Tahoe Basin, the need for a grading permit is triggered at 3 yd<sup>3</sup>, while the County's standard for elsewhere is 250 yd<sup>3</sup> or 10,000 ft<sup>2</sup>. The DEIR should evaluate the

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merits of a lower limit. It should also discuss how precautionary measures for disturbance of naturally-occurring asbestos(see also under Public Health and Safety) will be enforced in the absence of a need for a permit for disturbance of smaller amounts and areas.

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Is the Natural Resources Conservation Service regularly offered the chance to review development proposals for potential soil-related problems such as erosion hazard, suitability for septic systems, and expansiveness? How is this activity funded? Are funds adequate to enable careful review of all such proposals? If not, what portion do receive careful review? Does it have any authority relative to decisions?

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The DEIR should justify whatever standard is presented for allowable steepness of slopes on which development can take place.

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*GEOLOGY.* The DEIR should describe the geologic setting of the County and present maps. Known earthquake fault zones should be included in both description and mapping, as well as known occurrences of serpentine and of tremolite, which has been found in the County outside of serpentine areas. For discussion of possible dam failure, please see the section herein on Dam Failure under Public Health and Safety.

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Relative to mineral resources, the DEIR should discuss the historical occurrence of mining activity in the County and the kinds of minerals thereby known to have occurred. Current mining activity also should be described.

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The DEIR should include the Exploration and Mining Activity map mentioned on p. V.7-15 of the DEIR on the 1996 General Plan. Abandoned mines should be included thereon, and a list of same presented in the DEIR. Risks that might be associated with such mines, such as mercury contamination, should be described, along with any County program to mitigate those risks. Note that the earlier DEIR made mention of an old asbestos mine but did not identify its location. Also, the recent cave-in of an abandoned mine in the City of Placerville raises the possibility of other occurrences of this nature.

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The regulatory framework, both state and local, governing mining activity should be described completely for both surface and below-surface mining, including requirements for reclamation. The State's program, through its Mineral Land Classification maps, for conserving mineral resources should be included. The County's Measure A and its effects also should be described.

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The status of reclamation activities should be described—what mines have them, the status of each mine's fulfillment of reporting requirements, and the status of reclamation efforts.

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The DEIR should discuss the sources in the County of construction aggregate and how the problem of new sources will be solved in the proposed General Plan.

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In accordance with Government Code Sec. 65302(g), the General Plan should include maps for "known seismic and other geologic hazards". The DEIR should analyze these

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maps.

**BIOLOGICAL RESOURCES**

**GENERAL** The DEIR should describe the natural setting of El Dorado County relative to wildlife and plants and how this has changed over time, leading to listing of species under both state and federal law as endangered or threatened and/or so-called "sensitive" species and candidates for listing. It should identify all these species and describe their ranges and habitats, and trends in populations. In the case of easily mobile animals that migrate seasonally, needs for suitable habitat at different life stages could vary considerably; all such habitat needs should be considered as to both quantity and quality.

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The DEIR should analyze whether and how the proposed General Plan will contribute to fragmentation of habitat and how this will affect native wildlife and plants. How likely is the plan to result in listing of additional animals or plants in the coming years? This analysis should be made for all alternatives presented and trends discussed for each species.

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**WTLDLIFE.**

*"Adequate assessment of the potential responses of all these species to alternative land and resource management programs requires an up-to-date data base on the habitat requirements and basic life history of each species."*

*—Jared Verner and Allan S. Boss, in California Wildlife and Their Habitats: Western Sierra Nevada. U.S.D.A., U.S.F.S., Pacific Southwest Forest and Range Experiment Station, 1980.*

The DEIR should discuss the contribution of deer herds to the economy of the County. It should present regulatory framework and responsibility for managing the deer herds of the County. It should identify the different deer herds recognized by the Department of Fish and Game and discuss their ranges and current condition thereof, current condition of the herds, including population estimates and trends,

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Discuss the human-related impacts on deer, including of roads and road kill, poaching, fragmentation of habitat, loss of forage (such as destruction of oaks, alteration of habitat by grazing of domestic animals). Ways of protecting deer-migration corridors and designated and critical winter ranges should be analyzed. The Department of Fish and Game recommends, for the latter two, parcels of at least 20 and 40 acres, respectively. Discuss the impacts of smaller parcel sizes on deer.

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**WETLANDS, STREAMS, AND RIPARIAN AREAS**

*"If we fail to save the wetlands, we will be losing more than an economic and aesthetic asset that can never be recreated. The loss may also signal an impending and crushing defeat in the larger effort to maintain an environment that civilized*

man can inhabit."

—William Saxbe, U.S. Attorney General, Tarpon Springs, Florida, 18 Jul 1974.

Water is the foundation of life. Wetlands perform many "free" functions for us. According to the 1994 *Report of the Technical Advisory Committee on Hydromodification, Wetlands, and Riparian Areas* (State Water Resources Control Board, Nonpoint Source Control Program; hereinafter the "TAC Report"),

"Wetland and riparian areas provide important natural functions, including aquatic habitat, associated terrestrial habitat, pollutant removal, flood retention, bank stabilization, groundwater recharge, and recreation. These functions are particularly critical in arid regions like California. Yet California has lost a higher percentage of its wetlands than any other State, as well as much riparian habitat [emphasis added]."

Moreover, they provide habitat and food for plants, birds, and other animals. Loss of wetlands has been an important contributor to the fact that some 25 % of the plants and 55% of the animals "designated by the state as either threatened or endangered have wetlands as their essential habitat" (*California's Changing Landscapes*, Barbour, Pavlik, Drysdale, and Lindstrom, 1992).

Rivers supply us with water for drinking and household tasks, and for growing our food, and for conducting our businesses. They store power in their flows that we harness to make electricity. They support fisheries that give us recreational pleasure as well as food. They support the aquatic ecosystem that, in turn, supports those fish. They offer opportunities for swimming, boating, rafting, kayaking, and, as do all wetlands, give us aesthetic enjoyment.

Despite all these virtues, we have abused both wetlands and rivers and streams. We destroy our wetlands---the EPA in 1995 calculated that California had lost 99% of its wetlands. It is nearly impossible find in California a natural free-flowing river unaffected by dams, hydropower development, or the discharge of wastes to be taken "away". Many native fishes are extinct or severely reduced in numbers.

The DEIR should describe the County's hydrological setting in detail. It should also discuss how this has changed in historical times.

The condition of the native and planted fisheries should be described. How have these changed over time? (For instance, the place name Salmon Falls presumably indicates that salmon once migrated at least that far upstream.) Which kinds of fish now found in the rivers and streams are native and which introduced? How far upstream were fish present before planting programs were introduced to mountain lakes? What conditions enable planted fish to survive and reproduce? Where do these conditions obtain and where must replanting occur? How has introduction of fish into the higher elevation lakes affected other members of those ecosystems?

How were the County's lakes and streams and their aquatic ecosystems affected by mining activities, including hydraulic mining? By the dams and diversions of water that began to supply mining activities and communities? By later, larger dams and diversions? By logging and grazing activities? By roadbuilding?

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How have instream flows been affected by diversions and/or pulsed flows because of hydropower releases, and how have fisheries and the aquatic and riparian ecosystems been affected?

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Describe the regulatory framework in which protection of wetlands and rivers and streams operates. How is discharge to or alteration of wetlands and rivers and streams regulated?

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The DEIR should include a map of the County's streams and wetlands, together with the County's criteria for identifying the latter. As the California Department of Fish and Game uses criteria developed by the U.S. Fish and Wildlife Service (see Sec. 703 of the Fish and Game Code), if the County uses other criteria, it should justify why this is the case. The County uses Corps of Engineers criteria for identifying wetlands.

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The California Department of Fish and Game applies a policy of "no net loss" to its review of discretionary projects. "No net loss" was also a policy of the Bush I and Clinton administrations. (We don't know about any policy of the Bush II administration.) How do policies in the proposed General Plan or any of its alternatives reflect a policy of "no net loss" of wetlands?

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The County's grading ordinance states (Sec. 15.14.610 (D)), "Wherever possible, natural features, including vegetation, oak trees, terrain, watercourses, wetlands and similar resources shall be preserved. Limits of grading shall be clearly defined and marked to prevent damage by construction equipment. Wetlands and oak trees shall be protected from construction activity as described in the Design and Improvement Standards Manual." The DEIR should analyze the effectiveness of enforcement of this provision. It should also clarify the reference to the Design and Improvement Standards Manual, in our copy of which we were unable to find the protective measures referred to.

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Please assess and quantify losses of wetlands and alterations of streams that have occurred or been authorized to occur in the County over the last 25 years. Identify what replacement mitigation, if any, has occurred and where and how far away it was from the area lost.

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The DEIR should analyze the effectiveness of no-disturbance setbacks for streams, rivers, lakes, ponds, and wetlands in protecting the biological integrity of these assets. Included in this analysis should be assessing a suitable width for such setbacks (including gauging it by reference to riparian vegetation, as well as by reference to high-water mark), and of varying the width according to topography, the nature of the substrate, the biotic ecosystem of the feature and possible need of some of its members for upland habitat at times in their life cycle. Please discuss the desirability, in view of all the factors that could come into play, of having the size of such setbacks determined by a professional on a site-by-site basis.

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In the Owens Valley, increased groundwater pumping for export to Los Angeles cause widespread demise of surface vegetation. What are the implications of increased groundwater

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pumping connected to growth supported by the proposed General Plan for decreased contribution to surface waters (streams, rivers, wetlands) and for the well-being of the vegetation and wildlife dependent thereon?

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**BOTANICAL RESOURCES:**

*"California became known as the land of flowers from the time the first explorer set foot here. Explorers and others who followed were amazed by the wide range of plant types, including trees, shrubs, perennials, bulb plants, vines, succulents, grasses, and nonflowering plants. They soon discovered that, while some of these plants were similar to those of their homeland, many were new to them. ...Many of California's wild plants...were brought into cultivation as early as the late 1700s, when explorers sent seeds and cuttings to their home countries. Gardeners in the British Isles, especially, have deep admiration for many of our native plants...."*

—Marjorie G. Schmidt, *Growing California Native Plants, 1980*

Volume II, Background, presents a very sketchy overview of animal species found within the County but does not similarly discuss its native plants before going to lists of sensitive and endangered, rare, and threatened species.

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Thus, the DEIR should describe the botanical wealth of the County, including the many different types of plant communities that result from the different soil types, elevational ranges, topography, and climatic variation that occur within the County. It should discuss the uniqueness of the Pine Hill Intrusion and the various serpentine islands and how they have contributed to the botanical diversity found in the County.

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For the plants in the two lists in Volume II, the DEIR must provide information about range, both historical and present, and habitat needs. Population trends should also be given.

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The DEIR should explain how development activity contributed to causing the listing of the gabbro-soil plants under federal and/or state law, thus leading to the establishment of a system of Ecological Preserves.

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The DEIR should describe the ecological preserve system established to protect the gabbro-soil rare plants. How do acquired lands and those recommended by the U.S. Fish and Wildlife compare? Is more acquisition needed? What provisions have been made for effective management? Who is responsible? How are acquisitions being funded? How will be or is management being funded? How might management techniques affect local landowners if they assure long-term ability of natural processes to occur? How can any effects be mitigated?

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What development plans exist for parts of the Pine Hill Intrusion and how might they affect the well-being of the gabbro-soil plants?

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What protection, if any, exists for any of the listed species that are not gabbro-soil plants? How can this situation be remedied?

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What plant communities are present that have experienced decline under human influence, where are they found, and what measures exist to protect any of these?

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Oak woodland is one such community that is very important for many reasons, to both native animals and to humans, especially in the western parts of the County that have been experiencing rapid growth.

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The DEIR should discuss and analyze the many benefits of maintaining and augmenting tree cover, including conservation of energy (see also the discussion under Electricity in the Public Services and Utilities section) through providing shade and cooling, serving as a carbon sink relative to global warming, producing oxygen, attenuating noise, providing habitat and food for various forms of wildlife, attenuating the impact and augmenting the infiltration of precipitation and thereby reducing runoff and erosion, enhancing visual appeal and thereby increasing property values, and contributing to the natural amenities that attract visitors and business.

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It should in particular discuss the gradual eradication of the County's oak woodlands and the reasons therefor, quantifying losses. It should discuss their statewide reproductive problems and the new threat posed by Sudden Oak Death, the disease that has been devastating coastal oaks, and the possibility that this plague might make it across the barrier of the Central Valley to the foothills, where some of the susceptible species, such as *Quercus kelloggii* and *Lithocarpus densiflora*, occur. It should describe the regulatory framework within which these effects have occurred and explore possibilities for reducing or halting the losses and, especially, maintaining continuity between stands so as to provide corridors for movement of animals to meet their life needs.

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The DEIR should analyze the merits of incorporation of a tree ordinance into the proposed General Plan that acts to maintain native trees and connections between stands. It should analyze standards for retention of canopy, such as those recommended by the California Department of Forest and Fire Protection's Urban Forestry Program, versus standards for replacement of trees removed in the course of implementing development proposals.

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The DEIR should include an inventory of especially large/old or historically significant trees ("heritage trees"), and identify a way of protecting them through a parcel-based computerized database or other means.

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Serpentine chaparral is another significant plant community in the County that is often home to special kinds of plants, including several in the "sensitive" lists of Volume II. This plant community to a large extent occurs in that part of the County undergoing particularly intensive development. The DEIR should discuss how this plant community would be affected by development as proposed in the General Plan. To what extent would the preserve system

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for the gabbro soil plants afford any protection?

Human activity of one kind or another has contributed greatly to the spread of such aggressive noxious weeds as Yellow Star Thistle that can outcompete existing vegetation. The DEIR should quantify the spread of this weed over the last ten years and analyze factors that have contributed to this spread, such as soil disturbance leading to colonization, introduction of seed in animal feed and on grading and road-maintenance equipment, etc. What measures have been or are being used to control and reduce its occurrence and how effective have they been? How is it expected that further development under the proposed General plan will affect spread of this plant?

Do the same for other noxious weeds in the County, such as Klamath Weed, Italian Thistle, and Scotch Broom.

**CONCLUSION**

*"Human settlement can fit within ecological systems without disrupting their structure and function, but ecological systems cannot be maintained with only the scattered patches that remain after human settlement without regard for the structure and function of ecological systems. The spatial arrangement of wildlands is an important determinant of the long-term viability of maintaining ecological function in the landscape."*

—Timothy P. Duane, *Shaping the Sierra, 1999, p. 319*

*"The agencies could undertake cooperation [like that which exists to provide fire protection] for implementation of ecologically sensitive resource management..., but they have not..."*

—SNEP Final Report to Congress, Vol. 1, 1996.

It is a quandary how to arrest the continuing decline of the natural amenities that contribute so much to the appeal of the county as a place to live. The proposed General Plan should include policies contributing to maintaining the health of plant-wildlife communities and arresting the decline of those whose populations are trending downwards. Approaches to be examined should include at least:

- Analysis of the effects on plant-animal communities of a range of land-use densities.

- Requiring that every discretionary development proposal include a plan to protect and enhance habitat with the goal of enabling long-term sustainable populations of native plants and animals. Long-term management and monitoring would have to be provided for.

- A commitment on the part of the County to avoid degrading sensitive wildlife habitat if at all possible and, if not, to require off-site mitigation of at least the same amount of habitat *near* the affected project area. Any habitat involved in such off-site mitigation to

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be protected, enhanced, or created must be like or similar to that being affected. If habitat is to be created, likelihood of success shall be demonstrated prior to allowing destruction of existing habitat. Long-term management and monitoring would have to be provided for.

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- Requiring a canopy-retention standard (mentioned previously) that would afford benefits also to dependent animals. Analysis here should include also effects of the various alternative general plans set forth.

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- Development of a county-wide multi-species Habitat Conservation Plan to protect the ecological integrity of natural lands. It should allow for adaptive management and be accompanied by memoranda of understanding with various "stakeholder" state, federal, and citizen entities, such as the Department of Fish and Game, the Department of Forestry and Fire Protection, the Park Department, the U.S. Fish and Wildlife Service, the U.S. Bureau of Land Management, the U.S. Forest Service, the American River Conservancy, and the California Native Plant Society, to coordinate management activities. Such a plan would include an overlay, continually updated, comprising important habitat, deer migration corridors and critical range, streams (both perennial and intermittent), wetlands (including vernal pools), riparian habitat, percentage of tree canopy, areas where sensitive species occur, and ecological preserves.

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- Creation of a Technical Advisory Committee comprising professionals and members of the public with expertise in plant and wildlife issues to advise responsible on these issues and to make periodic reports on effectiveness of programs to maintain native plant and wildlife habitat in a condition conducive to long-term sustainability of populations.

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- Using Development Agreements, zoning ordinances, and/or plan amendments to protect contiguous blocks of habitat through consultation with state and federal "stakeholder" agencies and the Technical Advisory Committee.

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## OPEN SPACE

*"Although...open space is usually thought of as providing recreation, it serves many other purposes as well. Open space can provide beauty, privacy, and variety; moderate temperature; and create a sense of spaciousness and scale. It can protect a water supply; provide a noise and safety buffer zone around an airport; or substitute for development on unsuitable soils, in flood plains, or in earthquake zones."*

*—Council on Environmental Quality, Environmental Quality, 1973*

*"[C]onservation lands [should] be located or configured so they would ultimately become part of a community-wide network of interconnected open spaces.... They should also be used to buffer existing protected areas, such as any public parks, forests, or game lands, as well as preserves or eased lands protected by private conservation organizations such as land trusts."*

—Randall Arendt. *Growing Greener*, 1999

*"[O]pen-space elements contained within [general] plans have an enormous potential to foster conservation of important areas and resources."*

—SNEP Final Report to Congress, Vol. I, 1996.

The DEIR should identify and map present open space in the jurisdictional part of the County. It should then analyze the purposes that this open space might or does serve. These include such purposes as habitat for native plants and wildlife (the ecological preserves), agriculture pursuits, provision of buffers between conflicting uses, protection of wetlands and known groundwater recharge areas, protection of river canyons and riparian corridors, protection of water quality, protection of natural resources such as important stands of trees (and a County-wide Habitat Conservation Plan), protection of public safety (as flood zones, mitigation of fire hazard), protection of scenic corridors and vistas, provision of "community" open space (such as a "town plaza") to bring people together, provision of recreational opportunities (both active, such as ballfields, rafting; and more passive, such as picnicking, birdwatching), buffering between conflicting land uses, protection of burial grounds.

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The DEIR should analyze how such open space contributes to quality-of-life amenities, and the extent to which these are important factors for residents, tourists, and in attracting new business. Analyze how these amenities influence property values.

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Explain the method, if any, by which the County keeps track of conversion of open space to other uses.

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The DEIR should explain what strategies the General Plan contains for setting aside open space and what policies, if any, guide a systematic approach to doing so. How does it identify lands to be included in open-space set-asides? Include techniques such as clustering development, transfer of development rights, purchase of development rights, development agreements, requiring some portion of each development proposal to provide a minimum amount of open space, etc.

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Analyze the merits of creating a Regional Park and Open Space District and discuss possible funding methodologies.

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Evaluate protecting viewsheds by policies prohibiting new building on ridgelines, requiring utilization of topography and existing vegetation (or planting native fire-resistant vegetation) as barriers to viewing houses and driveways from public roads, and minimizing allowable cut-and-fill.

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For all alternatives of the General Plan, the DEIR should analyze and evaluate impacts on the ability of open space under different land-use densities to:

- provide biologically meaningful protection to natural resources, including wildlife corridors and critical habitat
- maintain agricultural uses

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- provide and protect recreational opportunities and their related contribution to the economy of the County
- provide separation of communities (greenbelts, along with urban limit lines) through lower land-use densities
- protect scenic corridors
- protect public safety
- protect water quality
- protect historical & cultural resources, such as old cemeteries



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### AGRICULTURE AND FORESTRY ELEMENT

Agriculture:

*"Visualize a strip of land half a mile wide stretching from New York to California. That is one million acres—the amount of important farm land converted to other uses and irreversibly lost to agriculture every year in the United States."*

—Council on Environmental Policy and USDA, National Agricultural Land Study, 1981.

Agriculture began in the early years of the County's history to supply the needs of the 49ers and has continued to this day though it changed throughout that period and continues to change now. Agriculture and mining both contributed to the creation of the County's present water delivery system. Agriculture remains an important contributor to the economy of the County, as well as to its rural quality, and should be protected from pressures to succumb to sprawling residential growth. Agricultural lands are non-renewable resources.



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For agricultural use, soils are commonly divided into Capability Classes, ranging from I (best, and unrestricted in use) to VIII (severe limitations such that their use is limited to recreation, wildlife habitat, water supply, or aesthetics). Appropriate management techniques can, however, mitigate some limiting factors though, even so, only Capability Classes I through IV are considered amenable to cultivation. According to the soil survey published in 1974, El Dorado County has no soils in Capability Class I. Class II is only sparsely represented, comprising only 4447 acres and 0.6% of the total 539,065 acres covered in the soil survey. These soils are considered to have moderate limitations that reduce choice of plants and require moderate conservation practices. Class III soils comprise a little over 32,000 acres and 6.1% of the surveyed area. They are considered to have severe limitations that reduce choice of plants and/or require special conservation practices. Class IV soils comprise somewhat over 85,000 acres and 15.5% of the surveyed area. They are considered to have very severe limitations that reduce choice of plants and/or require very careful management.



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Thus soils amenable to cultivation in the surveyed area, even with very careful management, encompass only about one fifth of the total area. For the future of the agricultural base of the County, it is thus very important that these soils still in agricultural uses today be protected from conversion to non-agricultural uses.



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The Important Farmland Mapping Program is a program operated out of the State's Department of Conservation to encourage protection of agricultural lands. Under it, every two years, commencing in about 1984, primarily utilizing aerial photographs, the department inventories agricultural lands in each county and classifies them as "prime" farmland, farmland of "statewide importance", "unique" farmland, and farmland of "local importance". The 1990 figures for El Dorado County showed 1185 acres in prime, 914 acres in statewide importance, and 4362 acres in unique (Apple Hill was mentioned as an example of the latter).

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Does El Dorado County effectively participate in the Important Farmland Mapping Program? How have the acreages in its categories changed since 1980?

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The DEIR should describe the present state of agriculture in the County, the crops and the acreage devoted to each, the contribution of each to the economy of the County, and how they have changed over time. It should describe the "Farm Trails" program, identifying, in general, where the participating farms are located.

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Of the jurisdictional part of the County that is subject to the proposed General Plan, what part is agricultural lands and how has its quantity changed over the last 30 years? What factors have contributed to this change?

