El Dorado County Farm Bureau
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PLANNING DEPARTMENT

July 15, 2003

General Plan Team
El Dorado County Planning Department
2850 Fairlane Court
Placerville, CA 95667

Subject: Draft General Plan/EIR Comments

Gentlemen,

The El Dorado County Farm Bureau has reviewed the Draft General Plan Alternatives and Draft Environmental Impact Report. We have participated in the current General Plan process by providing detailed comments on the Notice of Preparation (NOP) released in 2001 and the Draft General Plan Policies released in 2002 and 2003. For your convenience and information, our previous comments are provided as Attachment 1.

We have included as Attachment 2 our comments on the current Draft General Plan and the two "equal weight" Alternatives identified by the General Plan Team. Our comments on the Environmental Impact Report and proposed mitigation measures are included as Attachment 3. 263-1

In addition to the more detailed comments provided in the attachments, we reiterate the following general comments on the documents we have reviewed and issues critical to the agriculture community.

1. **The County failed to consider an "agriculture alternative".** The county has taken many measures to protect agriculture and has stated that it is important to the economic success and quality of life enjoyed by all who reside here. If that is indeed true, and if we are to stay true to the historic agricultural nature of El Dorado County, then an "Agriculture-Constrained Alternative" should have been examined. 263-2

2. **The Draft General Plan documents are complex and a comprehensive review has been difficult**. The concept of a General Planning document implies a strategic planning piece that contains a vision and a general framework for how the county views its future. Some of the Plan elements are very general, as is appropriate for this type of document, but within other sections there is too much detail. It would be appropriate to move the details out of this document and to define those new county requirements by means of an ordinance that is subject to public review that "daylights" the issues for all concerned. 263-3

Protecting the productive, economic and social viability of El Dorado County agriculture and farmers

3. **The Right to Farm Ordinance Disclosure as a Deed Restriction is paramount to the health of agriculture in the county.** Commodity groups agree that a mandatory disclosure of the Ordinance as a Deed Restriction is important not only to protect agriculturists from "nuisance" complaints for standard agricultural practices, but to ensure that non-agricultural neighbors understand the impacts of living in a rural, agricultural setting. 263-4

4. **Agricultural Districts and/or zoning should provide for not only the protection of existing agriculture but for the promotion of future agricultural development.** Protection for agricultural operations by way of zoning or land use designations is key to our continued success. Recognition of existing agricultural operations within those designations is the first step to protecting agriculture in the county. 263-5

5. **Agricultural operations should be exempt from the requirements for scenic corridors and view sheds.** Agricultural practices should not be impacted by scenic requirements. Where the guidance in the plan concerning ridgeline development, grading, and visual integrity may be appropriate to commercial or residential developments, they should not apply to agricultural terracing, crop conversions, and normal cultivation practices. 263-6

6. **Biological corridor constraints should not be imposed on private agricultural properties.** While the county may desire to protect biological and habitat values, farmers and ranchers should be permitted to protect their crops and livestock from depredation by wildlife. It is unreasonable to expect agriculturists who provide valuable habitat on their private land to alter their practices in order to satisfy new biological constraints. Integrated natural resources management plans should not be imposed on private lands. 263-7

7. **Water for agricultural purposes should be protected and future water projects must be developed to support commercial and residential development.** The irrigation water systems that were developed for agriculture in the county will soon be fully utilized. New water rights should be acquired and storage facilities must be actively developed by the county to meet increasing water demands and to provide drought protection. Identified agricultural water demands for future projects should be protected from other municipal, commercial, and housing demands or the continued viability of agriculture will be significantly jeopardized. 263-8

8. **Agricultural Districts and zoning need to be defined based on current farming and ranching uses.** It should be recognized that many small operations can be viable and that certain crops grow well on non-choice soils. Slope restrictions could impair vineyard development and could restrict livestock grazing. Elevation criteria should only be used for guidance when evaluating ag land uses. Agricultural parcels outside of Ag Districts should qualify for the same protections based on their suitability for agriculture, not based on their location within a District. 263-9

9. **The agriculture community must be active participants in the implementation process.** The implementation phase that follows General Plan adoption will be critical to the future of the county. Zoning will be re-visited, ordinances will be defined, new requirements will be imposed, and each will require balanced scrutiny and input from the public sector. It is crucial for agriculture to be at the table when these discussions occur. 263-10

The Farm Bureau believes that a vision of the county should entail a strong, agricultural identity. Due to our varied growing conditions, climate, elevation, hydrology, and soils we enjoy a diversity of agricultural crops and livestock. **If we are to protect the economic base upon which the county relies, we must protect and promote the agriculture and natural resource values that draw visitors to the county. That can only happen if we take a strong stance in support of agricultural land protection and in developing future water supplies.** 263-11

We appreciate the opportunity to participate in the evaluation of the General Plan alternatives and hope our remarks are helpful in developing a strong opportunity for continued growth of agriculture in El Dorado County.

Sincerely,

Norman A. Krizl, President

Attachments: 1 El Dorado County Farm Bureau Previous General Plan Policy Comments
2 El Dorado County Farm Bureau Draft General Plan Comments
3 El Dorado County Farm Bureau Draft EIR Comments

cc: Bill Snodgrass, Agricultural Commissioner
Conrad Montgomery, Planning Director

ATTACHMENT 1. EL DORADO COUNTY FARM BUREAU
PREVIOUS GENERAL PLAN POLICY COMMENTS

The contents of this attachment include the issues and concerns of the **El Dorado County Farm Bureau** (EDCFB) relating to the General Plan Draft EIR Notice of Preparation and General Plan Draft Policies. Our previous comments are provided for your convenience and information as follows:

EDCFB Letter to Planning Department dated September 6, 2001 — 2 pages
Notice of Preparation of Draft Environmental Impact Report
Original signed by Norman A. Krizl, President

EDCFB Letter to Ag Commission dated August 13, 2002 — 3 pages
Draft Policies – General Plan, Agriculture and Forestry Element
Original signed by Norman A. Krizl, President, cc: Planning Dept.

EDCFB Letter to General Plan Team dated August 30, 2002 — 3 pages
Draft Policies – General Plan, Land Use, Health and Safety, Conservation and Open Space, Ag and Forestry, General
Original signed by Norman A. Krizl, President

EDCFB Letter to General Plan Team dated January 8, 2003 — 2 pages
Draft Policies – General Plan, Housing Element
Original signed by Norman A. Krizl, President

September 6, 2001

El Dorado County Planning Department
2850 Fairlane Court
Placerville, CA 95667

Attention: Peter Maurer, Principal Planner

Subject: El Dorado County General Plan
Notice of Preparation of a Draft Environmental Impact Report

Gentlemen,

We have reviewed the project description for the General Plan and are pleased to provide our comments. In general we find that the project description does not stress the importance of agriculture to the quality of life in this county. If the continued viability of agriculture is indeed considered a priority for the county, it should be apparent throughout the document. The positive effect of agriculture should be reflected and integrated throughout the General Plan in all areas of impact including open space, economic development, and tourism. Agriculture is lacking as a priority for the General Plan, and could be better addressed throughout all areas of concern. Specifically, agriculture is not emphasized in the vision statements for the General Plan, which reflects the priorities set for land use planning. 263-12

Our remarks on the Project Description are broken down into three sections to address: (1) the Statement of Vision and Plan Strategies, (2) the Agriculture and Forestry element, and (3) Other Areas of Concern.

Statement of