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How does encroachment of suburban land uses affect agriculture? How can the adverse impacts be prevented?

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Agriculture generates revenues for the County, while homes generally generate a demand for services that taxes fail to fund completely; how, then, does conversion of productive agricultural land to subdivisions affect County coffers in the long-term? Include the monetary contributions of tourism attracted by such as Apple Hill and the other products available on the "Farm Trail" program.

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How does agriculture contribute to the County's economy, through employment, and through "recycling" of associated income?

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Describe the functions agricultural land performs that are not subject to easy conversion to monetary value, such as open space, scenic vistas, habitat for wildlife, and separation of communities. Would El Dorado County seem "rural" in its absence?

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Explain the workings of the Williamson Act as a way to protect agricultural lands. Please identify the total acreage and show location and status on a map. How much acreage is in Williamson Act roll-out and what are the associated timelines? What is the acreage of Prime, Statewide Importance, Unique, and Local Importance farmlands to be affected by the General Plan? How much acreage is grazing lands?

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How has extension of infrastructure, such as water and sewer lines, into agricultural areas affected value of agricultural lands, ability to continue agricultural activities with the spread of residential developments, and, ultimately, conversion of such lands from

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agricultural use?

Does the County monitor loss of agricultural land and, if so, by what mechanism? What trends are seen? Does it make reports to the State Department of Conservation's Important Farmland Mapping and Monitoring Program on such changes? Does the County have any threshold for concern at loss of agricultural land? Does the County try to minimize loss of agricultural land? If so, by what mechanisms and how well do they work? Evaluate the effectiveness of a policy that would restrict location of public projects on or near agricultural soils.

With growing interest in vineyards in the County, from what source have the lands converted to vineyards been coming? From agricultural lands used for other purposes? From timber lands? From lands designated for residential use? Evaluate the potential for continuing conversion to vineyards?

Evaluate the importance of small-farm activity in the County, where the activity is not the primary source of family income, but rather a supplement to it. How much acreage is involved? How much does this kind of activity contribute to County coffers and to overall economic activity?

Identify what programs the County has to help agriculture with advice about Integrated Pest Management, advice about timing and nature of use of irrigation water, and guarding against introduction of pests like the glassy-winged sharpshooter.

How much irrigated agriculture is there in the County today? How much acreage for what crops? What is the amount of piped water used and how has it changed over the last 25 years? What part is potable (treated) water and what part raw water? To what extent are wells used as a source of irrigation water?

How has availability of water for agriculture been affected by residential growth? As part of the Central Valley Project, was Jenkinson Lake built primarily to supply water for agriculture? What portion of its storage capacity was originally committed to this purpose? Over time, was the El Dorado Irrigation System required to recommit to supplying any particular portion of Jenkinson Lake's storage capacity to agriculture? What has been actual usage over the last 25 years? With authorization by Congress for EID to purchase Jenkinson Lake, how is EID's commitment to serve water to agriculture from Jenkinson Lake expected to change, if any.

If residential growth has been consuming an ever increasing part of EID's water supply, how does EID expect to make up for this deficit?

EID is phasing out its so-called Domestic Irrigation rate. Analyze the effect this will have, if any, of small-farm production?

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**Forestry:**

*"Forests are the 'lungs' of our land, purifying the air and giving fresh strength to our people."*

*—Franklin D. Roosevelt, 29 Jan 1935*

*"Liquidating old growth is not forestry, it is simply spending our inheritance. Nor is planting a monoculture...forestry; it is simply plantation management."*

*—Chris Maser, World Watch, Jul-Aug 1990*

*"In a review of the application of best management practices [under the California Forest Practices Act of 1973], adequacy of protection could not be fully evaluated because practices were not applied in many cases."*

*—SNEP Final Report to Congress, 1996.*

According to historical accounts, virgin coniferous forest originally covered much more of the County than it does today. *The Utilization of El Dorado County Land*, University of California Agriculture Experiment Station Bulletin 572, 1934, states, "It seems apparent that the...forest formerly extended down to as low as 1,000 feet in elevation...." Studies of dredging debris (*A Comparative Evaluation of the Natome Ground Sluice Diggings, Folsom, California*, Lindstrom, EIP, 1988) even found an occasional remnant ponderosa pine predating mining deposits as low as 500 feet in elevation. There was a shingle mill at Shingle Springs that took advantage of a forest, according to pioneer accounts, consisting of ponderosa and sugar pine and incense cedar. That forest is long gone today. Evidently the logging practiced then was not done in a sustainable way, even though Bulletin 572 warned against just that. This lesson seems to be hard to learn even to this day as mills close and logging declines.

281-995

Both private and U.S. Forest Service lands provide trees for the logging industry today. The County has jurisdiction only over the former. **The DEIR should describe the regulatory setting relative to these lands with respect to the Forest Practices Act and the California Department of Forestry and Fire Protection. What of jurisdiction relative to erosion and sediment control, use of pesticides, and effects on watercourses?**

281-996

**The DEIR should analyze the degree of application of best management practices within El Dorado County on private lands (see introductory quote) and the effects of lack of full adherence to these.**

281-997

**How much acreage is involved in jurisdictional private coniferous timber lands? Do any of these lands have virgin stands? What percentage is old growth, second growth, third growth? How much revenue do they produce for County coffers? What is the overall contribution to the County's economy?**

281-998

**What of non-coniferous lumbering? What kinds of trees besides conifers support any industry? What kinds of industry? Answer the same questions as in the prior paragraph for coniferous lands.**

281-999

Soil formation depends upon several factors: climate, organisms, relief, parent material, and time (expressed in the formula "CLORPT" of soil science). Soil forms in a geologic time frame. Logging removes from the growing site materials that, left to nature, would be recycled to contribute to and augment soil formation and fertility. In some parts of the world, experience has shown that soil depleted by cutting and recutting eventually will no longer support growth sufficient to provide another cycle of cutting in a "reasonable" time on human scale. **The DEIR should analyze this effect and its consequences for our rate of consumption of timber.**

281-1000

**Deforestation has many other environmental consequences, which the DEIR should analyze.**

281-1001

**Does the County have any program to protect against accidental introduction of the fungus that is now devastating oaks and some other species in coastal forests? (Black oaks are known to be susceptible.)**

281-1002

**What of privately-held inholdings within the Eldorado National Forest? What unique problems do they present from the view of either the County or the ENF? Answer the same set of questions as in the second paragraph above. Do the County and ENF have a mechanism for collaboration in addressing these problems? If so, what is that method and what have been the results?**

281-1003

**How many people are employed in direct extraction? How many people are employed in added-value activities?**

281-1004

**Who are the owners of these lands, by acreage, naming corporations and giving numbers of small owners?**

281-1005

**What cutting methodologies are used? What percentage is clear-cut and what is selectively logged? What are the pros and cons of each method? What are the impacts to the land and to waters that might be affected by increased erosion and runoff? What regulations, if any, are specific to each methodology?**

281-1006

**What portion of these lands are replanted and managed for eventual recutting? What is the anticipated time span before the next cutting? What portion represents only a "standing resource" that occasionally is cut to supplement the owner's income? What portion of the latter category is cut in the course of conversion to another use, and to what use? Does the need for a Timber Harvest Plan apply to both kinds of harvesting?**

281-1007

**The 1973 Z'Berg-Nejedly Forest Practices Act, in Section 4516.5, gives counties authority to make local rules governing timber harvesting on private land and several have done so. For example, San Mateo requires a 100-foot buffer from existing homes, and this has undergone judicial review. Has the County considered implementing special rules, or is it doing so, with a goal of ensuring continued viability of the industry, protecting water quality, or protecting public safety within the County? If not, why not? Analyze what new regulations might be beneficial, including the possibility of requiring retention of at least 50 percent of both**

281-1008



overstory canopy and understory vegetation along riparian corridors.

How much acreage is covered by now-deforested land that has a potential for again growing timber? (The map in Bulletin 572 could help to identify such lands.)

By what mechanisms does the County protect timber lands for that purpose? How does land parcelization affect the ability and/or intent to restock? How does the spread of residential development and infrastructure affect the likelihood of conversion of such lands to residential purposes? Does the County track conversion of such lands and to what uses have such conversions occurred? What have been the trends over the past 25 years?

How does spreading residential development affect the economic viability of timber management on nearby lands?

To what extent have timber-market vagaries influenced the spread into forested areas of year-round homes that originated as vacation homes? How has this affected demand to split land into smaller parcels? How has the relative remoteness of such homes affected the demand for and provision of services? Evaluate the potential for continued growth of such relatively low-cost land. How many such parcels are there? What mechanisms, if any, are there for the collection of impact fees relative to development of such land? How can such growth be mitigated?

There is increasing recognition among ecological economists and others that trees offer many "free" services to humans that are difficult to evaluate in the traditional way of dollars and cents. Among these are aesthetic values (along with habitat and food for various creatures we enjoy), cooling with their shade and transpiration, moderating the force of precipitation and thus inhibiting erosion and sedimentation, helping infiltration through the pathways afforded by their roots, assist in the formation of new soil by furnishing organic matter through leaf litter, and cleansing the air of pollution while serving as a carbon "sink" to mitigate our exuberant consumption of fossil fuels and thus moderate global warming. Some of these services contribute to the value of our property (aesthetics); others directly save us money (e.g., savings in cost of energy); others are services that too few of us are even aware of but would sorely miss were they not there.

The DEIR should, therefore, evaluate mechanisms by which the County could control the cutting of privately-owned trees on residential lots. Does it have any mechanism for encouraging the planting of trees? Evaluate any program or standards for retention of trees during subdivision development.

Evaluate how the proposed General Plan will act to maintain viability of this industry through whatever means, including but not limited to consolidation of parcels, prevention of further splitting, and minimizing conflict between timberlands and residential uses;

281-1008



281-1009



281-1010



281-1011



281-1012



281-1013



281-1014



281-1015



**PARKS AND RECREATION ELEMENT**

*"[P]arks are at the center of a community's character; they reflect and strengthen the sense of place and identity that make cities fit places for people."*

*—Conservation Foundation, 1972*

*"[I]n almost every city studied, decision-makers have ignored this fundamental need...."*

*—Charles E. Little and John G. Mitchell, Space for Survival, 1971*

Describe the existing structure of the County's Parks and Recreation program. Is it still under the General Services Department rather than as a separate department? How does this affect its stability and security relative to having the ability to do adequate planning?

281-1016

State the various jurisdictions within the County that have any jurisdiction and responsibility for providing parks and recreational opportunities and detail how they interrelate in functioning.

281-1017

There is perhaps a tendency to believe, because of the quantity of public lands that exist fairly close to the settled part of the County, recreational needs are taken care of. But these lands do nothing to meet the needs for facilities like playing fields, or even a "green spot" to which a harried parent can escape with a child for a short time, or a family can adjourn to for an outdoor meal in pleasant surroundings where the children can run and explore. Perhaps this attitude is why, at the time of the 1996 General Plan, parks and recreational facilities were so inadequate in the County that many residents utilized recreational facilities in the City of Placerville, causing overcrowding. With increasing County population, the shortfall of nearby parkland will be exacerbated.

281-1018

What County plans for parks and recreation exist? How often are they updated? When were they last updated? What funding sources are available and are they sufficient for all needs? What opportunities for interagency cooperation exist? What has been agreed to by all parties?

281-1019

Identify all park lands in the area of jurisdiction of the General Plan, including neighborhood, community, and regional parks. Include acreages and correlate with population served. Derive an acres-per-1,000 people served figure and compare it with the standards of the City of Placerville for adequate park lands.

281-1020

Identify the user-groups that this network of parks is intended to serve. What recreational opportunities, including both passive and active, are offered?

281-1021

Are there impediments to making dual-use of sports fields at schools for non-school recreation on weekends and during vacation periods?

281-1022

Are there any regional parks? Evaluate the potential for a regional park at the Texas Hill Reservoir site, where the added purpose of separation-of-communities would be served.

281-1023

Is it still contemplated for a regional park? If not, why not?

281-1023

Evaluate the potential of Bass Lake as a regional park, with due consideration to protecting the bald eagles that utilize it.

281-1024

Buying land at inflated prices after development has been approved is a costly way of meeting needs for park lands. Has the County used Conditions of Approval and Development Agreements as means of augmenting the shortage of local and community parks? If not, why not? The DEIR should identify those areas of the County where park acreage standards are not met and discuss ways of remedying the situation.

281-1025

Offering alternative means of transportation is a way of reducing dependence upon the automobile and of alleviating the average number of trips on local roads generated each day per household. Is there a trails master plan? How often is it updated and when was this last done? What user-groups is it intended to serve? What specific policies guide its evolution? For example, does it provide for linkages to schools, parks, open space, employment and shopping centers, state and federal trails (e.g., National Historic Trails)? Are routes, especially for schoolchildren, separated from traffic by setbacks? Identify those routes that would require improvement in this regard. Is secure storage for bicycles at destination points allowed for?

281-1026

What funding sources and opportunities for interagency cooperation are available?

281-1027

What opportunities exist for protecting and utilizing existing and abandoned rights of way, including old ditches, utility corridors, etc., to add to the trails network?

281-1028

What is the status of the old railroad right-of-way acquired under the federal Rails-to-Trails Act? What has been the delay in planning for its use? Why has the County contributed to its destruction by changing grades and paving over crossings, removing track, building the Ray Lawyer Drive overpass too low to allow passage of an engine underneath, and planning the use of a portion for a connector road between Missouri Flat Road and Pleasant Valley Road? Has the County expressed any opposition to destruction of the link this right-of-way affords for a trail through Placerville for the purpose of adding an east-bound lane to Highway 50? If not, why not? What alternative link is available? Did the County approve variances for constructing housing close to the right-of-way south of Highway 50 in the western part of the County? If so, why did it do so?

281-1029

Has the County used Conditions of Approval and Development Agreements as a means of adding to the trails network in the County? If not, why not?

281-1030

Has the County maintained an inventory of dedicated trails and easements for trails acquired as a result of discretionary land-use decisions? Please include a list.

281-1031

ECONOMIC DEVELOPMENT ELEMENT

"Growth is an increase in size, while development is an increase in quality and diversity. Development increases the value of both public and private investments, while growth tends to require increases in these investments that may or may not increase value."

---Rocky Mountain Institute, "Paying for Growth, Prospering from Development", Summer 1995.

"Throughput growth is not the way to reach sustainability; we cannot 'grow' our way into sustainability. The global ecosystem, which is the source of all the resources needed for the economic subsystem, is finite and has limited regenerative and assimilative capacities. ...The path to sustainable future gains in the human condition will be through qualitative improvement rather than quantitative increases in throughput."

---Robert Costanza, et al., An Introduction to Ecological Economics, 1997

"Think globally. Act locally."  
---bumper sticker

The NOP omits mention of the Economic Development Element in its discussion of anticipated environmental impacts. But economic "development" is one of the major sources of such impacts. Economists long ago recognized that growth was limited by the laws of nature. But the belief that economic growth is "good" has become a mainstay of mainstream economists and, certainly, of popular belief. There appears a predisposition to this view in the NOP, which says, under "Q. Growth-Inducing Impacts", that the analysis "will focus on the ability of the proposed plan to foster economic growth, remove obstacles to growth, etc."

281-1032

But the laws of nature dictate that continued "growth" is impossible to sustain. There is an increasing body of economic thought, ecological economics, that recognizes that fact. Global warming is merely one manifestation of it.

281-1033

The history of the County's own economy demonstrates environmental destruction and a lack of sustainability. In the earliest years of the County's existence, mining and logging were the main activities. But easily obtainable gold was gone in only a few years, and hydraulic mining, turned to in an effort to capture less easily obtainable gold, destroyed land both where the water was applied and downstream where the sediments were transported and deposited. (G. K. Gilbert, a famous U.S. Geological Survey scientist working at the turn of the century, estimated their volume as over eight times the earth moved to build the Panama Canal.) Fisheries were devastated. E. A. Stevenson, Special Indian Agent, wrote in December 1853 to Thomas J. Henley, Superintendent of Indian Affairs (quoted in Robert F. Heizer's *The Destruction of California Indians*):

281-1034

"The rivers or tributaries of the Sacramento formerly were clear as crystal and abounded with the finest salmon and other fish. I saw them at Salmon Falls on the American river in the year 1851, and also the Indians taking barrels of these beautiful fish and drying them for winter. But the miners have turned the streams from their beds and conveyed the water to the dry diggings and after being used until it is so thick with mud that it will scarcely run it returns to its natural channel and

with it the soil from a thousand hills, which has driven almost every king of fish to seek new places of resort where they can enjoy a purer and more natural element."

In *The Natural Wealth of California*, T. F. Cronise wrote in 1868 about El Dorado County:

"There are numerous small valleys and alluvial flats in this county under cultivation--nearly all the cereals, fruits and vegetables grown in California being here raised with little trouble....Owing to the circumstance that many of the fertile valleys and flats here, as well as elsewhere throughout the mining counties, contained rich deposits of gold, they have been completely destroyed by having all their alluvial soil washed away by the miner. Thousands of acres of valuable land have thus been irretrievably ruined, El Dorado having suffered largely in this respect."

281-1035

Property destruction was so overwhelming downstream of mining communities that a federal court decision in 1884 essentially banned hydraulic mining. To this day its sediments clog the rivers, the Delta, and San Francisco Bay. The demand for mercury, used in the recovery of gold, denuded slopes around mercury mines with poisonous fumes and severely affected the health of its miners. Mercury still poisons Sierran watercourses today and vegetation around old mercury smelters is still scanty. Development of water resources for use in hydraulic mining permanently altered many a water course and its hydrological regimen. Its successor, dredging, left a landscape of mounds of water-worn stones that are a familiar sight today.

281-1036

Logging denuded the slopes. Shingle Springs got its name from a mill that used the extensive forests of ponderosa and sugar pine and incense cedar of pioneer accounts. These were cut to build and rebuild (after fires) Sacramento. Today those trees are essentially gone; regrowth remnants occur today within the boundaries of cemeteries and are scattered elsewhere. In the Tahoe Basin, the mountains were stripped for the building (and fueling) of the railroad and for the mines of the Comstock Lode, leaving today's forest of second- and third-growth and changed species to that it is considered especially vulnerable to fire.

281-1037

It is very probable that removal of these forests made the climate in summer both hotter and drier, and led to considerable soil erosion. At the same time, it interrupted the recycling of nutrients that accompanies natural death and decay, and thus would have affected soil formation.

281-1038

In recent years, recreation and tourism have come to be very important to the economy. That these activities are founded on the natural amenities that attract visitors and users has significant implications for a General Plan that supports economic development. The distinction made in the introductory quotations between "growth" and "development" is important to make and to understand, and the Economic Development Element should be rooted in such a distinction and understanding. This element is also important relative to any discussion of housing, population, and the jobs-housing ratio. At the very least, economic development requires land, water, infrastructure, and services, whether provided by governmental agencies or, as ecological services (such as carbon sequestration, nutrient recycling, and pollination), for free, by nature. It cannot be dismissed as of no account relative to environmental impacts and omitted from consideration in preparing a DEIR.

281-1039

Inclusion of an Economic Development Element in the General Plan implies intent to take an active role in developing an economy suited to a vision of the County. Doing so in a way

281-1040

beneficial to the County requires thoughtful examination of the characteristics of a healthy economy relative to what benefits are afforded the County. Development of shared community goals will help to formulate the contents of such an Element.

281-1040

The DEIR should describe the present economy of the County in detail. What kinds of business activities are present? What are the largest employers? (Break schools out of "government".) What are the primary economic "engines"? What revenues do they yield to the County? What kinds of jobs do they offer and what level of income do they afford to employees? Are County residents employed or do workers come from outside the County and, if so, in what proportion? What is the unemployment rate? What are the largest employers?

281-1041

How have these characteristics changed over time? How will General Plan policies affect employment opportunities as job demographics change?

281-1042

How does the rafting-kayaking industry contribute to the County's economy? How does it affect the health of the riverine ecosystem? What of the pulsed flows from hydroelectric facilities that make the industry possible in times outside of the natural period of adequate flows?

281-1043

How has small business been faring? Provide statistics on start-ups and closures. What reasons lie behind the latter? How has the arrival of "big box" businesses such as Office Max, K-Mart, and Homebuilders Outlet affected their small-business competitors?

281-1044

Analyze the effect on local business of the Internet as an alternative source in a community so dependent upon automobiles for transportation and with a high percentage of older people.

281-1045

Does the County have any unique characteristics relative to nearby jurisdictions? (E.g., dependence upon Highways 50, 49, and 193 for east-west and north-south traffic, topography that presents a constraint to economical provision of services and infrastructure.) How might these constraints affect economic development?

281-1046

Discuss the availability of both educational and job training opportunities in the County?

281-1047

What is the outlook for various types of employment given current trends in the County? Will these trends contribute to a desirable outcome relative to economic development?

281-1048

What sort of businesses do residents feel are now lacking? Should maintaining and enhancing a sense of the County's history be considered or is it acceptable to look like "everywhere else"?

281-1049

Are *all* kinds of business desirable? What of businesses with a increased potential for

281-1050

causing pollution? Ones requiring a large amount of water? Do current residents want lots of "big box" stores and fast-food restaurants? What has been the usual experience of small local businesses when a "big box" store comes to town? Is there sufficient population to support "big box" stores? (K-Mart is rumored not to be doing very well.) If such stores don't last for long, how can their space be reused in a way that will contribute to community well-being? Can planning ahead help to ease a constructive transition?

281-1050

The DEIR should examine factors that go to defining a healthy economy and the kind of businesses that the County should strive to attract. What makes a particular kind of business desirable or undesirable? Some of the factors to examine could be: Is the activity sustainable in the long-term so that it will contribute to a stable economy? Is it based on special assets of the County? Does the activity add value to a product or does it export raw materials that are depletable? Does the activity generate money that stays in the community or that goes instead to a non-local owner? Will it provide opportunities for steady, rewarding jobs and advancement? Will the jobs fit the needs of the prospective workforce in both numbers and characteristics. Will the business invest in the community or just be here to extract our money? Will it employ local people or will it draw workers from outside the County? Will it have adverse environmental effects? Will it contribute to a diversified economy better able to withstand disruptions affecting any one business sector?

281-1051

What attributes of the County are important in attracting new business? Evaluate the importance of amenities such as clean air and water, good roads and transportation, a reliable water supply, good schools, recreational and cultural opportunities, climate, availability of a range of housing relative to price, "rural quality of life", shopping opportunities, dependable County services (fire, law enforcement, emergency medical), reasonable property taxes, a stable and civil political climate, a sense of community.

281-1052

Explain how the Economic Development Element of the General Plan will contribute to maintaining and enhancing identified important amenities.

281-1053

Identify and discuss the appropriateness of various strategies for attracting and retaining a desirable business. Examine some past instances and give the cost in subsidies per job generated. Even if not forgone, do present fees support all necessary services and infrastructure (e.g., are there fees for fire and law enforcement services? Are fees for building infrastructure adequate? Do they also cover maintenance once built? Are they generous enough to contribute to eventual replacement costs? If not, who pays?

281-1054

## CULTURAL RESOURCES

*"[T]ourism and the environment [are interdependent]. People travel mostly to visit places that not only possess and advertise their special environmental and cultural heritages, but also preserve and enhance them. ...When communities fail to protect and extend their historic legacies, they risk compromising and perhaps even destroying permanently the very assets that attract tourists. ... Most zoning ordinances fail to address proactively and explicitly what a community should be*

*and look like, and rarely do they speak directly to issues of historic preservation or economic sustainability."*

*—Roger K. Lewis, Reining in Sprawl Protects Nation's Tourist Destinations, Washington Post, 6 Sep 1997.*

*"Historic buildings and structures often fall victim to abandonment or obsolescence. ... "Road-widening projects all too frequently may destroy historic bridges and the stone walls and ancient trees that line scenic roads. ... "Cemeteries can yield a wealth of historical information."*

*—S. N. Stokes, A. E. Watson, & S. S. Mastran, Saving America's Countryside, National Trust for Historic Preservation, 1997*

**The DEIR should discuss how the proposed General Plan and its alternatives will contribute to preserving cultural and historic resources in the jurisdictional part of the County. Basic to this purpose should be an inventory of resources, including, for example, historic buildings, cemeteries, Marshall Gold Discovery State Historic Park, the Mormon Immigrant Trail, Pony Express stations, old stone walls, traces of old roads, historic bridges, archeological sites, etc.. Does the County now have such an inventory? If not, what plans does it have to develop one?**

281-1055

Local businesses play a role in preserving historical resources through utilizing old buildings (Poor Red's, the Sierra Nevada House, the Cary Hotel, several bed-and-breakfasts, etc.) **How do historic places contribute to the economy through attracting tourist interest? We understand, for instance, that 11 percent of visitors to Amador County come specifically to visit old cemeteries. The web site of its Chamber of Commerce includes a map of their locations and information about each. What program, if any, does the County have to foster interest in historical features and thereby assist in "growing" the economy?**

281-1056

**What buildings, if any, are recognized in the National Register of Historic Places? What places are recognized as State Historic Landmarks?**

281-1057

The deterioration of the Old Stone House in Shingle Springs is of great concern. **The DEIR should describe the present framework and that set forth in the proposed General Plan and its alternatives whereby information is gathered and recommendations made about historically/culturally significant aspects of the County's history and prehistory. How are or will be such places protected?**

281-1058

**What, if any, is the role and authority of the County Historical Museum? Of the County Historical Society? Of the Cultural Resources Preservation Commission? Of the Pioneer Cemetery Commission? Of the Planning Department? Of the Planning Commission? How are these activities funded? Are funding levels adequate for programs?**

281-1059

**Does any entity exercise an oversight function and how is it funded to do so?**

281-1060

**Describe any coordinated county-wide program to preserve such sites and commemorate the participation of the many cultural and ethnic groups represented in place**

281-1061



names like Indian Diggins, Missouri Flat, Kanaka Valley, China Diggins, Frenchtown, Spanish Dry Diggins, Tennessee Creek, Maidu Drive, Mewok [sic] Lane, Negro Hill, New York Creek, Irish Creek, Chili [sic] Bar, etc.

Vandalism, lack of maintenance, and obliteration (e.g., the Catholic cemetery that was partially used for a communication facility) of old cemeteries is another source of great concern. Please describe in the DEIR the regulatory setting in which cemeteries exist and explain how the County enforces the restrictions on land use. Does an inventory of all the cemeteries in the County exist? How many are publicly owned and how many are privately owned?

What program will prevent repetition of such unfortunate events as that of the communication facility? Describe what computerized parcel inventories the County may have and how they could be used to keep track of land-use restrictions and forestall a recurrence of such an event. If such a system is not deemed practical or doesn't exist, describe an alternative system that would work. Is such a system contained in the proposed General Plan or alternatives?

In accordance with statutory protection afforded cemeteries under Political Code Sec. 3105 from conflicting land uses, describe the means by which the County assures that all maps recorded in the County that include such cemeteries indicate this restriction thereon.

Burial sites are not uncommonly found outside the fences that "enclose" cemeteries. Yet ground disturbance associated with some sort of development often occurs right up to the fence line. Does the proposed General Plan include provision for a no-disturbance buffer zone around cemeteries? The DEIR should analyze the merits of doing this.

The DEIR should also analyze the possible need for additional cemetery space in light of population growth and make provision for same, if needed.

#### TAHOE BASIN ELEMENT

Planning in the Tahoe Basin is overseen primarily by the Tahoe Regional Planning Agency. The provisions for avalanches discussed under Risk of Upset in the Public Health and Safety Element, however, would have applicability here, as also would considerations of congestion on Highway 50 and how business in South Lake Tahoe and the Tahoe Basin might be affected thereby.

#### ALTERNATIVES

We have asked throughout these comments for analyses pertinent to all scenarios of the proposed General Plan.

↑ 281-1061

281-1062

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281-1068

### CUMULATIVE IMPACTS

The DEIR should discuss the cumulative effects of the loss of agricultural land and water; the effects of increasing number of wells and of septic systems on groundwater supply and quality, including occurrence of wetlands and wildlife and plants dependent on groundwater; the loss of productive capacity of timberlands due to erosion, loss of organic matter in the soil-formation process, and air pollution; effects of increasing traffic on air quality; effects of increasing air pollution on black oaks and other vulnerable species (including grapes); effects of traffic and pets on wildlife stress and mortality, including cat predation on birds; effects of loss of oaks on wildlife in land-conversion actions; effects of habitat fragmentation on all forms of wildlife; effects of introduced weeds and their spread associated with human-caused disturbance (e.g., Yellow Star Thistle) on native plants and loss of productive use of land; effects of land conversion on survival of the native flora; effects on fire frequency of increasing population; effects of timber harvesting on climate and watershed yield; effects of growth in the County on congestion on Highways 49 and 50 outside the County; effects of growing demand for water on health of the entire riverine ecosystem downstream to San Francisco Bay-Delta, as well as on the high-Sierran lakes from which water is drawn and the economies of Amador and Alpine Counties; effects of increased demand for electricity; effects of increasing amounts of discharge of treated wastewater on streams into which effluent is discharged; effects of increased amount of impervious surfaces on storm runoff and those downstream; effects of everything on quality of life.

281-1069

### GROWTH-INDUCING IMPACTS

Expansion of the road system (see Traffic section) has the effect of inducing growth, as does expansion of other infrastructure (water delivery, wastewater service, etc.) These impacts should be analyzed. The sustainability of growth in the long-term should be analyzed. What growth-inducing impacts are likely to stem from the proposed casino and interchange?

281-1070

### SIGNIFICANT IRREVERSIBLE CHANGES

The DEIR should treat all land-disturbing activities as irreversible and all effects associated with fossil-fuel consumption as irreversible because of the geologic timeframes involved..

281-1071

Art Marinaccio  
 P O Box 1922  
 Diamond Springs CA 95619

03 JUL 15 PM 2:42  
 RECEIVED  
 PLANNING DEPARTMENT

General Plan Team  
 2850 Fairlane Ct.  
 Placerville CA 95667

RE: Kanaka Valley/ Salmon Falls Road area  
 In support of client May Trust

This area has a somewhat unique history some of which I shall endeavor to explain. This area has some important Gabbro soils and other areas where no Gabbro soils or endangered plants of any sort reside.

As early as the late 70's and perhaps earlier, before my involvement in local land use discussions, the major issue for this area has been access. As the years have gone by even stricter rules for secondary access such as California Firesafe Regulations have made that discussion more important. The advent of the issue over rare plants has made the need for comprehensive planning more important.

As part of the processing of the 2010, local landowners made their requests for LDR designations. See files 1-24 Reobbelen including approximately 25 parcels in the Salmon Falls Road area, as well as files 2-52, 2-53, as well as many others. These property owners all asked for LDR designations. The Kanaka Valley project under some name was stopped in the middle of processing due to the IGPG, or interim General; Plan Guidelines.

Early Administrative Draft General Plans had defined LDR as a transition from HDR to Rural.

Even the Scoping Comments from Taxpayers for Q G submitted on February 3, 1994 by their group for the EIR for what was later to be referred to as the 1996 plan, acknowledges the importance of the ability to comprehensively plan this area. Quoting from page I-9 of their submittal:

#### AREA SPECIFIC LAND USE POLICIES

- 2) Ecological- preserve lands in Kanaka Valley may receive density bonuses over and above the current land-use designation ( RR & RRL) if substantial rare-plant preserve/open space is set aside, and housing is clustered to maximize preserved lands.

This statement is in support of the position the Planning Commission later took in identifying this area with the designation of LDR-PD. Because of this action, and in

282-1

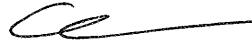
reliance on it, various land owners have entered into contracts for and sold lands to various entities including the BLM in order to facilitate the very policies the TQG group were asking for and got.

The policies enacted within the 1996 General Plan and supported by the neighborhood were and are in furtherance of environmental goals. The fact that Judge Bond was critical of the process is just further evidence of her commitment to correcting the process errors whether those errors helped or hindered the anti-growth faction.

Proposed policies which limit the transfer of development rights except within community regions greatly frustrate the goals of even the anti-growth group. I have talked to a number of members of that group who appear mystified as to where a policy like that could have originated.

Key to implementing an overall development plan that meets stated goals of quality development that enhances the environment is retaining the 1996 General Plan and the LDR-PD designation that both requires and allows the types of overall planning for circulation and other infrastructure that will be necessary for the long term.

Thank you



Art Marinaccio  
P O Box 1922  
Diamond Springs CA 95619

03 JUL 15 PM 2:42  
RECEIVED  
PLANNING DEPARTMENT

General Plan Team  
2850 Fairlane Ct.  
Placerville CA 95667

RE: EIR comments

It would appear from reading the new proposed Policies and Ordinances that staff wishes to see adopted that my (and the Taxpayers Association) concerns for what has been referred to as the "Lou Green" Letter and the hiring of Shute Mahaly to represent the interests of their current and former anti-growth clients was well founded.

Rather than comply with the terms of the writ and address the EIR deficiencies we have now launched into a program of trying to make a laundry list of all the possible roadblocks that can be imagined to delay and preclude growth.

Unfortunately, this effort is misplaced and doomed to failure. As we saw with the 1986 projection of the population to the year 2000 by the Department of Finance, moratoriums and lawsuits etc. are only effective in the short run in reducing population growth.

What we are left with in the big picture is having to determine whether our planning is making the growth that is coming more acceptable or making it in fact worse.

Even well meaning proposals when taken in total can have the result of defeating the overall purpose.

This is the light in which the proposals on the Executive summary need to be reviewed. Each and every one needs to have developed a proposed statement of reasons that could be used by the Planning Commission and BOS to reject the inclusion of the proposal within the final EIR.

Staff has been adamant that this would not be appropriate; however not having a properly prepared set of findings was the reason Judge Bond threw out the last effort.

It would be easy to assume that staff's reluctance to prepare the requested documents has more to do with their wish not to make it easy to reject their proposals.

To start down the list on 2-9 staff is proposing a new joint powers agreement. The goal is worthwhile but it is called LAFCO. We do not need another parallel agency within the Planning Department. We need action. These discussions were to occur within the 2-year update proposed in 1995. We do not need an agency we need a meeting.

Separation of Communities; the county shall develop a new program.



283-1

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283-4

This is not even in response to an environmental issue. This is strictly an opinion of a few people that they would like separation. Now it is being couched in terms of level of significance of the impact if the new measure is implemented. What impact, this is strictly a political decision as to desires.

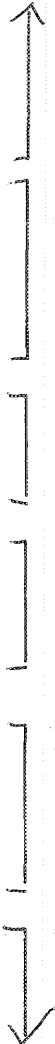
5.1.3 Staff wants to make all ministerial projects discretionary and subject to CEQA review. This is perhaps the most significant proposal under consideration in its effect on the need for more county staff and office space with in fact having no relevant relationship to a General Plan or General Plan law. Staff was given direction by the Board of Sups to develop their own policies and clearly staff would like more staff. So what.

This document needs to have at least 10 days of hearings just to go through these items one by one and decide as to whether any of them have any merit. Few should survive. This is the most overtly political EIR I have ever reviewed. Many of these proposals are just purely outlandish.

The bottom line is that with enactment of this EIR as proposed the County will not be able to deal effectively with the population that is coming. We would have to start the process all over again with a new Board of Supervisors. We have already wasted too much money, it is time to analyze this document comprehensively and re-adopt the 1996 Land Use alternative.

The suggestion has been made that we should just adopt garbage because we can always change it. This is simply not accurate. It is not that simple to make major structural changes to a document that has not been thought through. Should we decide we have to adopt "something" and fix it later that must be the 1996 plan exactly as adopted by the board of Supervisors. We would have to identify as a part of the process what the mechanism was to get the changes considered.

I am going to leave it to others to comment page by page on Volume One and get into some specifics on volume 2 and 3



283-4

283-5

283-6

283-7

283-8

283-9

5.9-34

The Final EIR should include a statement that the Lead Agency for SMARA enforcement will be returned to the County within the time frame of this General Plan. This may occur within the next year. El dorado county has committed to the same goals as the SM&GB of protecting our valuable mineral resources while protecting the environment from unnecessary negative effects of mineral extraction activities. Return of Lead Agency status to the County would not result in significantly different administration of SMARA and would not have physical effects on the environment different than those under the State's control.

283-9

5.9-35

Federal management of mineral resources include both the USFS and BLM. Both agencies have the authority to enter into leases and sales of certain classes of mineral materials from their lands. These leases and sales are regulated under federal law and are subject to their own environmental review processes.

283-10

Public Domain lands within El Dorado County that are managed by BLM and the USFS are subject to the minng law of 1872 unless the lands are set aside for an alternate public purpose. Mining clalims do exist on significant portions of these lands. Activities on these claims are regulated under federal law including 43 CFR 3809. Regulation of these activities is through the federal agencies.

Measure A

To the extent that Measure A may be incompatible with State Law concerning the protection of important mineral resources, this plan and EIR have been developed recognizing the existance of those resources. The scope of analysis was not done on the basis of the complete exclusion of mining activities and therefore would not have to be re-written should Measure A be declared invalid or otherwise rendered unenforceable. Site specific environmental effects would be subject to their own site specific environmental reviews.

283-11

5.9-64

This analysis is outdated and flawed and needs to be redone. The mapping upon which this analysis is based has been completely revised by the State and significantly changed. It must be recognized that provisions of Measure Awhich are completely incompatible with State Law are not enforceable. There needs to be at least a cursory analysis of the impact that would result form attempting to implement both the State Law under SMARA and Measure A. This would require not allowing any impermissible uses within 10,000 feet of those resources identified by the State Mining And Geology Board as suitable for and requiring protedction. Open File Report 2000-03 as recently released must be regognized.

283-12

5.9-65

This table does not adequately reflect the nature and extent of the incompatibility. This table reflects an approximation of how EDAW assumes Measure A will be treated.

283-13

Strictly enforced there would be no lands designated residential in areas identified as MRZ2xx. This would be equally inappropriate as designating no important mineral resources within areas designated as residential. Notice also that almost 3000 acres of lands within Open Space designations are also identified as important mineral resources.

283-14

5.12-33 and 34

The suggested mitigation measure 5.12.1(h) would have lands designated Open Space removed from the MR designation. This is inconsistent with State Law and therefore unadoptable. If in fact one were to take the false position (read Judge Bond's decision) that Open Space designations and mining are incompatible one would have to remove the Open Space designation instead of removing the MR designation. The Mineral Resource designations are as adopted by the State Mining and Geology board under OFR 2000-03 and are not up for discussion.

283-15

#### Oak retention policies

Having attended numerous discussions and meetings where this important topic has been discussed, I firmly believe this topic has been used by a handful of anti-everything fanatics in an attempt to control land use for purposes unrelated to biological needs. The subject has repeatedly and consistently approached from the standpoint of "we know what we want to stop, so how do we justify it?" While this approach is typical of liberal extremists and their view of property it is not scientifically valid and needs to be taken for what it is.

283-16

The effort has been characterized as one to accomplish a condition that the "true believers" accept as their goal. So what. Their beliefs have not yet obtained the status of a religion that is protected by constitutional right. The economics and science tell us that there is a problem of a manageable nature that can and should be dealt with responsibly.

Staff needs to develop a cogent assessment of the social and fiscal costs of implementing the various Oak Retention proposals as well as the efforts to define Habitat connectivity as a new religion. These costs need to be weighed against the actual, not idealized benefits of the proposals and only those proposals actually adopted that have merit.

283-17

The attitude that these are "environmental concerns" therefore an economic analysis would be irrelevant is rubbish. The handful of true believers pushing these policies even had the committee empaneled to discuss these issues disbanded due to their unwillingness to be challenged. The responsibility to review these proposals one-by-one now transfers to the Planning Commission and Board of Supervisors. This effort needs to



be allotted adequate time for serious discussion, as the economic effects of adopting these proposals would be very significant. They would impair our ability to meet many of the other goals of the plan such as affordable housing and job creation.



283-17

Volume 3

Overview

As pointed out in the overview, buildout scenarios are calculated based upon total capacity of the property assuming development at maximum permissible densities, rather than estimated average densities. This assumption has made the population numbers reached have no real practical usefulness. Knowing that the population numbers are based on unrealistic and impossible assumptions means that the numbers should never be quoted or used without an asterisk explaining the narrow limits of the usefulness.

283-18

Unfortunately the assumptions used for these "calculations" are so out of touch with real experience to render the work somewhat useless. Factually, the number of families who will reside within the western slope of El Dorado County will not be materially affected by which alternative is chosen. We can see this rather graphically by the fact that the projected growth to the year 2000 was not materially affected by all the lawsuits and moratoriums that have existed over the last 15 years.

283-19

Assessing the likely population from the 1994 plan that is not even an alternative for discussion is a useless piece of speculation. The real issue at question is whether we have adequately dealt with the needs of a community of the size that will come, and whether we have in fact alleviated as much of the effect on the physical environment that this level of development is likely to cause.

IV Land Use Demand

The population projections created by EPS in order to calculate Land Use Demand are equally faulty. The basic fallacy resides in the issue of assuming that Measure Y and the Writ will in fact reduce the population growth in the county.

283-20

It has been admitted by those who were proponents of both the Writ and Measure Y that the purpose of these activities were and are an attempt to reduce the population which will reside in our county. However it is false to base all our planning efforts on the bad assumption that the anti-growth faction will be successful in that effort. History tells us that they will fail and the Department of Finance projections will be relatively accurate. The projections for the year 2000 that were predicted in 1986 were met despite moratoriums and lawsuits.

The implications of this are that the projection for 2025 of 200,000 population for the western slope is a lower end projection. The DOF figure is 40,000 higher and is much more likely. The question we must ask is what is the validity of our planning if the 240,000 number is more accurate. The answer we must put into our final EIR is at least an admission that our plan will not be valid for as long a period as projected.

283-21

DOF has El Dorado County reaching the 200,000 population by 2015. Interestingly this was the target date for the original release of the 1996 plan. What we must do then is adopt the 1996 plan as the 2025 plan with the admission that it in fact may only be the 2015 plan as when it was adopted in 1996. We need to understand the importance of reciting within the document that this fact does not affect the validity or usefulness of the plan. This is one point of focus that was recited by the Judge in her decision that allowed her to uphold the validity of the plan in 1999.

283-21

Additionally, it is important to note that alternatives that do not even meet the needs of the lower population numbers that are likely to occur within the next 12 years are simply not viable. I of course understand the hypocritical nature of this statement in light of the fact that I do not believe that a General Plan could affect the population outcome anyway. Perhaps a more reflective way to understand the dilemma is to explain that the lower growth alternatives will not be valid even for 12 years, perhaps only for 7 or 8 years. The remaining question would be whether a plan that had a useful life only 1/2 as long as it takes to approve a plan was a plan at all.

283-22

Compliance With Writ of Mandate

Page 4 – Rejection of Mitigation Measures

As has been said repeatedly, the position of staff that the issue of findings will be addressed at time of project approval” is not full compliance with the “Direction to County” that findings be developed that justify the actions.

283-23

This position assumes that the Board of Supervisors may adopt these proposed measures and therefore findings will not be necessary. That is not the time to be establishing the administrative record for the analysis of the negative effects or outrageous cost to benefit ratio that many of these specific proposals addressed.


There needs to be a specific document where the negatives of these proposals are disclosed so the benefits can be compared. To leave it up to the electeds and appointed to develop in open session the reasoning why items such as Scenic Corridor Combining Zones was and should be rejected is unfair and unrealistic. Staff response has been to recite these issues as staff’s responsibility to “come up with reasons” later. This seems to me to miss the point of establishing justification “supported by the record” to justify the decisions.

283-24

A better method of dealing with this problem needs to be developed immediately.

A very similar problem arises in the way the EIR deals with the issue of Overriding Considerations. Either a document needs to be prepared where the references to the “substantial evidence in the record” or more documentation needs to be prepared sooner rather than later.

283-25

  
ART MARRA

Art Marinaccio  
P O Box 1922  
Diamond Springs CA 95619

03 JUL 15 PM 2:42  
RECEIVED  
PLANNING DEPARTMENT

General Plan Team  
2850 Fairlane Ct  
Placerville CA 95667

RE: various property owners I have represented orally

Reviewing the list of landowner parcel specific requests I wish to note additionally that these property owners for which I spoke orally are still desirous of having their specific needs addressed individually.

In all cases the 1996 General Plan is the plan supported as being most in line with the appropriate uses of these lands.

Max Nungesser, Tr. 51-140-06, 67, 68, 69, 76, 77, &78  
See Parcel Specific Request file 14-16

These lands were originally to be included in the Placerville Community Region and were subsequently removed at the request of the City of Placerville. They were removed with the admonition that the City and County work cooperatively to resolve the long term issue of where the development should occur. This area has been identified within the area most likely for extension of public water within the recently released Water Agency document entitled Water Resources Development and Management Plan. The 1996 General Plan designation needs to be adopted as a minimum. Direction needs to be given as to how the joint planning with the City of Placerville actually will occur. Alternatively bring these lands back within the Community Region as LDR allowing for future planning.

Baer Family 60-031-03, 23, 29, 37, 38, 39, 40, &41  
See Parcel Specific Request file 11-10, 11-11, 11-12

These lands rolled out of a Williamson Act contract about 20 years ago. The zoning never has been changed from AE to RE-5 as approved by the Planning Commission in the 80's. This ranch is mostly serpentine soils. You cannot argue agriculture just because the rocks are green. These lands should retain the designation as places on them in the 1996 plan. There is simply too much history here to recite in a letter of this sort. Many of the policies and proposed mitigations that would make development of this property difficult need to be rejected. This is precisely the type property that should be developed to its highest possible density to allow for the retention of true agricultural and other resource lands.

Cora White 90-070-12; 90-190-01; 90-22-05 & 24  
See Parcel specific Request 2-29

284-1

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284-4

This property was brought within the Shingle Springs Community Region with an LDR designation. It is served by EID and had Sewer and Water lines adjacent to or within the property. To suggest that this land should be large parcels is ridiculous. These close in large parcels with available infrastructure are more infill than sprawl. Any review of this property on site would reveal the logic of this land being developed as a higher density project than its current RE-5 zoning.

As I said numerous times the requests of the original property owners who made parcel specific requests need to be reviewed. There is no justification to ignore them. This request has been made consistently as part of the record.

Thank you.



284-4



284-5

From: Hap Mather [hmather@earthlink.net]  
Sent: Tuesday, July 15, 2003 9:52 AM  
To: generalplan@co.el-dorado.ca.us  
Subject: Preference for #1 and #4 alternatives in General Plan

I am a property owner in El Dorado County, and have reviewed the pending alternatives for the General Plan.

I am in favor of #1 and #4 (the No Project and 1996 Alternatives).

I oppose alternatives #2 and #3.

If you have questions or need further information, I can be reached at the numbers below.

Thank you.

Shapleigh R. Mather  
Parcel # 06105171  
314-434-2283  
hmather@earthlink.net

285-1

From: Bill and Kathy Mather [mtf@ixpres.com]  
Sent: Tuesday, July 15, 2003 1:20 PM  
To: generalplan@co.el-dorado.ca.us  
Cc: HAP & SUSAN  
Subject: General Plan Response

MATHER TREE FARM  
P.O. BOX 1752  
GEORGETOWN, CA 95634  
1-530-333-2116

Dear Sir,

We wish to voice our support for options 1 and 4 in the General Plan and opposition to options 2 and 3

Sincerely,

William Rankin Mather  
Shapleigh Rankin Mather

Owner/Partners  
Mather Tree Farm

286-1

Howard Miller, General Partner  
Prospect Investment Company/ El Dorado Land Company  
4661 Pony Express Trail  
Camino, Ca 95709  
(530) 644-2453

03 JUL 15 PM 2:42  
RECEIVED  
PLANNING DEPARTMENT

General Plan Team  
2850 Fairlane Ct.  
Placerville CA 95667

RE:327-110-04;06; 324-120-19, 21, & 22

We are re-submitting the letter attached, which re-iterates the testimony Art Marinaccio has given on a number of occasions. We, through experience, have painfully seen the reality of the failure to include the Headdington Road extension as part of the overall circulation element. We believe this road segment to be a critical part of the County's overall parallel capacity to Highway 50. This reason alone should be sufficient to include it within the Circulation Element.

Additionally, repeated traffic studies of the area have conclusively shown that commercial uses of those lands so designated within ALL versions of the 2025 General Plan require this road as part of the regional circulation.

What is conclusive is that this property cannot and will not be developed without this road as a sales tax generating area. The logical alternative is multifamily housing.

Should the Planning Commission decide not to include Headdington Road within the Circulation Plan we request that this land be either designated as Multifamily or alternatively recognized as property that most certainly will be in front of someone asking for a use permit as multifamily within a commercial zone.

We remain baffled as to why staff remains adamant that commercial use will not be facilitated for this area, but that seems to be the result.

Sincerely,



Art Marinaccio, for Howard Miller

287-1

287-2



Prospect Investment Company/El Dorado Land Company  
5301 Grassy Run Road  
Placerville, CA 95667  
(530) 676-4353

August 29, 2002

General Plan Team  
El Dorado County Planning  
2850 Fairlane Court  
Placerville, CA 95667

Subject: Alternative Land Use Request  
Assessor's Parcel Nos. 327-110-04 & 06; 324-120-19,21 & 22  
Project Name: Sundance Plaza

Dear General Plan Team:

The subject property was approved in December of 1998 as the major portion of a commercial project known as Sundance Plaza. The original developer/applicant for the project abandoned their plans to build the project in 2001. Since that time several other developers have considered the project and have also declined. In every instance the major factor was that the project was not economically viable now or in the future as long as the developer had to incur the cost of installing the extension of Headington Road and the associated signalization. Only if these improvements were a part of the County's Circulation Element could the project be economically viable.

Under the current constraints Prospect Investment/ El Dorado Land Company would like to request that the property be consider for multi-family land use under all of the alternatives to be considered in adopting a new general plan and in the Housing Element.

Sincerely,  
Prospect Investment Company/El Dorado Land Company

John Johnson, General Partner

From: Diane [murillo@directcon.net]  
Sent: Tuesday, July 15, 2003 2:50 PM  
To: generalplan@co.el-dorado.ca.us  
Subject: EIR-Market Area not acknowledged

Attn: General Planners;

There is a 15th Market Area you have failed to study in this EIR and it is focused around existing economic centers.

The K-Mart shopping center, new Safeway, Applebeas and much more approved at Hwy 50 and North on Missouri Flat to the over 6,000 people attending and working at the Community College, El Dorado Co. Office of Education and its 6 +- different schools, Indian Creek Elementary, Co. Day Care Center etc. The Green Valley Christian Church is expanding and giving a public park. The 13 ac Veerkamp Park has been on the drawing board and partially funded for 13 years. These people need food and housing nearby to cut traffic.

All the area from Greenstone and Green Valley Road, over to Weber Creek and Cold Springs subdivision up to City Limits, back west along hwy 50 down to Greenstone Road is the huge market area that IS NOT Diamond Springs or El Dorado.

The College Community area has 12" EID water lines 10" sewer lines, public County transportation routes, major County roads in place and a proposed major road called Missouri Flat extension 100' easement to connect to Cold Springs Road across the land adjoining the Office Of Education.

This Market Area needs housing and food to cut down the vehicle trips to these public needs that are already in place.

All infrastructure is in place for this to be logical infill. In the studies of growth in '94' the center of population for the entire County was determined to be the Missouri Flat Corridor for the next 20 years. It is getting all the retail now lets get some housing to improve our quality of life by getting out of our car and walk and bike to school and shop.

Thank You from a 50+ year resident who used to ride her horse up to Perks Corner gas station for a cream soda, now it's Eppies for a drink.

Diane Murillo

288-1

✓

From: Diane [murillo@directcon.net]  
Sent: Tuesday, July 15, 2003 2:52 PM  
To: generalplan@co.el-dorado.ca.us  
Subject: EIR-Market Area not addressed

Attn: General Planners;

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Thank You from a 50+ year resident who used to ride her horse up to Perks Corner gas station for a cream soda, now it's Eppies for a drink.

Diane Murillo

✓

From: Diane [murillo@directcon.net]  
Sent: Tuesday, July 15, 2003 2:57 PM  
To: generalplan@co.el-dorado.ca.us  
Subject: Housing

Attn General Plan;

The property owners in the Community College area feel since all 6000 + people a day are in that public area against there land that it would be the very appropriate to allow a planned community to be built on the land North adjoining the College.

All infrastructure is in place and all land owners feel it is really needed to supply Sr. and affordable housing in this area. It is the most lickly place to allow infill.

Thank You  
Diane Murillo

]

289-1

The 1996 General PlanFrom: Gary Peters [gp@gpre.net]  
Sent: Tuesday, July 15, 2003 2:55 PM  
To: generalplan@co.el-dorado.ca.us  
Subject: The 1996 General Plan

The 1996 General Plan should be the ONLY plan that we are considering here in 2003. The "Writ" required that the 1996 General Plan's EIR be re-visited and completed correctly. With that now being successfully completed, we only need to apply the corrected EIR to the 1996 General Plan...That's it, Nothing More!!!

Please, Let's move El Dorado County Forward!

Sincerely, Gary Peters

290-1

The1996 general PlanFrom: Gary Peters [gp@gpre.net]

Sent: Tuesday, July 15, 2003 2:55 PM

To: generalplan@co.el-dorado.ca.us

Subject: The1996 general Plan

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Sincerely, Gary Peters

JUL-15-03 TUE 10:35 AM GIDARO GROUP  
JUL-14-2003 23:55 FROM: GEORGE PHILLIPS

916-979-4801

FAX NO. 19169294180

TO: 19169294180

P. 03

P.002/007

Law Offices of  
GEORGE E. PHILLIPS

2306 Garfield Avenue  
Carmichael, California 95608  
Telephone (916) 979-4800  
Telex (916) 979-4801

July 15, 2003

General Plan Team  
El Dorado County Planning Department  
2850 Fairlane Court  
Placerville, CA 95667

RECEIVED  
PLANNING DEPARTMENT  
03 JUL 15 PM 1:36

Re: Comments on Draft General Plan and General Plan draft EIR

Dear To Whom It May Concern:

On behalf of JTS Communities and the Gidaro Group (JTS/Gidaro), we offer the comments set forth below on the draft General Plan and General Plan draft EIR. JTS/Gidaro owns or controls two properties, Rancho Victoria, formerly referred to as the Olmstead Ranch, and the Deer Creek property. Both properties are shown on the attached exhibits.

Draft General Plan

1. We request that the General Plan land use designation for Rancho Victoria under the 1996 General Plan remain the same, allowing one dwelling unit per 10 to 160 acres. Specifically, we request the Low Density Residential designation.

291-1

2. We request that the General Plan land use designation for the Deer Creek property remain as designated under all of the land use alternatives, allowing one dwelling unit per 5 to 20 acres. Specifically, we wish to retain the Low Density Residential designation for the property.

291-2

General Plan Draft EIR

Page 5.1-20 and 21

Please explain how the retention of the land use designations requested above would exceed the thresholds of significance listed on these two pages. Specifically, with the description of the Market Area 8 - Latrobe, as stated on page 5.1-9, please provide the analysis that would support a conclusion that the land use designations requested would not be consistent with "large-lot homesites interspersed with ranchlands . . ."

291-3

General Plan Team  
July 15, 2003  
Page 2

Pages 5.1-34 and 35

Please provide analysis that supports the conclusion that the suggested mitigation measure will reduce this impact to less than significant. Where the Roadway Constrained and Environmentally Constrained Alternatives vary so significantly from planning and infrastructure efforts at work regionally, merely calling for coordination between the County and adjacent jurisdictions, does not resolve the land use inconsistencies that would result.

291-4

Page 5.1-36

Please provide analysis that supports the concept that agricultural residential patterns existing in the County would be inconsistent with, and therefore significant, to the land uses desired in the County. Prior to the greater urbanization of Placerville, Lake Tahoe and El Dorado Hills, El Dorado's land use heritage was large land holdings and rural residential life styles. To a great degree, such rural residential uses have defined El Dorado County's character for many years.

291-5

Please provide support for the conclusion that continuing such land uses under the 1996 General Plan results in a significant impact. The mere fact of existing urban entitlements protected by development agreements should not result of the effective "downzoning" of properties heretofore available for rural residential densities of 5 and 10 acre parcels.

291-6

Page 5.1-42 and 43

Please provide the analysis that supports the punitive concept of precluding meaningful land divisions for rural residential densities in order to "accommodate existing commitments" of 14,565 units protected by development agreements. In contrast to the conclusion that the Roadway Constrained Alternative "... would result in denser but smaller urban/suburban areas than under the No Project Alternative". This alternative would result in a scenario of protected urban/suburban area and little to no development allowed elsewhere.

291-7

Page 5.1-44 and 45

For our comments on the Environmentally Constrained Alternative, please consider the comments listed above on the Roadway Constrained Alternative.

291-8

Page 5.1-47

Please distinguish in your conclusion that urban/suburban development would reduce community character in the County versus that of rural residential development consistent with surrounding or proximate development. We suggest

291-9



General Plan Team  
July 15, 2003  
Page 3

that the conclusion would be different if analyzing rural versus urban/suburban residential development.

Consistent with General Plan policy, rural residential may, where appropriate, be clustered in such a way as to retain significant open space areas and community separators. Please analyze your conclusion listed under Mitigation Measure 5.1-2.

Page 5.1-48

Please provide support for the conclusion that "parcels [that] may be too small to support long-term agriculture" in an area where even very large parcels are not family supporting, particularly where soil types preclude any agricultural activity other than seasonal cattle grazing, such as the western edges of the County.

Page 5.1-52

We concur with the conclusion that 10 acre parcels generally provide "adequate space and buffering to allow adjacent residential and agricultural activities to coexist compatibly". This conclusion is consistent with our request to retain the land use designation for the Rancho Victoria property.

Page 5.1-56

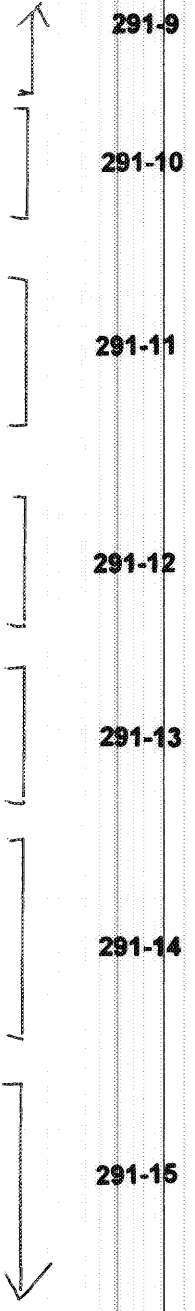
Please provide support in environmental terms for the limitation of a "one-time division of existing legal parcels". This would appear to be offered for political rather than environmental reasons. Regardless of its origin, however, it is arbitrary and extremely harsh on those properties and property owners affected.

Page 5.2-5

Please confirm whether or not the numbers shown for the number of value of livestock shown in Tables 5.2-1 and 2 take into account that the majority of which must be relocated (some perhaps even outside El Dorado County) during the dry months for adequate pasture to survive. Language in the top paragraph on page 5.2-8 would appear to support the conclusion that the numbers are not truly indicative of the agricultural production of El Dorado County alone.

Page 5.2-9

Please provide support for the conclusion that development pressures have adversely affected the grazing industry in the County. Specifically as to cattle operations, adjacent land uses have very little to do with the continued



291-9

291-10

291-11

291-12

291-13

291-14

291-15

General Plan Team  
July 15, 2003  
Page 4

viability of ranching. Your analysis must discuss current compared to historical beef prices compared to the cost of maintaining the ranching operation, i.e., fuel costs, feed costs, insurance costs and labor costs. We suggest that these factors contribute more to the failure of ranches than development pressures. Under the constrained alternatives, please provide analysis that examines the public's ability to afford the acquisition of regulated open space when agricultural uses are no longer economically viable.

Page 5.2-23

Please evaluate the third threshold of significance in light of the comment immediately above. Conversion of an uneconomic grazing land should raise different issues for analysis than the conversion of economic grazing land.

Very truly yours,

*George E. Phillips*  
George E. Phillips

Enclosures

cc: Steve Gidaro  
Bill Greer  
Jack Sloukas  
Matt Spokely



291-15

291-16

**Deer Creek Ranch:**

Location: On Latrobe Road  
2 miles south of Highway 50

APN#: 108-020-03-100  
108-050-31-100  
108-050-19-100

Total Acreage: 608+/-

General Plan Designation: 5-20 ac/du min

**Olmstead Ranch (Rancho Victoria):**

Location: On Latrobe Rd near the intersection of South Shingle Rd  
9 Miles South of Highway 50 and El Dorado Hills

APN#: 087-010-06-100  
087-010-12-100  
087-010-16-100  
087-030-32-100  
087-030-41-100

Total Acreage: 835+/-

General Plan Designation: 10-160 ac/du min

---

**We request that our current land use designation (listed above) under the 1996 general plan is analyzed in the proposed General Plan EIR for whichever alternative is chosen.**

291-17

**Deer Creek Ranch:**

Location: On Latrobe Road  
2 miles south of Highway 50

APN#: 108-020-03-100  
108-050-31-100  
108-050-19-100

Total Acreage: 608+/-

General Plan Designation: 5-20 ac/du min

**Olmstead Ranch (Rancho Victoria):**

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087-030-41-100

Total Acreage: 835+/-

General Plan Designation: 10-160 ac/du min

---

**We request that our current land use designation (listed above) under the 1996 general plan is analyzed in the proposed General Plan EIR for whichever alternative is chosen.**





Introduction: Comments on the General Plan Alternatives (Plan) and the Draft Environmental Impact Report DEIR for the El Dorado  
From: Steven Proe [trails@d-web.com]  
Sent: Tuesday, July 15, 2003 2:36 PM  
To: generalplan@co.el-dorado.ca.us  
Subject: 2003,July 15, General Plan Comments,Introduction.doc

July 15, 2003

Submitted By Steven Proe individually and a the Secretary and Steering Committee Member of the El Dorado County Taxpayers for Quality Growth

Introduction: Comments on the General Plan Alternatives (Plan) and the Draft Environmental Impact Report DEIR for the El Dorado County Draft General Plan.(County)

We comment that the DEIR and the Plan/s have been circulated for comments in a manner which is in a format which is excessively difficult for the average person to be able to locate the issues of their concerns easily and in a timely manner.

Please explain why this type of format was selected and also what you will do to correct these issues in the FEIR or in the Supplemental DEIR that should be circulated as a result of the many impacts which have not been identified in these two incomplete documents?

The Individual Elements(Elements) contained in the DEIR and the Plan are scattered throughout these documents and use different wording to describe a potential impact or condition which is confusing and very difficult to understand and comment on. These Elements are confusing in their placing through out the DEIR and the Plan and in different locations in the Elements. Please explain how the County proposes to make these documents user friendly and easily understood in the future versions of the DEIR, Plan, FEIR or Supplemental documents?

The County has deliberately chosen to use a method using the pdf. Format in Adobe Acrobat(Adobe) which does not allow the cut copy and pasting of the information contained in the County publicly released version of the DEIR and the Plan.

We had specifically requested that the County provide these documents in a use friendly format in public hearings. The County purposely chose to ignore our comments by using a option in Adobe which is not user friendly, this action is not consistent the guidelines for a General Plans usability, with a Plan and DEIR being user friendly, by the average person.

We further comment that Adobe has the ability to produce a full and complete version of the entire Plan/s and DEIR in a format that is user friendly and has the ability to search the whole of the Plan/s and DEIR with a Boolean search tool without having to go through each individual separate folder which is very time confusing and confusing to comments.

292-1

292-2

292-3

Please explain why the County has purposely chosen the method that they have to deliver the Plan/s and the DEIR to the public and agencies? Why has the County not used a user friendly format? Even if the County had a concern that someone might edit some parts of the Plan/s and the DEIR, any such attempt certainly would be discovered in the responses to comments by the County? We further ask the question, why the County did not chose the type of format which is readily available in Adobe to disallow the cutting and pasting of yet still allows the whole of the Plan/s /DEIR to be viewed and searched for content of all of the Elements and Sections of the DEIR while still preserving the whole of the document from any possible tampering?

292-3

The Plan/s maps do not depict the lands and infrastructures for the public and governmental agencies. This oversight has lumped most of these areas in to large areas of the County Natural Resources (NR) or Open Space (OS) the infrastructure for the Georgetown Divide Public Utility District is not depicted on the Plan maps. Please explain why these and other portions of infrastructure were not shown? Please explain what the County will do to correct this oversight?

292-4

The Plan/s "Auburn Roadway Constrained Six-Lane Plus Alternative" map have a disclaimer that states under, NOTES:" This document was compiled from many sources-public and private- the accuracy of which was not verified by the County of El Dorado. The County does not warrant-expressly or implicitly- the accuracy or validity of information contained in this document. Users therefore use this information at their own risk, and are encouraged to verify any information contained or depicted in this document."

The County nor the Surveyors Office, its departments or divisions has not provided the listing of the many sources-public and private, so that the public would have the ability to even attempt to verify this information. The County nor the Surveyors Office, its departments or divisions has not provided the location/s of these documents, this is especially important as information from "private" sources is normally not available to the public and is not subject to the provisions of the CA Public Records Act, therefore making it nearly impossible for this verification to occur.

292-5

Please explain how and when the County will produce maps and supporting information, which are factually accurate and inclusive of all of the information which is mandated to be released as a part of the General Plan Process and available to the public at large?

This map information is critical for the public to have accurate complete and verified information to base their comments on, if this information is not accurate the circulated maps are nothing more than lines on a piece of paper are usable in the General Plan process by the County to illicit comments from the public and agencies that may have a regulatory or oversight interest in the Plan and DEIR.

Why have the maps that are expected to be relied upon by the public and agencies been declared to be unverified and are by fact incomplete and inaccurate?

The Plan/s and DEIR refer to these maps in there text, please explain how the comments which are and will be submitted to the County can have validity based on inaccurate, non disclosing, maps issued by the County thru its Surveyors Department and Planning Department? Please identify specifically what will the County do to correct this extreme dissemination the afore mentioned General Plan maps?

292-6



The County has given direction on Certificate of Compliances that have been issued in El Dorado County.

See County Website at : <http://www.co.eldorado.ca.us/surveyor/bospolicy.htm>

<http://www.co.el-dorado.ca.us/surveyor/cocdef.htm>

The maps circulated in the Plan and DEIR do not take into account the many of the hundreds of parcels, if not the thousands of parcels which have been created through this process.

Please explain why these parcels have not been depicted in their entirety on the Plan/s and DEIR maps?

Please also include the many impacts that may be associated with these parcels as they are developed?

There are also grant deed's, government, railroad deeds and government grant deeds, under lying parcel's which are not depicted within larger parcels which are shown as a single large parcel on the Plan/s and DEIR maps, some of these large parcels are in excess of a thousand acres but have included within them many smaller parcels which have a right to build or develop as per the Surveyors Department, the Board Of Supervisors and the Planning and Building Dept's.

Please explain when these parcels will be shown on maps that will include an in depth analysis to access the impacts and constraints that these latent parcel groups may have in the Plan/s DEIR process and regional adjacent lands?

The Plan/s and DEIR have very little discussion on the many substandard roadways and driveways located with the County including the federal lands contained within the County. It is impossible for the public and agencies to make informed comments on the Plan/s and the DEIR without these substandard roads depicted on maps.

When and how will the County identify these roads and driveways, so that the potential significant, insignificant individually but may when combined have significant cumulative impact?

Please identify how and when the County will allow development of these still to be identified properties/parcels and parcels which are adjacent to these roads and driveways?

How and when will the County enforce the applicable State Fire Safe Laws on these substandard roads other roads and driveways in the Plan/s and DEIR? Some of these documents have been submitted to the Planning Department and Planning Commission during the hearings on the February 24, 2003 Item on my appeal Item.

How and when will the County ensure that roadways will meet or exceed these applicable State and possibly Federal Standards and guidelines in the Plan/s and DEIR?

How and when will the County analyze and access the latent demands/impacts and actual demands/impacts that has been given by the Board of Supervisors by it's use of by right. These uses contain in our opinion the Right to Farm, Ranch Marketing, Wineries and Vineyards. These activities have apparently been receiving from the County a windfall in not having these impacts mitigated and

292-7

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not having the cumulative impacts from impacts of a lesser type, these also are asked when and how the County will access these multiple locations which are also not on the Plan/s Map's or in the DEIR.

292-13

Some of these uses are clearly Commercial in nature and must be considered under Measure Y, please explain how and when these location will be placed on the Plan/s maps and into the DEIR?

292-14

The Plan/s do not depict the current state of location of the trails and trails easements which the County has extracted thru the Land Use process on the maps for the Plan/s or the DEIR.

292-15

We further state that without the requested information that the County has not disclosed or included in the Plan/s or DEIR, the information and comments which have been submitted would appear to be incomplete and tainted by the lack of accurate verified information in compliance with all State Fire Laws, how and when will the County cure these afore mentioned impacts in the DEIR and Plan/s process?

292-16

We further comment that there are not any Urban areas contained in El Dorado per the US Census, please explain how this information will impact the Plan/s and DEIR?

292-17

There is a use of the word "Suburban" used in the Plan's and DEIR yet there is no definition, we would request and ask the County to address this comment and when they will implement this request?

292-18

We question, why the Tahoe has an environmental carrying capacity of the area, yet the rest of the County has no had this type of assessment released a apart of the Plan/s or DEIR will this be done for the West Slope? We ask you to explain the reasoning for any decision on this question?

292-19

There is a referenced to land use splits that will be constrained as a result of the numerous parcels which have been approved previously approved for development by the County, yet there are not any figures that discloses how many parcels will be allowed to be subdivided or that the individual plan/s will allow to be split or subdivided or created by the issuance of Certificates Of Compliance.

292-20

We ask when and how this information and maps will be prepared and released to the public so that they may have the opportunity o provide written meaningful comment for the Plan/s and DEIR?

We further hereby request and comment that the Quality Growth Comments on the Plan/s previously submitted to the County in the beginning of the General Plan process be included in the comments for the Plan/s and the DEIR.

292-21

If there are any questions on any of these comments and statements, I we hereby request that you contact us/me as soon as possible and please confirm the receipt of these comments by e-mail.

We shall also fax a copy to the Planning Department.

Submitted By Steven Proe individually and a the Secretary and Steering Committee Member of the El Dorado County Taxpayers for Quality Growth

JUL. 15. 2003 1:02PM RRM DESIGN GROUP

NO. 986 P. 2/4



RRM DESIGN GROUP

*Creating Environments People Enjoy*

July 15, 2003

Via Fax: 530-642-0508

General Plan Team  
 El Dorado County  
 Planning Department  
 2850 Fairlane Court  
 Placerville, CA 95667

**RE: Comment on Proposed General Plan Update**

Dear General Plan Team:

I am submitting these comments on behalf of G-3 Enterprises, the new owner of the El Dorado limestone mine property, located south of the Cameron Park-Shingle Springs area. This site encompasses approximately 740 acres. The property is identified as Assessor's Parcel Numbers 109-010-091, 101, 131, 141; 109-020-041, 051, 061, 171 and 201. The limestone mine on site is no longer in operation.

The land use development pattern, adjacent to the majority of the property periphery, is large-lot residential development. The net effect is the infeasibility of continuing to utilize the property for resource extraction, due to the incompatibility of that type of land use with the adjoining residential.

Further, the Deer Creek Wastewater Treatment Facility is located directly adjacent to the property, which provides potential opportunity for this property to support a higher level of residential density. The site topography and vegetative characteristics are also very suitable for a continuation of the residential growth patterns in the area.

Below, I have segregated our comments into our specific request for land use designation followed by our general comments regarding the various General Plan alternatives.

***Specific Request***

As the new owner of the limestone mine property, G-3 Enterprises requests the County consider the designation of this 740 acres as Low-Density Residential, allowing the residential density of 1 unit per 5 acres. This is consistent with virtually all the

Oakdale • San Luis Obispo • Healdsburg • Los Angeles  
 131 South Second Avenue • Oakdale, California 95361 • Phone: 209/847-7794 • Fax: 209/847-2522 • www.rrmdesign.com  
 A California Corporation • Victor Montgomery, Architect #121060 • Jerry Michael, RCE #36883, LS #6296 • Jeff Perben, LA #12843

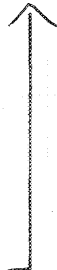
293-1

293-2



General Plan Team  
July 15, 2003  
Page 2 of 3

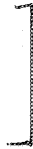
surrounding properties. With this request, we are also willing to consider performance policies focused on ensuring that the property is not simply subdivided into 5 acre parcels, but designed in a manner that would respond to some of the environmental considerations associated with the topography and vegetation in and around the site in order to preserve scenic and environmental corridors. However, there are significant portions of the site that are very developable and would be suitable for residential uses. As mentioned above, the proximity of the Deer Creek Wastewater Treatment Facility offers the potential to accommodate clustered residential development on this site.



293-2

*General Comments*

Given our specific objective expressed in the comment above, we have the following general comments regarding the alternatives that the County is considering for the General Plan Update. Our preference is the No Project and 1996 General Plan Alternative. Secondly, we support the Environmentally Constrained Alternative. We would like to express our opposition to the Roadway Constrained Alternative.



293-3

The 1996 General Plan reflected a land use designation for the subject property that was more in line with the land use and development patterns that have been reflective of land use in this area of the County. As such, it was treating the subject property fairly in light of surrounding development and land use, with the exception that a portion of the site, previously owned by the Bureau of Land Management, was designated open space. The entire parcel, if the 1996 General Plan were to be considered as the preferred alternative, should be designated as Rural Residential.



293-4

Under the Environmentally Constrained Alternative, the subject property has been isolated as a Rural Lands designation while being surrounded by Single-Family Residential. With some consideration to the appropriateness of the Rural Lands designation on our particular property, the Environmentally Constrained Alternative appears to be a reasonable and rational alternative to address growth concerns in the County while effectively mitigating the associated impacts. One specific issue under the Environmentally Constrained Alternative that we believe would need some clarification is Policy LU-4C, which states: "Infrastructure availability alone shall not be sufficient cause to expand existing or established new Community Regions or Rural Centers in the County's Rural Regions." We believe this policy needs to be further clarified as to what other factors would support growth if infrastructure alone will not.



293-5

As mentioned above, we are opposed to the Roadway Constrained Alternative as it appears to be an unreasonably restrictive alternative for the County's General Plan. With specific regard to G-3 Enterprises land holdings, the property is designated Natural Resources, while all the surrounding property north, south, east and west is designated for a considerably higher level of entitlement. The isolation of our parcel, no longer being an operating limestone mine, brings into question the equity and appropriateness of this



293-6



General Plan Team  
July 15, 2003  
Page 3 of 3

designation.

Thank you for the opportunity to submit these comments. We reserve the right to expand upon these comments as the County moves forward with the Public Hearing process.

Sincerely,

RRM Design Group

John B. Wilbanks, AICP  
Principal

cc: Mr. Bob Lubeck, CEO, G-3 Enterprises



293-7

03 JUL 15 PM 12:47  
RECEIVED  
PLANNING DEPARTMENT

Cynthia L. Shaffer  
P.O. Box 183  
El Dorado, California 95623  
(530) 622-6010

via email with hard copy via Federal Express  
Revised 12:00 PM

July 15, 2003

El Dorado County Planning Commission  
2830 Fairlane Court  
Placerville, California 95667

Re: Draft General Plan and Draft Environmental Impact Report

Dear Commissioners:

Thank you for the opportunity to review and comment on the Draft General Plan and the Draft Environmental Impact Report NO. 2001082030.

My parents, Glenn and Margaret Shaffer, purchased approximately 173 acres of land located at the end of Echo Lane, north of Highway 50 and west of El Dorado Road in 1978 – nearly 30 years ago. They built a home there and for a period of time operated a large quarter horse breeding facility, Indian Creek Ranch. Although the horse breeding operation was wound down about 5 to 10 years ago, the facilities and the home remain in place. I have been asked by my family to review and provide comments on the Draft General Plan and DEIR.

Property Location and Characteristics

The property consists of approximately 173 acres of relatively flat terrain and gently rolling hills north of Highway 50, west of El Dorado Road. Access is provided at the end of Echo Lane, a frontage road along Highway 50. A portion of the property actually abuts the Highway 50 right-of-way. A number of structures including homes, barns, garages and other buildings have been built on the property over the years, as shown in the aerial photographs attached to the original of this letter. Substantial portions of the property have been previously “disturbed” where fenced pastures of non-native grassland provided grazing areas for horses which once occupied the property.

A pond or "lake" measuring approximately 10 surface acres is located at the south eastern portion of the property; the result of an old earthen dam within the Indian Creek watershed.

Water (EID), electrical and telephone service are provided at the site. Sewer mains serving property to the northwest are located in El Dorado Road, within about 1 mile of the site.

A review of the DEIR documents indicates that the property:

- Does not consist of "Important Farmland", is not subject to a Williamson Act contract and does not contain Choice Agricultural Soils
- Is not located in a Timber Production Zone
- Does not contain significant mineral resources
- Is not known to support special-status plant or animal species
- Is not within the boundaries of identified "Important Biological Corridors"
- Is about a 20-minute drive from the El Dorado/Sacramento County line
- At least a portion of the property is classified by the County as "developed"

1996 General Plan Land Use and Alternatives

Under the adopted 1996 General Plan, the majority of the site has been designate as Low Density Residential, with a small portion of the property contiguous to Highway 50 designated as Medium Density Residential. The 1996 General Plan land use designations are consistent with the surrounding land use, the proximity of the property to Highway 50 and adjacent Commercial land uses, the site topography and availability of existing services to the property.

The Environmentally Constrained ("EC") alternative designates most of the property as Rural Lands and the Roadway Constrained ("RC") alternative designates one parcel as Rural Lands and another as Natural Resources. We understand that the RC and EC Alternatives were developed using computer modeling based on the relative size of parcels of undeveloped land. In view of "prior commitments" to large land owners (primarily in the El Dorado Hills area), and having previously permitted subdivision of properties to five to 10 acre parcels within the rural regions, the RC and EC Alternatives seek to evaluate the effect of outright prohibition or stringent restrictions on future subdivision of "medium-sized" parcels.

294-1

294-2

Although the information derived from the computer-driven model might be useful in terms of establishing parameters for Alternatives analysis, it is a poor substitute for sound land planning principles. While such land use designations under the RC and EC Alternatives might be appropriate in more remote areas of the County, the designations applied to Indian Creek Ranch are not appropriate for property abutting Highway 50 within the western portion of the County.

The land use designations under the RC and EC Alternatives overlook an opportunity to create environmentally superior developments. Medium-sized parcels with Low or Medium Residential density designations, together with appropriate "clustering" policies, provide possibilities to create compact developments to meet the needs of a growing population, while preserving large blocks of habitat for inclusion in a preserve system. The benefits of such an approach are well established and acknowledged in this DEIR.

**Traffic and Circulation**

*Consideration of Intersection Improvements as Alternative to Road Widening*

The traffic analysis contained in the DEIR indicates existing or projected deficiencies at certain roadway segments under all of the Plan Alternatives. The mitigation testing described in the document involves iterative runs of the TDF model with widened roadways or new roadways to eliminate the deficiency. Such widened roads or new roads are described elsewhere in the DEIR as undesirable due to adverse environmental impacts, including impacts to biological resources, community character and visual impacts.

Frequently when an LOS deficiency is identified, it is the intersection (or interchange) which has actually failed, not the roadway "segment" itself. Often, improvements to the intersection, such as adding turn lanes, new traffic signalization or synchronization of existing signals, or incorporation of free-flow traffic devices such as roundabouts and traffic circles will relieve the problem without the need to widen the roadway. It is unclear from the information contained in the DEIR whether or not such improvements to intersections have been analyzed separate and apart from the analysis of new or widened roadways. While intersection improvements alone may not provide relief in areas of extremely high traffic volumes, they may be beneficial in solving peak-hour deficiencies in less heavily traveled areas.



294-2

294-3

294-4



El Dorado County Planning Commission  
July 15, 2003  
Page 4

Application of Inconsistent LOS Policies

The DEIR acknowledges the existence of differing LOS Policies for the various "equal weight" alternatives, but attempts to determine significance based on these differing policies. The impacts to traffic and circulation associated with each of the alternatives should be evaluated based on the same LOS performance criteria.

The General Plan and DEIR documents are voluminous. The foregoing represent our initial impressions from our review of the documents to date. However, our review of the General Plan and DEIR and their effect on the Indian Creek Ranch property is still ongoing. It is likely that we will have additional comments at some point prior to the final hearing on certification of the EIR and adoption of the General Plan.

Very truly yours;

(sent via email)

Cynthia L. Shaffer

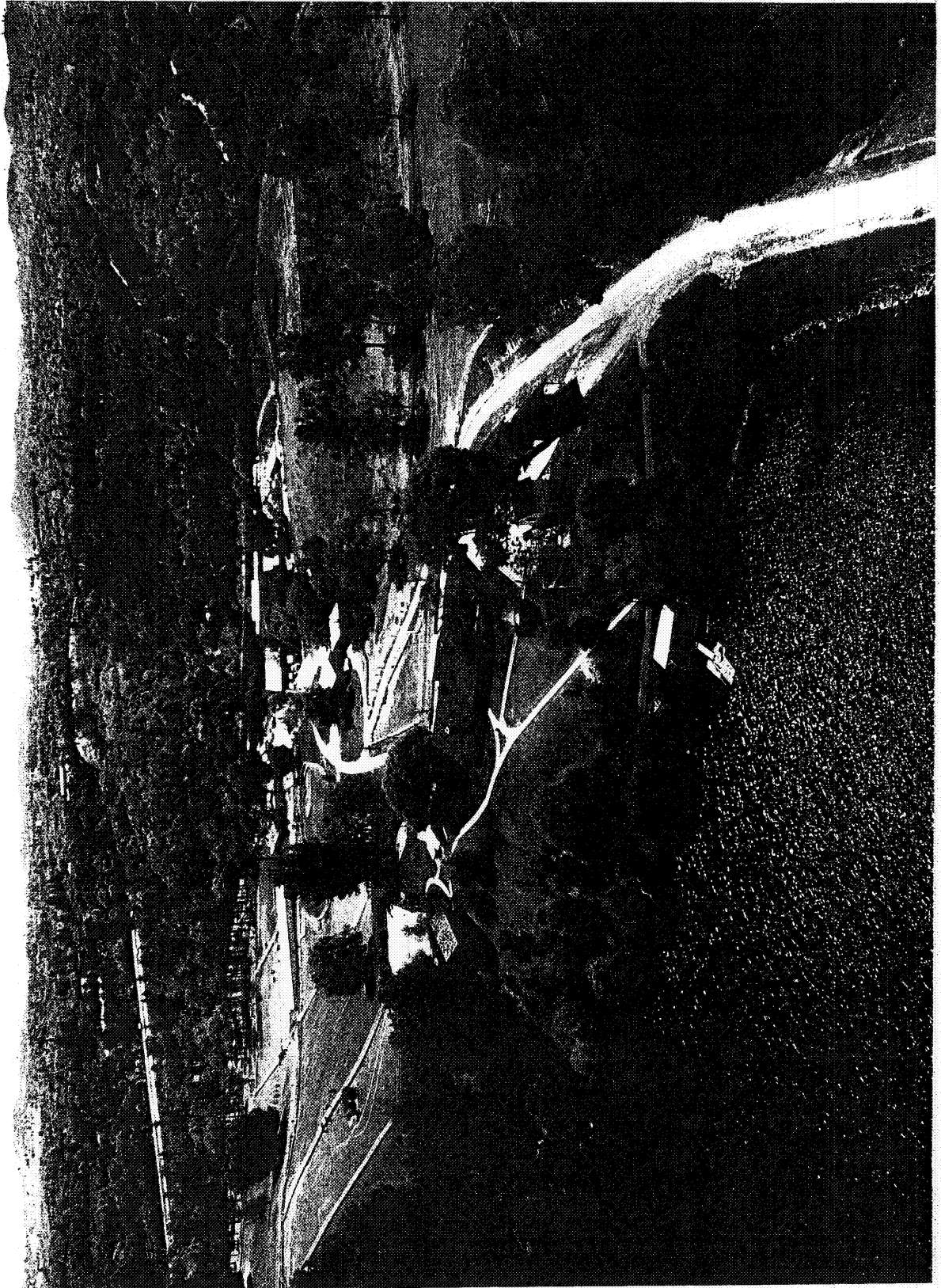
CLS/rk

Attachments

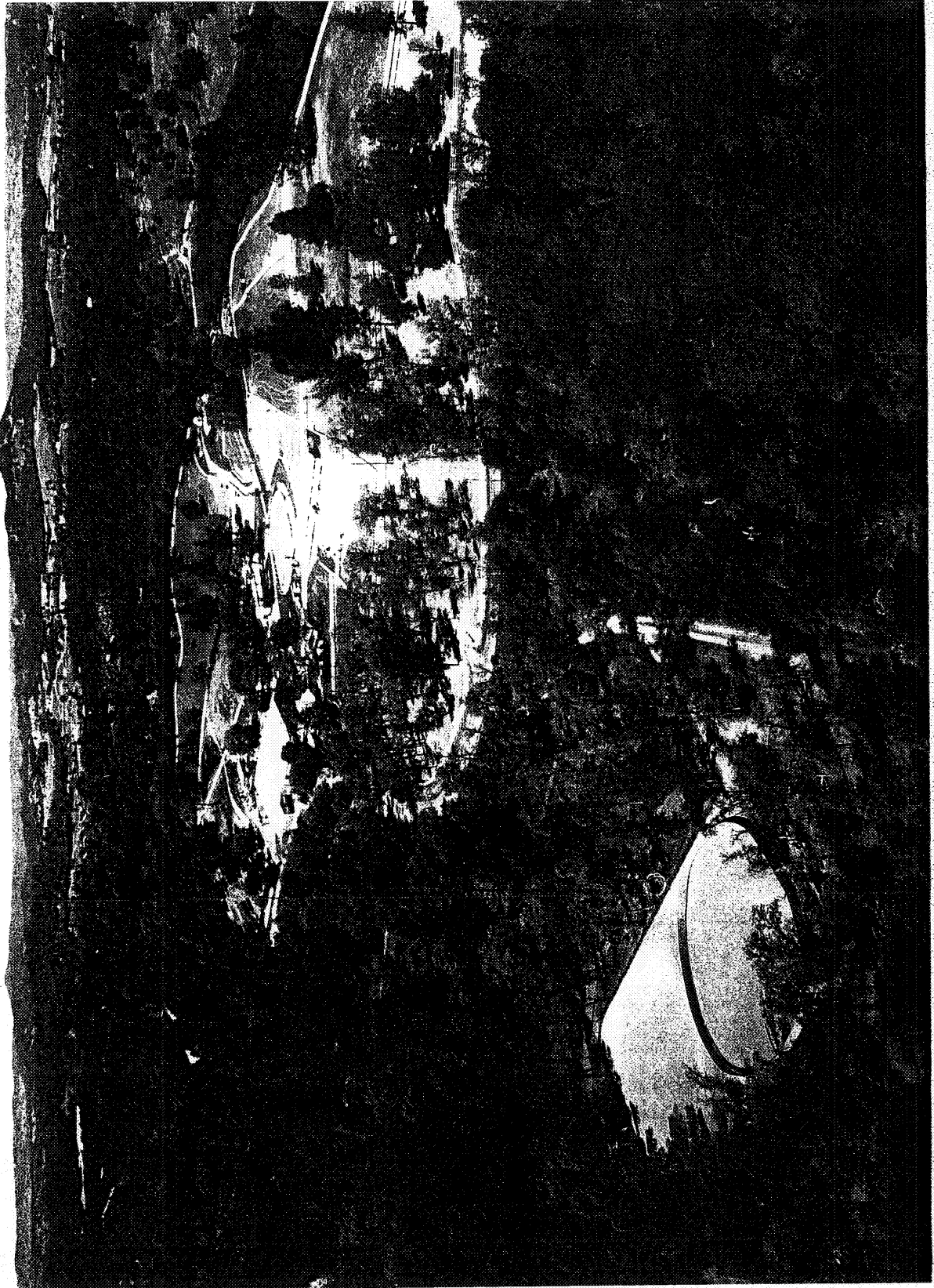
(aerial photos attached to original letter sent via *Federal Express*)

294-5

294-6



AR 14200



AR 14201

Jul 15 03 12:58p

Joel M. Korotkin

916.922.1362

p. 2

**Gary and Myrna Sparks**  
**1341 Salmon Falls Road**  
**El Dorado Hills, California 95762**  
**916.933.0747**

July 15, 2003

*Via Facsimile 530.642.0508*

El Dorado Planning Commission  
 c/o El Dorado County Planning Department  
 attention: Peter Maurer, Principal Planner  
 2850 Fair Lane Court  
 Placerville, CA 95667

Re: General Plan Update  
 APN 067-051-02

Dear Members of the Planning Commission:

I am the vice-president of Seven Rivers, Inc., the owner of the above-referenced parcel. My attorney, Joel Korotkin, has previously submitted a letter in regard to the General Plan update and the various designations proposed for the property. I am writing to express my concern about what I believe is an unfair designation in the proposed Environmentally Constrained Alternative (Alternative #3), as well as to ask for changes to the designation in Alternatives 2 and 3.

My wife and I, and our two sons, have lived in El Dorado County since 1976. I have built two homes in the area, and am presently living in the second one, on a five acre lot off of Salmon Falls Road. The property I am writing about is located a short distance from my home. It is an 80 acre parcel, and was originally a portion of the old Dixon Ranch. It has been owned by Seven Rivers, Inc. since 1987. We have held the property, expecting to develop it when we felt the time was right.

Knowing that the property immediately to the east had already been developed into 5 acre parcels, and knowing that the property was identified in the 1996 General Plan for Low Density Residential, we anticipated that we would be able to develop at a comparable density. Given the existence of the necessary infrastructure, and the general intensity of development in the area, this seemed to us to be a reasonable assumption. Unfortunately, when the four alternative general plan maps were released, we found that only Alternatives #1 and #4 would allow the property to be developed with 5 to 10 acre parcels.

The proposed designation under Alternative #3, the Environmentally Constrained Alternative, is for Rural Lands (RL). This designation represents a reduction in the development potential of the property. Under the RL designation the most that could be developed are 10 acre parcels. Right next door are 5 acre parcels, and all along Salmon

295-1

295-2

Letter to Planning Commission  
Page 2 of 2.  
July 15, 2003.

Falls Road are 5 acre parcels. Such a reduction in development potential does not make sense. If there is any place in El Dorado County where it makes sense to allow denser development, it is in this area. The roadway network exists; schools, fire departments, retail and commercial projects serving the potential residents are all in place. For this reason, we are requesting that the Land Use Designation under this alternative be changed to Low-Density Residential (LDR).

Under Alternative #2, the Roadway Constrained Six Lane "Plus" Alternative, the proposed designation is for Natural Resource (NR). This designation makes no sense. It would render the property undevelopable, yet would serve no purpose. As I said above, the infrastructure for residents already exists. It does not make good planning or environmental sense to stop development on this property. Even more confusing to me is that the 40 acre parcel immediately to the south (APN 67 051 06) is shown on the map for this alternative as RL. I cannot understand what the difference is between that property and my property. If there is a justification for designating one of them RL, the other should be designated RL as well. While that would permit some development of the property, I believe that both parcels, as well as the property to the west, should be actually be designated LDR, which is consistent with the surrounding community. At this time I am asking the Planning Commission to change the designation of my parcel under Alternative #2 to Low Density Residential (LDR).

It is not clear to me if there is anything else I can or should do to have this change considered before any final decision is made on the General Plan. If there is, please let me know. I would be happy to appear before you, or attend any meeting to discuss the request contained in this letter.

Sincerely,



Gary Sparks  
Seven Rivers, Inc.  
Vice-President

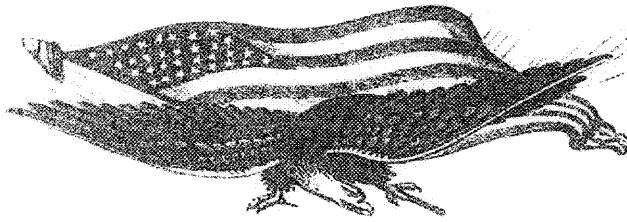
Copy to Joel M. Korotkin, Esq.



295-2

295-3

295-4



TAXPAYERS ASSOCIATION OF EL DORADO COUNTY  
Post Office Box 13 Placerville, California 95667

Founded in 1958

03 JUL 15 PM 2:53  
RECEIVED  
PLANNING DEPARTMENT

TO: General Plan Team  
El Dorado County Planning Department  
2850 Fairlane Court  
Placerville, CA 95667

FROM: Ellen Day, President *Ellen Day*  
Taxpayers Association of El Dorado County

DATE: July 15, 2003

REGARDING: Comments on the Draft General Plan and EIR

The Taxpayers Association hereby submits their recommendations and comments of the four "equal-weight" General Plan Alternatives and DEIR under consideration.

Summary

- The Taxpayers Association unanimously recommends that the 1996 General Plan be the basis for Preferred Alternative. The 1996 Plan is the only Plan that is economically viable and has genuine forward looking planning for the county's future; the only one that has undergone public input and deliberation of policies with public buy-in and Board approval; the one that will most quickly remove the constraints imposed by the Writ, and give property owners reasonable latitude over their own property; the one that, with a few exceptions, has passed CEQA; and thus the one considered to be the least likely for legal challenge.
- The 1996 General Plan is already "Court Approved". Judge Bond's Ruling clearly states on page 141: *"The form and content of the El Dorado County General Plan do not violate the planning and zoning law, and the Court does not invalidate the plan on that basis. Similarly, the water use projected under this plan does not violate the public Trust Doctrine . . ."*  
Page 138 of the Ruling states: *This ruling does not mean that the County must rewrite the Environmental Impact Report as a whole. Further the Ruling states: Nor does this ruling require the County to rewrite General Plan. This ruling merely requires the County to correct the violations of CEQA that occurred during the environmental process . . .*

296-1

296-2

- **The Taxpayers Association requests that, due to the complexity of the Draft General Plan Alternatives and the DEIR, responses are provided concerning comments made herein on both sets of documents.**

296-3

**General Comments**

**Measure Y as approved by the voters carried a 10-year sunset clause. The Board has directed that the Measure Y dictates be included in all four Alternatives, omitting the sunset provision.** The Association respectfully requests that the 10-year sunset requirement be added to all Plans. It was never intended to make measure Y permanent. Had that been the direction, it would have been challenged.

296-4

The EIR must have a discussion of the effect of sunseting of measure Y and how the county will respond to address the issues should Measure Y be determined to be invalid by the Courts, repealed by the voters, or fail to be renewed by the voters. Not to include this documentation in the next round of discussions would be for staff to have unilaterally changed the meaning and purpose of a voter approved measure.

296-5

- **The Judge's instructions to respond to the EIR deficiencies have not been followed.** Instead of addressing the Judges Ruling to provide data and analyses that justifies why the county did not adopt the various proposals and proposed mitigation measures, this new general plan process proposes that these issues be adopted as new programs. This is not what the Ruling said to do.

The Taxpayer's Association again requests compliance with the Judge's directions by providing the necessary data and analyses to supports the county's not adopting certain proposals and mitigation measures. Clearly, the Judge's ruling is stating that data, facts, and reasoned analysis are to be provided for the decision making process. Staff should be immediately instructed to create the administrative record that would be necessary and appropriate if the Planning Commission and Board of Supervisors were to choose not to adopt one or more of the proposals. The Taxpayer's Association believes that in most cases the decision not to adopt the offending proposals was appropriate and was simply not supported adequately in the record. That record must be developed and discussed openly in the next round of Planning Commission hearings so as to allow proper consideration of the true issues involved.

296-6

- Appendix G, Compliance with the Writ of Mandate, Page 11, the "rewrite team" errs by ignoring the Judges instructions. The direction given was to justify the quantification of the "achievable density", not derive the theoretical maximum densities, implying that they could be reached by spending enough time and money over the long term. This is misleading and a distortion of the real world. Clearly implementing many of the new proposals for "mitigation measures" will in fact significantly lower the achievable densities. The analysis of how much achievable density would be lost should have been made as an adjunct to each of the measures proposed. New requirements for dubious environmental protections will result in a land use pattern that in fact will make "the evil of suburban sprawl" worse.

296-7

Each of the new proposed mitigations needs to have a set of findings for decision makers reference in order for them to make specific findings that allow rejection many of the proposed measures, if they so choose.

296-8

An objective of the 1996 General Plan is: *To oversupply residential and non-residential land use designations in order to provide market and landowner flexibility to more feasibly accommodate the market.* Understanding that growth corresponds closely with the projections of the Department of Finance despite growth control measures that typically fail, this objective merely aids in achieving affordable housing requirements, and prevents problems due to lack of foresight and planning.

296-9

- **The new Constrained Alternatives contain dubious policies and land use changes that have only been subjected a bare minimum of public hearings and deliberations.** This violates the spirit and intent of Section 65033, Public participation of the State Planning and Zoning Statutes, to wit:

*The Legislature recognizes the importance of public participation at every level of the planning process. It is therefore the policy of the state and the intent of the Legislature that each state, regional, and local agency concerned in the planning process involve the public through public hearings, informative meetings, publicity and other means available to them, and that at such hearings and other public forums, the public be afforded the opportunity to respond to clearly defined alternative objectives, policies, and actions.*

This requirement is further emphasized by Judge Bond's statement, to wit: *This balancing of interests is a political matter, not a judicial function. The political nature of the planning process is revealed by the Planning and Zoning Law's repeated emphasis on "the importance of public participation at every level of the planning process.* The Taxpayers Association asserts that in spite of repeated requests and reminders of this requirement, the County has failed to comply. Note that the requirement says "at every level". The workshops held in August of 2002 provided very limited public participation. There were no Housing Elements available, and no Environmentally or Roadway Constrained Alternatives available for review, thus no public input or deliberation.

296-10

Although it has been repeated numerous times by counsel that "there will be an opportunity to have hearings on the plan prior to adoption", this has not happened. Now the property and business owners are confronted with the release of confusing and overwhelming Alternative/ EIR documentation that obfuscates rather than informs them regarding changes being proposed. The 1996 General Plan has been changed with revisions "piecemealed" through the EIR, as opposed to being located in one coherent document. Both of the Constrained Alternatives have been developed by the "rewrite team" with a process that prevented public input or deliberation. The State Planning and Zoning Statute of *"the importance of public participation at every level of the planning process"* has been grossly violated.



- **The No Project Alternative is clearly not acceptable as an Alternative.** Rather it establishes baseline conditions driven by the Writ, offering no planning applicable to the future of the entire county. The simple fact is that all sides of this discussion agree that El Dorado County needs a General Plan. This is the same as saying everyone agrees that the no project alternative is unacceptable.
- **The Association notes that only the 1996 General Plan policies and planning may be viable out to year 2025.** The other growth constrained Alternative plans should be more accurately labeled according to their estimated useful life such as to 2015 or 2018. As previously noted, one of the objectives of the 1996 General Plan is *“To oversupply residential and non-residential land use designations in order to provide market and landowner flexibility to more feasibly accommodate the market”* and thus it may be viable to 2025. Many people expressed dismay with this direction in the 1996 plan. What we must now realize however is that by taking the “oversupply” built into the 2015 plan and extending the stated useful life of that plan to 2025 we have used up the oversupply. In fact the achievable populations under the other 3 alternatives do not even support the population projected to actually exist in 2025. The county is using the figure of 234,821 as a likely population for the purpose of deciding on needed county personnel and office space. 234,821 is probably a conservative number that is very likely to be met or exceeded. Only the 1996 plan alternative allows the proper planning of infrastructure necessitated by the coming population.
- **The 1996 General Plan Alternative embodies a well-developed statement of Vision for Principals, Goals, and Objectives for the County.** It was established, by consensus, through a series of workshops in the early phases of the General Plan process, and should be maintained. In contrast, the Constrained Alternatives have had no public input and no Vision statement. The 1996 Plan vision is unsuitable for either of these Alternatives.
- **The Preferred Alternative Plan must have an Economic Element with policies such as those that have been defined for the 1996 Plan.** The idea of forming a committee at some point in the future to generate economic policies is irresponsible. The county needs economic development to occur immediately.
- **The Taxpayers Association once again requests changes to the Housing Element to aid affordable housing.** Meeting the state directed affordable housing demand will only happen if and when such projects are economically viable. A comprehensive analysis of the policies and costs impact must be conducted, with policies developed to provide for waivers, fee deferrals and similar aids. The imposition of Inclusionary Zoning is considered to be a punitive measure that will prevent rather than encourage the development of affordable housing.

The Department of Housing and Community Development’s June 10, 2003 letter to the Planning Director makes this point abundantly clear by stating that the County’s fees are almost triple the state wide average.

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- **The County is exacerbating rather than taking remedial actions to address the affordable housing problem** by adding a multitude of policies, regulations, commissions, and staff tasks. There is no justification, and no analyses of the cost or time impacts for these additions:
  - 1) Oak Tree Removal Permit Fee
  - 2) General Plan Consistency Determination Fee
  - 3) Housing Trust Fund Fee
  - 4) Park and Ride Lot Fee
  - 5) Biological Corridor and Environmental Fee
  - 6) Regional Park Fee
  - 7) Integrated Natural Resources Management Fee
  - 8) Evaluation for conformance with other General Plan policies required prior to implementation of proposed fuel management activities” (an obvious conflict with state fire defensible protection requirements).

296-17

These issues will assure that "Government is the Problem-Not the Solution", from a cost point of view, and a stifling regulation of private property. They should be eliminated and county staff reduced accordingly!

- **Government should not grow faster than the population.** The Taxpayers Association questions the wisdom of assuming a population of 234,821 as the basis for expenditures for new county government facilities, but only providing one of three Alternatives that will accommodate the projected 2025 population of 241,241.
- **There is no discussion or recognition of issues that may fall into the category of "Overriding Considerations".** Background information should be prepared for the administrative record for the decision makers to deal with these issues. Only mitigation measures have been presented the in EIR.
- **The General Plan Draft Alternatives and EIR are confusing and difficult to follow.** This is a General Plan - it should be "general", and it should be simplified. The overwhelming detail, the undesirable specificity, and overzealous authoritarian control of staff specified tasks should be greatly simplified or eliminated, leaving the Planning Commission and Board of Supervisors more latitude to apply judgment on many issues. It applies a "one size fits all mentality" and deals too much in telling property owners what others want to do with their private property. Details that directly affect property owners are to be located in a Zoning Document, subject to public hearings – not imbedded in the General Plan

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**The Preferred Alternative**

The Taxpayers Association strongly supports the 1996 General Plan Alternative for a viable Preferred Alternative. This plan establishes "when and where" people will be located that is necessary to develop the long range planning required for roads, water, schools and similar infrastructure. Conversely, there are numerous issues and policies in the Constrained Alternatives that would prevent or hamper such infrastructure development, including some that the Taxpayers Association believes would render them impractical and unviable.

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The Association therefore requests that these dubious policies such as “one time 4 X 4 of parcels regardless of size, or the latent demand water supply issue be eliminated.

The Roadway Constrained Alternative treats the Circulation Element in the exact opposite way, as does Judge Bonds Ruling. The fact that to adopt this position would have an outcome that the Judge said was unjustified by the record of evidence. She stated that the 1996 Plan addressed transportation adequately and appropriately, and that the plaintiffs did not prevail on this issue (see pages 13 thru 17 of the Ruling), but the Roadway Constrained Alternative treats the Circulation Element as if the Plaintiffs had prevailed.

**Conclusion and Recommendations**

**For the reasons stated above, the Taxpayers Association believes that the 1996 General Plan Alternative is clearly the only plan that qualifies for “Preferred Alternative” status, and recommends that additions or changes to the 1996 General Plan should be limited to those issues necessary for updating, such as Measure Y including the sunset provision.**



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296-23

From: Alan Tolhurst  
To: Heidi Tschudin  
Cc: Heidi Tschudin  
Sent: Tuesday, July 15, 2003 10:55 AM  
Subject: General Plan Comments

Heidi

I was hoping to be able to compose a more thorough set of comments, but like everyone else, I have been really pressed for time. These are just a couple of issues that I have mentioned and would like to make sure they are properly addressed in the EIR and all of the Alternatives to the General Plan.

I have discussed the Highway 50 eight lane problem with Matt Boyer and I think you have been working the issue, but just to make sure nothing got lost in the translation I'll explain to you my concerns. If we are using Highway 50 to mitigate the traffic problems, we must demonstrate that we have properly addressed the feasibility and timing of the additional lane. I don't think we have to show that it is in the Master Plan for Cal-Trans or SACOG, but I think we need to show what the trigger mechanism would be, how the funding would be generated and how we have planned to accomplish the addition to be timed to come on-line with build-out requirements. If we don't show how we plan to mitigate this situation, I think we're on track for another law suit.

The other issue that concerns me is the water situation at Lake Tahoe. (I know, it seems that there is a whole Lake full of water!). Every where else in the County we have building restrictions based on water availability, but since we are not doing any more subdivisions here, the restrictions do not seem to apply. For the past five years we have been on water restrictions, and this year seems to be the worst yet. EID is required to show it has water supplies to handle two consecutive drought years. This is a normal water year in the Tahoe Basin, and yet we are under stage 3 water restrictions. They seem to indicate that they don't have the capacity to serve the existing water needs, especially on busy weekends, and they certainly don't have the reserves to adequately deal with a fire situation. TRPA does not concern itself with these types of issues, it is really a local jurisdiction issue. I think it is irresponsible to continue to issue building permits if we don't have the water capacity to serve the new buildings, and I think it is detrimental to health and safety of the community to continue to issue permits if we cannot adequately protect the citizens from fire. I think we ought to have in the General Plan the same types of requirements for the Tahoe Basin as in other areas of the county, and we should probably have the STPUD give an annual report to the Planning Commission and the Board of Supervisors which shows that they have the capacity to adequately serve the water needs of the community, including any additional building permits for any given year.

**297-01****297-02**

07/15/03 01:21am P. 001

July 15, 2003

VIA FACSIMILE: 530-642-0508

General Plan Team  
2850 Fairlane Court  
Placerville, CA 95667

03 JUL 15 PM 12:44  
RECEIVED  
PLANNING DEPARTMENT

Dear General Plan Team:

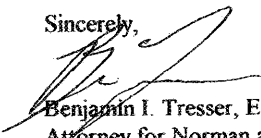
I write with regard to the upcoming general plan decision and its application to my family's land located at parcel numbers 319-260-65 and 66.

The current general plan designation for our land is industrial as is the designation under general plan proposals #1, #2 & #4. However, under general plan proposal #3 it is designated low density residential. To adopt this low density residential designation (general plan proposal #3) would be a mistake for the county and a severe financial hardship to us for the following reasons:

1. The county has a severe shortage of good industrial land and should not be further reducing that supply.
2. Our land is surrounded by industrial uses including a trucking depot that hauls garbage at night (319-260-2) and the old Bennett Sculpture building that has a history of toxic pollution (319-260-41). Therefore a low density residential designation does not make sense as few want to live there.
3. My family bought this land with its current general plan zoning designation of industrial. We have held it for many years waiting for the money and appropriate economic conditions to develop it. Therefore, to lose our industrial zoning designation now would be a huge financial blow as it has little residential value surrounded by industrial uses.

For these reasons I ask that you adopt general plan proposal #1, #2 or #4 as they apply to parcel numbers 319-260 65 and 66 maintaining their current industrial zoning designation. Please feel free to contact me at 415-793-9000 with any questions.

Sincerely,

  
Benjamin I. Tresser, Esq.

Attorney for Norman and Surry Tresser, the Tresser Family Trust and the 2510  
Webster Street Medical Partnership

298-1

STEPHAN C. VOLKER  
HEATHER A. DAGEN  
GRETCHEN E. DENT

Law Offices of  
**STEPHAN C. VOLKER**  
436 14<sup>th</sup> Street, Suite 1300  
Oakland, California 94612  
TEL: 510/496-0600 ~~SO~~ FAX: 510/496-1366  
e-mail: svolker@volkerlaw.com

Received via  
email 2:59 pm  
7/15/03  
[Signature]

July 15, 2003

VIA FACSIMILE (530-642-0508) AND EMAIL (generalplan@co.el-dorado.ca.us)

General Plan Team  
El Dorado County Planning Department  
2850 Fairlane Court  
Placerville, CA 95667

Re: Comment of El Dorado County Taxpayers for Quality Growth and  
Associated Organizations on El Dorado County Draft General Plan and  
EIR

Dear General Plan Team:

These comments are submitted on behalf of El Dorado County Taxpayers for Quality Growth, League to Save Sierra Lakes, Environmental Planning and Information Council of Western El Dorado County, Inc., Sierra Club, California Sportfishing Protection Alliance, Caples Lake Homeowners' Association, Kirkwood Meadows Public Utilities District, Northern Sierra Summer Homeowners' Association, Sorensen's Resort, South Silver Lake Homeowners' Association, California Native Plant Society, Safegrow, Caples Lake Resort, Kit Carson Lodge, and Plasse Homestead Homeowners' Association. All of these organizations prevailed in litigation challenging El Dorado County's 1996 General Plan on the grounds it violated the California Environmental Quality Act, Public Resources Code section 21000 *et seq.* ("CEQA"). On February 5, 1999, Presiding Judge Cecily Bond of the Sacramento Superior Court ruled that El Dorado County's adoption of its 1996 County General Plan violated CEQA in at least 23 separate respects. By Writ of Mandate filed on July 19, 1999, Judge Bond ordered the County to conduct extensive further environmental review, analysis and disclosure before attempting to adopt a successor General Plan. Pending compliance with the Court's Writ of Mandate, Judge Bond imposed significant constraints on further urban development within El Dorado County.

The primary purpose of this comment letter is to identify the most significant areas in which the County's Draft General Plan and Draft EIR thereon depart from the requirements of Judge Bond's ruling and applicable law, including CEQA, the California Government Code, and the General Plan Guidelines promulgated by the Governor's Office of Planning and Research. For ease of reference, our comments are represented in the order in which Judge Bond addressed the County's violations of CEQA in the Court's Writ of Mandate.

**Writ Point 2.1: Changes in Land Use Maps.**

Judge Bond struck down the County's 1996 General Plan in part because many of the Plan's proposed changes in land use were not adequately disclosed and evaluated in the County's EIR. Ruling dated February 5, 1999 ("1999 Ruling") at pages 56-70. The Court therefore

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directed the County, in its review of any future draft General Plan, to “either make a finding, based on substantial evidence, that the changes in the land use maps did not result in any new significant environmental impact or a substantial increase in the severity of an environmental impact, or it must review the environmental impacts of the changes pursuant to CEQA.” Writ at 2:25-3:1. This remains an area of concern, for two reasons. First, the County’s DEIR purports to find that certain changes in the land use maps will not result in significant environmental impacts, without substantial evidence to support this conclusion.. DEIR at Volume 1, pages 2-9 through 2-46 (“DEIR 1:2:9-46”).

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Second, as to those land use changes that the DEIR admits do pose significant environmental impacts (e.g., DEIR 1:2:47-76), the DEIR fails to provide an adequate review of the environmental impacts of these changes pursuant to CEQA. For example, the DEIR admits, in Appendix G, that the impact of the plan on Caples, Silver and Aloha Lakes would be “significant and unavoidable,” yet the DEIR fails to provide the full environmental review of such impacts required under the Writ. Similarly, the County has proposed to mitigate impacts on wildlife habitat through the creation of so-called “Important Biological Corridors” (“IBCs”), all of which run north-to-south rather than east-west. Yet available science confirms overwhelmingly that wildlife require east-west migration corridors to provide seasonally appropriate habitat for wildlife species that move to higher elevations during the summer. The DEIR masks the plan’s dramatically adverse impacts on wildlife habitat through reliance on ineffective and illusory mitigation measures. For example, the DEIR fails to provide an adequate assessment of the environmental impact of the plan’s proposal to allow smaller parcels within wildlife habitat such as deer migration corridors. DEIR 3: App. G: 7-8.

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**Writ Point 2.2: Changes in Oak Woodland Canopy Coverage Policies.**

Judge Bond ruled that the 1996 General Plan Draft EIR’s purported mitigation for the loss of oak woodlands by adoption of a “replacement” standard for oak trees was illusory, since the County failed to present substantial evidence that planting seedlings could mitigate for the loss of fully grown oak trees. 1999 Ruling at 70-73. Accordingly, the Court’s Writ directed the County to either readopt its original policy of retention (rather than “replacement”) of specified percentages of canopy coverage, “make a finding, based on substantial evidence, that the change in the oak woodland canopy coverage policies did not result in a new significant environmental impact. . . or . . . review the environmental impacts of the change pursuant to CEQA.” Writ at 3:18-20.

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The County has failed to comply with this direction. Although the DEIR admits, as it must, that the 1996 General Plan’s proposed replacement policy would be ineffective (DEIR 2:5.12:42-43), the DEIR fails to disclose and evaluate the even less effective mitigation measure now proposed, a “Mitigation Fee.” DEIR 2:5.12:61. The proposed Mitigation Fee, which is tied to preparation of the Integrated Natural Resource Management Plan (“INRMP”), has no timeline for implementation, nor factual predicate, since the INRMP has not yet been prepared.

Equally significant, the County’s proposed INRMP violates Government Code section 65563(b) and the implementing OPR General Plan Guidelines. For nearly 30 years, section 65563(b) has required that counties prepare an inventory of their open-space resources. Courts have vigorously enforced this requirement. *Save El Toro Assn. v. Days* (1977) 74 Cal.App.3d 64, 73. The General Plan Guidelines likewise confirm that county general plan open-space elements must “includ[e] an inventory of open-space resources.” General Plan Guidelines (1990) at p. 128. Contrary to this settled requirement, the County’s proposed General Plan fails to include the required inventory of open-space resources. Instead, the County proposes once again to defer, indefinitely, compilation of this critical inventory. Yet completion of this inventory is essential to protection of fish and wildlife habitat, watershed resources, natural scenery, and other protected open-space resources.

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**Writ Point 2.3: Changes in Acceptable Levels of Traffic Congestion.**

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Judge Bond overturned the County's 1996 General Plan because the County EIR's "discussion of traffic impacts was unnecessarily complex and obscure," resulting in a failure to "fairly disclose one of the significant environmental impacts of the General Plan." 1999 Ruling at 73-80. Likewise with regard to the County's DEIR, the discussion of traffic impacts from proposed development remains "unnecessarily complex and obscure." DEIR 1:5.4:1-69. The DEIR fails to provide the reader with a clear and direct summary of the plan's impacts on the existing traffic conditions throughout the County. Instead the DEIR presents a confusing set of assumptions and accompanying text and tables that fail to clearly and fairly delineate the impacts on traffic of the four alternatives under consideration. For example, many of its projections, such as the DEIR's conclusion that buildout under the 1996 General Plan would have a less severe impact on the traffic than would buildout under the "environmentally constrained" Alternative Number 3, are never explained, and indeed, defy logic. DEIR 1:5.4:52, 56.

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**Writ Point 2.4: Range of Alternatives Considered.**

The County's 1996 General Plan was invalidated in part because Judge Bond found that the County's EIR failed to consider a reasonable range of alternatives. For example, Judge Bond noted that "it is not clear how the Low Growth Alternative offered 'substantial environmental advantages over the project proposal.'" 1999 Ruling at 90. Likewise here, the DEIR purports to offer an "Environmentally Constrained Alternative" which, in fact, fails to protect the environment in many substantial respects, to the point where it would result in *greater* traffic congestion and air pollution than would the 1996 General Plan that Judge Bond ruled illegal. Indeed, as to most areas of environmental impact, the County's "Environmentally Constrained Alternative" ranks exactly the same as the other alternatives under consideration, depriving the public of any meaningful choice between the alternatives presented. DEIR 1:2:9-76 (Executive Summary Table discloses identical levels of environmental impact after mitigation for each of the four alternatives in virtually all categories of impact). Contrary to Judge Bond's Writ, the County has failed to "adequately disclose[] the analytic route it traveled in arriving at its conclusion that the 'Low Growth Alternative' [i.e., the "Environmentally Constrained Alternative"] offered significant environmental advantages over the other alternatives... "or, in the alternative, . . . consider at least one new alternative that does so." 1999 Ruling at 91.

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**Writ Point 2.5: Consideration of a "No Project" Alternative.**

The County's 1996 General Plan was thrown out in part because EIR failed to discuss the impacts of buildout under the plan and its alternatives in comparison to "the current conditions in the County." 1999 Ruling at 91, 94. Judge Bond accordingly ruled that "in any reanalysis or supplemental analysis prepared by the County. . . the County must 'analyze the "No Project" alternative in a manner that clearly discloses the population impacts of the General Plan in relation to current County population as well as in relation to what would be reasonably expected to occur in the foreseeable future if the General Plan were not approved. . . ." 1999 Ruling at 95. Contrary to this direction, the DEIR fails to analyze the "No Project" alternative in the required manner. Instead, the DEIR assumes, without explanation, that the County's unlawful 1996 General Plan is equivalent to a "no project" alternative. Demonstrably, an unlawful plan that cannot be legally implemented is not a viable "no project" alternative.

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**Writ Point 2.6: Rejection of Specific Proposed Mitigation Measures.**

Judge Bond invalidated the County's 1996 General Plan in part because the Court "found that certain of the County's findings that proposed mitigation measures were infeasible. . . violated CEQA because they did not set forth the facts and analysis supporting them." 1999 Ruling at 113. Therefore the Court directed that the County must "either take action to make

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proper findings of infeasibility according to the standards set forth [in the Court's Ruling], adopt the proposed mitigation measures, or otherwise comply with the requirements of CEQA." 1999 Ruling at 113.

Contrary to this direction, the DEIR attempts to dodge this requirement altogether. In Appendix G, the DEIR asserts that "the issue of findings will be addressed at the time of project approval. . . ." DEIR 3:App. G: 4-5. CEQA requires disclosure of the County's assessment of the feasibility and efficacy of contemplated mitigation measures *now*, in order to assure that the public has an opportunity to review and comment on the County's reasoning. The County's stubborn refusal to comply with Court's Writ in this regard violates CEQA.

The County's failure to disclose and assess the feasibility and efficacy of its proposed mitigation measures strikes at the core of the CEQA process. Throughout the DEIR, the reader is advised that essential mitigation measures will be devised in the future rather than presented for evaluation now. For example, the County admits that it would not require adoption of a "Scenic Corridor Ordinance" to mitigate developmental impacts on scenery for up to five years. General Plan, Draft Environmentally Constrained Alternative, page 38. Deferring delineation of this critical mitigation measure for up to five years deprives the public of information vitally necessary now in order to assure informed public review and comment on the General Plan alternatives and DEIR thereon.

Likewise, the County has proposed to create IBCs that would be both discontinuous and oriented in a north-south, rather than east-west, direction. The public cannot begin to make an informed choice with regard to these proposed mitigation measures until the County provides data and analysis that addresses the efficacy of these proposals. Without this analysis, the public is left in the dark regarding one of the most critical features of the General Plan: its protection of fish and wildlife resources.

Similarly with regard to the County's policy regarding the piping, culverting or lining of streams, the County's analysis is subverted by the caveat that these otherwise prohibited developments would be allowed "where such activities cannot be avoided." DEIR 3:App. G:6. By thus allowing undefined exceptions to swallow the rule, the DEIR defies reasoned analysis, defeating the public's right to a meaningful CEQA process.

Similarly with regard to the utilization of narrow road standards to limit traffic speeds and noise, promote public safety and protect rural quality of life, the County's failure to adequately define its terms undermines public understanding of contemplated mitigation measures. The DEIR states in Appendix G, for example, that Mitigation Measure 5.3-2 would apply to "rural" roads. DEIR 3:App. G:7. But developments within rural regions already utilize narrow road standards. It is within the Community Regions that additional narrow road protections are needed. The County's failure to delineate its proposed mitigation measures with sufficient specificity forecloses public assessment of their efficacy.

Likewise with regard to Judge Bond's ruling that there was no basis for the County's rejection of mitigation measures that would lower densities for certain land use categories (1999 Ruling at 113), the County fails to address the feasibility of this obvious mitigation measure in the DEIR and the Draft General Plan. The County's continuing failure to consider density reductions as appropriate to reduce the impacts of future development as required under Judge Bond's ruling violates the Writ and CEQA.

The County also fails to provide any reasoned analysis to support the DEIR's conclusion that "deer can successfully migrate through smaller parcels" as small as 10 acres. DEIR 3:App. G:7-8. Judge Bond's Writ set aside the 1996 General Plan in part because it failed to explain



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why it rejected limitations on parcel size in areas of deer habitat. Writ at 5:16-6:5. The DEIR suffers from the same unlawful omission.

The County's proposal to allow destruction of oak woodlands upon payment of a "Mitigation Fee" likewise violates Judge Bond's Writ. As pointed out above, the Court set aside the County's attempted relaxation of its former oak woodland "retention" policy because the County failed to provide any substantial evidence to support its assumption that mature oak woodlands could be "replaced" with seedlings at no environmental cost. The County's current proposal, to substitute a "Mitigation Fee" for the aborted and clearly deficient "replacement" policy, represents an even more egregious departure from CEQA requirements.

Similarly, the County's rejection of a twenty-acre minimum lot size for parcels adjacent to grazing land fails to pass CEQA's evidentiary muster. Judge Bond ruled in 1999 that the County's rejection of lot size limitations for parcels adjacent to grazing land was not supported by the facts and analysis required under CEQA. 1999 Ruling at 113. Consequently, the Court ordered the County to "either take action to make proper findings of infeasibility. . .adopt the proposed mitigation measures, or otherwise comply with the requirements of CEQA." Writ at 6:1-5. Contrary to this clear directive, the DEIR rejects this mitigation measure without any factual analysis. DEIR 3:App. G:8. Accordingly, the DEIR violates CEQA.

**Writ Point 2.7: Adoption of Dubious Mitigation Measures.**

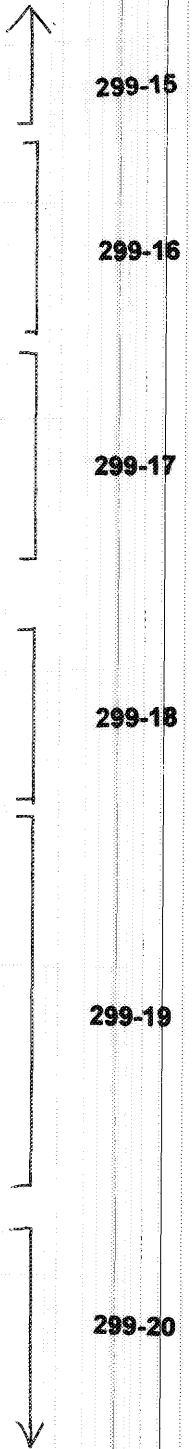
Judge Bond overturned the County's 1996 General Plan in part because it purported to adopt a mitigation measure of "dubious" efficacy. 1999 Ruling at 114. Accordingly, the Court ordered the County to "void the adoption" of the dubious mitigation measure in question. For the same reason here, the County should either delete, or support with tangible, reliable data and analysis, the numerous mitigation measures of dubious efficacy that are criticized in these comments, as well as in the separate comment letters of the undersigned organizations.

**Writ Point 2.8: Environmental Review of Projected Water Supplies.**

The DEIR continues to ignore the extremely deleterious impacts of its projected rapid urban growth on the upper watershed communities that depend on Caples, Silver and Aloha Lakes for recreation, domestic and other community purposes. This violates Judge Bond's 1999 ruling. In that ruling, the Court agreed with petitioners that the County's EIR on its proposed 1996 General Plan "fails to disclose or discuss the impact that development of future water supplies will have . . .on Caples, Aloha and Silver Lakes." 1999 Ruling at 116-117, 122. Accordingly, Judge Bond ordered the County to "make findings, consistent with this Ruling in supported by substantial evidence, that the adoption of the General Plan will not result in any environmental impacts on Caples, Silver or Aloha Lakes, or, in the alternative, perform a full environmental review of such impacts pursuant to CEQA." Writ at 7:2-6. Contrary to this order, the DEIR fails to "perform a full environmental review" of the General Plan's admittedly significant and unavoidable" impacts on these lakes. DEIR 3:App. G:9-10. The County must rectify this serious violation of CEQA.

**Writ Point 2.12: Statement of Overriding Considerations.**

Judge Bond threw the County's 1996 General Plan in part because the "Statement of Overriding Considerations" adopted by the County in an effort to sidestep analysis and mitigation of the significant environmental impacts from the County's proposed growth was not supported by the detailed data and analysis that CEQA requires. 1999 Ruling at 134-135. Accordingly, the Court ordered the County to specifically address with adequate factual analysis the numerous examples of baseless assumptions and faulty reasoning identified by the petitioners. Writ at



General Plan Team  
July 15, 2003  
Page 6

8:25-9:3. So too in its new Draft General Plan and DEIR, the County indulges numerous baseless assumptions and engages in faulty reasoning in the respects summarized above. Lest the County again find itself in Court due to avoidable CEQA violations, the undersigned organizations urge the County to carefully consider the foregoing comments, together with those transmitted separately by the undersigned organizations.

Thank you for considering our comments on this important matter. Please call me if you have any question.

Very truly yours,

Stephan C. Volker  
Attorney for El Dorado Taxpayers for  
Quality  
Growth and associated conservation  
organizations and concerned citizens.

SCV:aml

cc: Louis B. Green, El Dorado County Counsel

↑  
299-20

**COMMENTS RECEIVED AFTER THE CLOSE OF THE COMENT PERIOD.**

From: John M. Latini [mailto:jlatini@latinilaw.com]  
Sent: Tuesday, July 15, 2003 3:02 PM  
To: 'pmaurer@co.el-dorado.ca.us'  
Subject: RE: El Dorado County General Plan

ALSO SENT VIA US MAIL

Dear Mr. Maurer:

I am in receipt of your e-mail sent yesterday July 14, 2003 responding to my comments on the four General Plan alternatives circulated by the County of El Dorado. Specifically, my comments expressed the concern that, based upon my review of the four (4) alternatives released in April, 2003, that none of the four alternatives prepared by the County identified, acknowledged or otherwise reflected the Salmon Falls planned development of this property by my client as set forth in the development application on file with the County since 1998. I am encouraged that the potential traffic and other impacts associated with my clients Salmon falls development were included in the base land use densities for the 1996 General Plan alternative. However, it is my opinion that to fail to include these same density calculations and impacts under the Environmentally Constrained General Plan alternative or the Roadway Constrained General Plan alternative was error and presumptuous.

Accordingly, my client demands that its Salmon Falls development impacts be considered in both the Environmentally Constrained General Plan alternative or the Roadway Constrained General Plan alternative.

Very truly yours,

John M. Latini

300-1



989 Governor Drive, Suite 101, El Dorado Hills, CA 95762 916-941-1411 fax: 916-941-1474

**VIA FAX: 530-642-0508**

July 15, 2003

General Plan Team  
El Dorado County Planning Department  
2850 Fairlane Court  
Placerville, California 95667

**Re: Comments to General Plan and Environmental Impact Report**

Dear General Plan Team:

Thank for you for extending the public review period of the General Plan and the environmental impact report (EIR). With the extension, hopefully more useful comments will result.

We were pleased to see that the 2001 General Plan Project Description released in July 2001 included a statement of vision to provide for a four-year university; however, we were disappointed that the vision was not carried over into the General Plan alternatives.

Providing a site for a four-year university is not without its challenges and extensive planning review would be required before any sites are designated. Nevertheless, planning for a four-year university is still a worthwhile goal that should not be abandoned.

We provided a comment letter to the 2001 Project Description on August 29, 2002, which we will incorporate by reference. We believe that properties we represent would be an ideal location for a four-year university due to the reasons outlined in the letter; however, it is not the only site possible in the county. Regardless of where a four-year university is designated, we believe that the County should pursue a site, or, at a minimum, not preclude the possibility of a four-year university from occurring.

If you have any questions or comments, please feel free to contact me.

Very Truly Yours,

**MJM Properties, LLC**  
A California limited liability company

By:   
Michael L. McDougall  
President

301-1

From: Freda D. Pechner [mylawyer@jps.net]  
Sent: Tuesday, July 15, 2003 3:34 PM  
To: generalplan@co.el-dorado.ca.us  
Subject: My client: Loring Brunius

*Rec'd after  
5:00pm*

July 15, 2003 E-MAIL TRANSMITTAL

General Plan Team

2850 Fairlane Ct.

Placerville CA 95667

RE: My client: Loring Brunius, dba Sierra Rock

Diamond Quarry

California Mine Number 91-09-0003

The above property is currently being mined. The requirements of the Surface Mine and Reclamation Act, as it relates to the protection of lands designated on approved mineral resource mapping as MRZ-2a lands, do not appear to be incorporated into any of the proposed drafts of the General Plan or the Environmental Impact Report (EIR). The property is important to protect, as El Dorado County is currently not able to serve all of its current needs, as set forth in OFR-2000-03. My client's mine is a designated Aggregate Resource Area, in the recently released mapping of "Mineral Resources of El Dorado County", and thus entitled to protection. We are looking forward to the opportunity to meet with your staff, along with my consultant, to discuss the manner in which applicable state law will be more fully implemented in the final EIR and Plan.

302-1

In addition, this property is currently zoned Industrial, has an approved Reclamation Plan which relies upon Industrial Zoning. If the zoning is changed, my client's property rights will be severely compromised. The first alternative, residential, is incompatible with mining, and violates the mandate to protect the identified resource. My client has spent substantial sums to reclaim this historic property from past mining abuse, which has been done in a manner consistent with Industrial Zoning. If the end use was changed to Residential, a different reclamation plan would be required, as well as different mining practices, at substantial additional expense. Moreover, the Writ of Mandate which compelled the new general plan specifically accepted the entitlements which were approved in reliance upon the 1996 General Plan, as was my client's reclamation plan, when it was approved in August, 1997.

302-2

On behalf of my client, we request that the Industrial Zoning be retained in the new General Plan for Diamond Quarry. Thank you for your attention in this matter. Please feel free to contact me if you have any questions regarding this matter, or if you wish to discuss it in further detail.

Very truly yours,

FREDA D. PECHNER  
FDP:ss

c: Loring Brunius

STEPHAN C. VOLKER  
HEATHER A. DAGEN  
GRETCHEN E. DENT

Law Offices of  
**STEPHAN C. VOLKER**  
436 14<sup>th</sup> Street, Suite 1300  
Oakland, California 94612  
TEL: 510/496-0600 FAX: 510/496-1366  
e-mail: svolker@volkerlaw.com

Received via email  
5:45 PM  
7/15/03  
SL

July 15, 2003

VIA FACSIMILE (530-642-0508) AND EMAIL (generalplan@co.el-dorado.ca.us)

General Plan Team  
El Dorado County Planning Department  
2850 Fairlane Court  
Placerville, CA 95667

Re: Comment of El Dorado County Taxpayers for Quality Growth and  
Associated Organizations on El Dorado County Draft General Plan and  
EIR

Dear General Plan Team:

These comments are submitted on behalf of El Dorado County Taxpayers for Quality Growth, League to Save Sierra Lakes, Environmental Planning and Information Council of Western El Dorado County, Inc., Sierra Club, California Sportfishing Protection Alliance, Caples Lake Homeowners= Association, Kirkwood Meadows Public Utilities District, Northern Sierra Summer Homeowners= Association, Sorensen=s Resort, South Silver Lake Homeowners= Association, California Native Plant Society, Safegrow, Caples Lake Resort, Kit Carson Lodge, and Plasse Homestead Homeowners= Association. All of these organizations prevailed in litigation challenging El Dorado County=s 1996 General Plan on the grounds it violated the California Environmental Quality Act, Public Resources Code section 21000 *et seq.* (ACEQA@). On February 5, 1999, Presiding Judge Cecily Bond of the Sacramento Superior Court ruled that El Dorado County=s adoption of its 1996 County General Plan violated CEQA in at least 23 separate respects. By Writ of Mandate filed on July 19, 1999, Judge Bond ordered the County to conduct extensive further environmental review, analysis and disclosure before attempting to adopt a successor General Plan. Pending compliance with the Court=s Writ of Mandate, Judge Bond imposed significant constraints on further urban development within El Dorado County.

The primary purpose of this comment letter is to identify the most significant areas in which the County=s Draft General Plan and Draft EIR thereon depart from the requirements of Judge Bond=s ruling and applicable law, including CEQA, the California Government Code, and the General Plan Guidelines promulgated by the Governor=s Office of Planning and Research. For ease of reference, our comments are represented in the order in which Judge Bond addressed the County=s violations of CEQA in the Court=s Writ of Mandate.

**Writ Point 2.1: Changes in Land Use Maps.**

Judge Bond struck down the County=s 1996 General Plan in part because many of the Plan=s proposed changes in land use were not adequately disclosed and evaluated in the County=s EIR. Ruling dated February 5, 1999 (A1999 Ruling@) at pages 56-70. The Court therefore directed the County, in its review of any future draft General Plan, to Aeither make a finding, based on substantial evidence, that the changes in the land use maps did not result in any new significant environmental

303-1

303-2



impact or a substantial increase in the severity of an environmental impact, or it must review the environmental impacts of the changes pursuant to CEQA. @ Writ at 2:25-3:1. This remains an area of concern, for two reasons. First, the County=s DEIR purports to find that certain changes in the land use maps will not result in significant environmental impacts, without substantial evidence to support this conclusion. DEIR at Volume 1, pages 2-9 through 2-46 (ADEIR 1:2:9-46").

303-2

Second, as to those land use changes that the DEIR admits do pose significant environmental impacts (e.g., DEIR 1:2:47-76), the DEIR fails to provide an adequate review of the environmental impacts of these changes pursuant to CEQA. For example, the DEIR admits, in Appendix G, that the impact of the plan on Caples, Silver and Aloha Lakes would be Asignificant and unavoidable,@ yet the DEIR fails to provide the full environmental review of such impacts required under the Writ. Similarly, the County has proposed to mitigate impacts on wildlife habitat through the creation of so-called Aimportant Biological Corridors@ (AIBCs@), all of which run north-to-south rather than east-west. Yet available science confirms overwhelmingly that wildlife require east-west migration corridors to provide seasonally appropriate habitat for wildlife species that move to higher elevations during the summer. The DEIR masks the plan=s dramatically adverse impacts on wildlife habitat through reliance on ineffective and illusory mitigation measures. For example, the DEIR fails to provide an adequate assessment of the environmental impact of the plan=s proposal to allow smaller parcels within wildlife habitat such as deer migration corridors. DEIR 3: App. G: 7-8.

303-3

#### Writ Point 2.2: Changes in Oak Woodland Canopy Coverage Policies.

Judge Bond ruled that the 1996 General Plan Draft EIR=s purported mitigation for the loss of oak woodlands by adoption of a Areplacement@ standard for oak trees was illusory, since the County failed to present substantial evidence that planting seedlings could mitigate for the loss of fully grown oak trees. 1999 Ruling at 70-73. Accordingly, the Court=s Writ directed the County to either readopt its original policy of retention (rather than Areplacement@) of specified percentages of canopy coverage, Amake a finding, based on substantial evidence, that the change in the oak woodland canopy coverage policies did not result in a new significant environmental impact... or... review the environmental impacts of the change pursuant to CEQA.@ Writ at 3:18-20.

303-4

The County has failed to comply with this direction. Although the DEIR admits, as it must, that the 1996 General Plan=s proposed replacement policy would be ineffective (DEIR 2:5.12:42-43), the DEIR fails to disclose and evaluate the even less effective mitigation measure now proposed, a AMitigation Fee.@ DEIR 2:5.12:61. The proposed Mitigation Fee, which is tied to preparation of the Integrated Natural Resource Management Plan (AINRMP@), has no timeline for implementation, nor factual predicate, since the INRMP has not yet been prepared.

Equally significant, the County=s proposed INRMP violates Government Code section 65563(b) and the implementing OPR General Plan Guidelines. For nearly 30 years, section 65563(b) has required that counties prepare an inventory of their open-space resources. Courts have vigorously enforced this requirement. *Save El Toro Assn. v. Days* (1977) 74 Cal.App.3d 64, 73. The General Plan Guidelines likewise confirm that county general plan open-space elements must Ainclud[e] an inventory of open-space resources.@ General Plan Guidelines (1990) at p. 128. Contrary to this settled requirement, the County=s proposed General Plan fails to include the required inventory of open-space resources. Instead, the County proposes once again to defer, indefinitely, compilation of this critical inventory. Yet completion of this inventory is essential to protection of fish and wildlife habitat, watershed resources, natural scenery, and other protected open-space resources.

303-5

**Writ Point 2.3: Changes in Acceptable Levels of Traffic Congestion.**

Judge Bond overturned the County's 1996 General Plan because the County EIR's discussion of traffic impacts was unnecessarily complex and obscure, resulting in a failure to fairly disclose one of the significant environmental impacts of the General Plan. 1999 Ruling at 73-80. Likewise with regard to the County's DEIR, the discussion of traffic impacts from proposed development remains unnecessarily complex and obscure. DEIR 1:5.4:1-69. The DEIR fails to provide the reader with a clear and direct summary of the plan's impacts on the existing traffic conditions throughout the County. Instead the DEIR presents a confusing set of assumptions and accompanying text and tables that fail to clearly and fairly delineate the impacts on traffic of the four alternatives under consideration. For example, many of its projections, such as the DEIR's conclusion that buildout under the 1996 General Plan would have a less severe impact on traffic than would buildout under the environmentally constrained Alternative Number 3, are never explained, and indeed, defy logic. DEIR 1:5.4:52, 56.

303-6

**Writ Point 2.4: Range of Alternatives Considered.**

The County's 1996 General Plan was invalidated in part because Judge Bond found that the County's EIR failed to consider a reasonable range of alternatives. For example, Judge Bond noted that it is not clear how the Low Growth Alternative offered substantial environmental advantages over the project proposal. 1999 Ruling at 90. Likewise here, the DEIR purports to offer an Environmentally Constrained Alternative which, in fact, fails to protect the environment in many substantial respects, to the point where it would result in greater traffic congestion and air pollution than would the 1996 General Plan that Judge Bond ruled illegal. Indeed, as to most areas of environmental impact, the County's Environmentally Constrained Alternative ranks exactly the same as the other alternatives under consideration, depriving the public of any meaningful choice between the alternatives presented. DEIR 1:2:9-76 (Executive Summary Table discloses identical levels of environmental impact after mitigation for each of the four alternatives in virtually all categories of impact). Contrary to Judge Bond's Writ, the County has failed to adequately disclose the analytic route it traveled in arriving at its conclusion that the Low Growth Alternative [i.e., the Environmentally Constrained Alternative] offered significant environmental advantages over the other alternatives. . . . or, in the alternative, . . . consider at least one new alternative that does so. 1999 Ruling at 91.

303-7

**Writ Point 2.5: Consideration of a No Project Alternative.**

The County's 1996 General Plan was thrown out in part because the EIR failed to discuss the impacts of buildout under the plan and its alternatives in comparison to the current conditions in the County. 1999 Ruling at 91, 94. Judge Bond accordingly ruled that in any reanalysis or supplemental analysis prepared by the County . . . the County must analyze the No Project alternative in a manner that clearly discloses the population impacts of the General Plan in relation to current County population as well as in relation to what would be reasonably expected to occur in the foreseeable future if the General Plan were not approved . . . 1999 Ruling at 95. Contrary to this direction, the DEIR fails to analyze the No Project alternative in the required manner. Instead, the DEIR assumes, without explanation, that the County's unlawful 1996 General Plan is equivalent to a No project alternative. Demonstrably, an unlawful plan that cannot be legally implemented is not a viable No project alternative.

303-8

**Writ Point 2.6: Rejection of Specific Proposed Mitigation Measures.**

Judge Bond invalidated the County's 1996 General Plan in part because the Court found that certain of the County's findings that proposed mitigation measures were infeasible . . . violated

303-9

CEQA because they did not set forth the facts and analysis supporting them. @ 1999 Ruling at 113. Therefore the Court directed that the County must either take action to make proper findings of infeasibility according to the standards set forth [in the Court=s Ruling], adopt the proposed mitigation measures, or otherwise comply with the requirements of CEQA. @ 1999 Ruling at 113.

Contrary to this direction, the DEIR attempts to dodge this requirement altogether. In Appendix G, the DEIR asserts that the issue of findings will be addressed at the time of project approval. . . . @ DEIR 3:App. G: 4-5. CEQA requires disclosure of the County=s assessment of the feasibility and efficacy of contemplated mitigation measures *now*, in order to assure that the public has an opportunity to review and comment on the County=s reasoning. The County=s stubborn refusal to comply with the Court=s Writ in this regard violates CEQA.

The County=s failure to disclose and assess the feasibility and efficacy of its proposed mitigation measures strikes at the core of the CEQA process. Throughout the DEIR, the reader is advised that essential mitigation measures will be devised in the future rather than presented for evaluation now. For example, the County admits that it would not require adoption of a Scenic Corridor Ordinance @ to mitigate developmental impacts on scenery for up to five years. General Plan, Draft Environmentally Constrained Alternative, page 38. Deferring delineation of this critical mitigation measure for up to five years deprives the public of information vitally necessary now in order to assure informed public review and comment on the General Plan alternatives and DEIR thereon.

Likewise, the County has proposed to create IBCs that would be both discontinuous and oriented in a north-south, rather than east-west, direction. The public cannot begin to make an informed choice with regard to these proposed mitigation measures until the County provides data and analysis that addresses the efficacy of these proposals. Without this analysis, the public is left in the dark regarding one of the most critical features of the General Plan: its protection of fish and wildlife resources.

Similarly with regard to the County=s policy regarding the piping, culverting or lining of streams, the County=s analysis is subverted by the caveat that these otherwise prohibited developments would be allowed where such activities cannot be avoided. @ DEIR 3:App. G:6. By thus allowing undefined exceptions to swallow the rule, the DEIR defies reasoned analysis, defeating the public=s right to a meaningful CEQA process.

Similarly with regard to the utilization of narrow road standards to limit traffic speeds and noise, promote public safety and protect rural quality of life, the County=s failure to adequately define its terms undermines public understanding of contemplated mitigation measures. The DEIR states in Appendix G, for example, that Mitigation Measure 5.3-2 would apply to rural @ roads. DEIR 3:App. G:7. But developments within rural regions already utilize narrow road standards. It is within the Community Regions that additional narrow road protections are needed. The County=s failure to delineate its proposed mitigation measures with sufficient specificity forecloses public assessment of their efficacy.

Likewise with regard to Judge Bond=s ruling that there was no basis for the County=s rejection of mitigation measures that would lower densities for certain land use categories (1999 Ruling at 113), the County fails to address the feasibility of this obvious mitigation measure in the DEIR and the Draft General Plan. The County=s continuing failure to consider density reductions as appropriate to reduce the impacts of future development as required under Judge Bond=s ruling violates the Writ and CEQA.

303-9

303-10

303-11

303-12

303-13

303-14

The County also fails to provide any reasoned analysis to support the DEIR's conclusion that deer can successfully migrate through smaller parcels@ as small as 10 acres. DEIR 3:App. G:7-8. Judge Bond=s Writ set aside the 1996 General Plan in part because it failed to explain why it rejected limitations on parcel size in areas of deer habitat. Writ at 5:16-6:5. The DEIR suffers from the same unlawful omission.

303-15

The County=s proposal to allow destruction of oak woodlands upon payment of a Mitigation Fee@ likewise violates Judge Bond=s Writ. As pointed out above, the Court set aside the County=s attempted relaxation of its former oak woodland retention@ policy because the County failed to provide any substantial evidence to support its assumption that mature oak woodlands could be replaced@ with seedlings at no environmental cost. The County=s current proposal, to substitute a Mitigation Fee@ for the aborted and clearly deficient replacement@ policy, represents an even more egregious departure from CEQA requirements.

303-16

Similarly, the County=s rejection of a twenty-acre minimum lot size for parcels adjacent to grazing land fails to pass CEQA=s evidentiary muster. Judge Bond ruled in 1999 that the County=s rejection of lot size limitations for parcels adjacent to grazing land was not supported by the facts and analysis required under CEQA. 1999 Ruling at 113. Consequently, the Court ordered the County to either take action to make proper findings of infeasibility . . . adopt the proposed mitigation measures, or otherwise comply with the requirements of CEQA.@ Writ at 6:1-5. Contrary to this clear directive, the DEIR rejects this mitigation measure without any factual analysis. DEIR 3:App. G:8. Accordingly, the DEIR violates CEQA.

303-17

**Writ Point 2.7: Adoption of Dubious Mitigation Measures.**

Judge Bond overturned the County=s 1996 General Plan in part because it purported to adopt a mitigation measure of dubious@ efficacy. 1999 Ruling at 114. Accordingly, the Court ordered the County to avoid the adoption@ of the dubious mitigation measure in question. For the same reason here, the County should either delete, or support with tangible, reliable data and analysis, the numerous mitigation measures of dubious efficacy that are criticized in these comments, as well as in the separate comment letters of the undersigned organizations.

303-18

**Writ Point 2.8: Environmental Review of Projected Water Supplies.**

The DEIR continues to ignore the extremely deleterious impacts of its projected rapid urban growth on the upper watershed communities that depend on Caples, Silver and Aloha Lakes for recreation, domestic water supply and other community purposes. This violates Judge Bond=s 1999 ruling. In that ruling, the Court agreed with petitioners that the County=s EIR on its proposed 1996 General Plan fails to disclose or discuss the impact that development of future water supplies will have . . . on Caples, Aloha and Silver Lakes.@ 1999 Ruling at 116-117, 122. Accordingly, Judge Bond ordered the County to make findings, consistent with this Ruling and supported by substantial evidence, that the adoption of the General Plan will not result in any environmental impacts on Caples, Silver or Aloha Lakes, or, in the alternative, perform a full environmental review of such impacts pursuant to CEQA.@ Writ at 7:2-6. Contrary to this order, the DEIR fails to perform a full environmental review@ of the General Plan=s admittedly significant and unavoidable@ impacts on these lakes. DEIR 3:App. G:9-10. The County must rectify this serious violation of CEQA.

303-19

**Writ Point 2.12: Statement of Overriding Considerations.**

Judge Bond threw out the County=s 1996 General Plan in part because the Statement of Overriding Considerations@ adopted by the County in an effort to sidestep analysis and mitigation of the significant environmental impacts from the County=s proposed growth was not supported by the

303-20

General Plan Team  
July 15, 2003  
Page 6

detailed data and analysis that CEQA requires. 1999 Ruling at 134-135. Accordingly, the Court ordered the County to specifically address with adequate factual analysis the numerous examples of baseless assumptions and faulty reasoning identified by the petitioners. Writ at 8:25-9:3. So too in its new Draft General Plan and DEIR, the County indulges numerous baseless assumptions and engages in faulty reasoning in the respects summarized above. Lest the County again find itself in court due to avoidable CEQA violations, the undersigned organizations urge the County to carefully consider the foregoing comments, together with those transmitted separately by the undersigned organizations.

Thank you for considering our comments on this important matter. Please call me if you have any questions.

Very truly yours,

Stephan C. Volker  
Attorney for El Dorado County Taxpayers for  
Quality Growth and associated conservation  
organizations and concerned citizens.

SCV:aml

cc: Louis B. Green, El Dorado County Counsel



303-20

From: Freda D. Pechner [mylawyer@jps.net]  
Sent: Tuesday, July 15, 2003 3:56 PM  
To: generalplan@co.el-dorado.ca.us  
Subject: Comments to General Plan

*Rec'd  
after 3:00pm*

July 15, 2003

E-MAIL TRANSMISSION

General Plan Team

2850 Fairlane Ct.

Placerville CA 95667

RE: My client: Loring Brunius, dba Sierra Rock

Weber Creek Quarry

California Mine Number 91-09-0002

The above property is currently being mined. The requirements of the Surface Mine and Reclamation Act, as it relates to the protection of lands designated on approved mineral resource mapping as MRZ-2a lands, do not appear to be incorporated into any of the proposed drafts of the General Plan or the Environmental Impact Report (EIR). The property is important to protect, as El Dorado County is currently not able to serve all of its current needs, as set forth in OFR-2000-03. My client's mine is a designated Aggregate Resource Area, in the recently released mapping of "Mineral Resources of El Dorado County", and thus entitled to protection, under applicable California law.

304-1

In addition, this property is currently zoned Industrial, has an approved Reclamation Plan which relies upon Industrial Zoning. If the zoning is changed, my client's property rights will be severely compromised. The first alternative, residential, is incompatible with mining, and violates the mandate to protect the identified resource. My client has spent substantial sums in consideration of the Industrial Zoning. If the end use was changed to Residential, a different reclamation plan would be required, as well as different mining practices, at substantial additional expense. Moreover, the Writ of Mandate which compelled the new general plan specifically accepted the entitlements which were approved in reliance upon the 1996 General Plan, as was my client's reclamation plan, when it was approved in August, 1997.

304-2

Thank you for your attention in this matter. Please feel free to contact me if you have any questions regarding this matter, or if you wish to discuss it in further detail.

Very truly yours,

FREDA D. PECHNER

FDP:ss

c: Loring Brunius

From: Freda D. Pechner [mylawyer@jps.net]  
Sent: Tuesday, July 15, 2003 4:08 PM  
To: generalplan@co.el-dorado.ca.us  
Subject: Comments to General Plan

July 15, 2003

*Redd after 3:00pm*

E-MAIL TRANSMISSION

General Plan Team

2850 Fairlane Ct.

Placerville CA 95667

RE: My client: Sierra Terra, Inc.

APN 95-011-49 & 95-011-50

ARA 7

The above-described property was formerly owned by Cosumnes River Associates, and is now owned by my client. It has been identified as containing high quality limestone, and was designated by El Dorado County as a mineral resource, around 1983. The limestone deposit has been historically mined on both sides of the Cosumnes River. However, the requirements of the Surface Mine and Reclamation Act, as it relates to the protection of lands designated on approved mineral resource mapping as MRZ-2a lands, do not appear to be incorporated into any of the proposed drafts of the General Plan or the Environmental Impact Report (EIR).

My client's property is important to protect, as El Dorado County is currently not able to serve more than approximately one-third of its current needs, as set forth in Open File Report 2000-03. My client's mine is a designated Aggregate Resource Area, and thus entitled to protection, and a designation, in the new General Plan, as Mineral Resource Zoning. If any other zoning was approved for my client's property, the provisions of the state designation of this resource would be violated.

Thank you for your attention in this matter. Please feel free to contact me if you have any questions regarding this matter, or if you wish to discuss it in further detail.

Very truly yours

FREDA D. PECHNER

FDP:ss

c: Sierra Terra, Inc.

305-1

From: Freda D. Pechner [mylawyer@jps.net]  
Sent: Tuesday, July 15, 2003 4:24 PM  
To: generalplan@co.el-dorado.ca.us  
Subject: Comments to General Plan

July 15, 2003

E-MAIL TRANSMISSION

General Plan Team

2850 Fairlane Ct.

Placerville CA 95667

RE: My client: Sierra Terra, Inc.

APN 93-190-01, 93-150-12, 93-150-21, 93-150-22

This letter shall serve as request that the above-noted property, owned by my client, be designated as Mineral Resource Zoning in the new General Plan. These parcels are located directly south of property owned by the County of El Dorado, which it operates as a mine, extracting road sand. My client's property is located in the same deposit as is the County property, and clearly just as valuable a mineral resource as is the County mine.

Although this property has not been designated as a Mineral Resource Area in the recently released mapping of "Mineral Resources of El Dorado County", it remains entitled to protection, as a current and future material source. The properties should be protected from encroaching residential uses that may limit their development in the future. We are looking forward to the opportunity to meet with your staff, along with my consultant, to discuss the manner in which applicable state law will be more fully implemented in the final EIR and Plan.

Thank you for your attention in this matter. Please feel free to contact me if you have any questions regarding this matter, or if you wish to discuss it in further detail.

Very truly yours,

FREDA D. PECHNER

FDP:ss

c: Sierra Terra, Inc.

306-1



Jul 15 03 03:57p

Sierra Rock

5306213863

P. 1

*Sierra Terra, Inc.*

P.O. Box 184  
Diamond Springs, CA 95619-0184  
(530) 622-8621

*Rec'd after  
3 pm*

03 JUL 15 PM 4: 57

RECEIVED  
PLANNING DEPARTMENT

July 15, 2003

General Plan Team  
2850 Fairlane Ct.  
Placerville, CA 95667

RE: Summer Stream Property  
APN #102-150-25

The above property has been designated as industrial in the previously approved El Dorado County General Plan. Industrial land borders our property on two the North, as well as the South. This designation best suits the property, as well as the adjoining land usages. Retention of the industrial designation on the new General Plan will preserve our land usage and property value, as well as the property value of the adjoining parcels.

Please retain our designated "Industrial" land status in the proposed and new General Plan.

If you have any questions or comments please feel free to contact me.

Eric T. Brunius

*Eric T. Brunius*

President

307-1

*Rec'd after 3 pm*

03 JUL 15 PM 3:19  
RECEIVED  
PLANNING DEPARTMENT

July 14, 2003

General Plan Team  
El Dorado County Planning Department  
2850 Fairlane Court  
Placerville, CA 95667

RE: Draft General Plan

My choice for adoption of the General Plan is Alternative #4, the 1996 General Plan. This Plan is the best alternative today, as it was when adopted by the 1996 Board of Supervisors (BOS). At that time thousands of hours were spent and 5 years of meetings held attended by thousands of residents offering their input, not only to the BOS and Planning Commission, but to Policy Advisory and Technical Advisory Committees. Compare this to the low attendance and input during this latest round of public meetings regarding this long awaited and costly process for a General Plan.

308-1

The flaws I still see with all the Draft County General Plan and DEIR Alternatives, is the failure to specify and address the impacts of high volume traffic on the South Fork of the American River. Environmental damage caused by vehicles on the banks and in the river itself, as well as run off from fuels and oil on roadways, have all gone ignored not only in the various Alternatives, but the River Management Plan.

308-2

This is a valley, that has an average visitor count of 500,000 to 600,000 annually. Commercial rafting operators estimate 120,000 boaters use the river, not counting other users. A spokesperson representing the commercial outfitters felt this waterway could handle 240,000 boaters. This far exceeds recreational use on other California Rivers. Concerns about air and water pollution, plus erosion have fallen on deaf ears over the years.

308-3

The other area that should be addressed is in Apple Hill. I fully support the tourism, recreational, and agricultural industries, but feel attention and concerns should be equal in these areas as those in the high residential developments in El Dorado Hills. Traffic on Highway 50 and arterial roads is as heavy or worse on weekends as well as the workweek.

308-4

In August of 1989, the BOS and Planning Commission clearly stated that this county could not afford to exist solely as a bedroom community. History has also shown that relying on tourist dollars is also not an economically sound practice. Yet those who have filed lawsuits and have guided (controlled) the general plan process with the assistance of the state and federal government have put business growth, employment, roads and schools at the bottom of the priority list, except when it benefits their financial or philosophical interests. The other is their quest for control.

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Measure Y, other attempted voter initiatives, lawsuits against the timber industry, water projects and road improvements, as well as the 1996 adopted General Plan, have cost El Dorado

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county residents millions of dollars that could have been used for needed community services and projects.

Measure Y needs to be sent back to the voters. This initiative as well as other legislated Acts are not clearly defined, and leave too much of the language open for determination by the judicial system. Since the voters passed Measure Y, we have all heard many say they did not realize the total impact this initiative would have on their lives and others. "In other words, I would not vote for Measure Y today." A judge has even ruled has ruled the Measure moot. Measure Y was just another attempt by the same group and individuals to throw a monkey wrench on growth and the economy in El Dorado County.

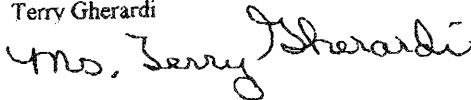
Recent and past publications by the few individuals and organizations in El Dorado County and elsewhere are and have always been clear about the path they laid out for this state back in the late 1960's and early 1970's. In 1991-92 this was more clearly defined in the *Mountain Lion Foundation* handbook and the *California State of the State Green Report by the Sierra Club*. This again will be the main focus at the Sierra Nevada Alliance annual conference to be held in Arnold next month.

The message is clear: "We will continue to file lawsuits until we get what we want." "The California Department of Fish and Game should control all land use planning in the state."

The Office of Planning and Research was also very clear back in 1989 - El Dorado County lacked the required percentage of affordable (median priced) housing. Unless county residents open their eyes and ears to those of us who do not have a political or self-interest agenda, the road will remain open for continued legal disputes by the radical environmental movement, the development community and the State of California.

I'm sure one of the Alternatives will be adopted, but that does not mean the lawsuits will stop against any kind of business growth, road improvements, water facilities and even individual property owners. This County will continue in a No Win situation until those in county government stand their ground against the few who want to take control. If not, then just stop wasting taxpayers money and time implement the no growth plan or what is indicated in the aforementioned publications.

Terry Gherardi



P.O. Box 299  
Pollock Pines, CA 95726-0299

cc: Board of Supervisors



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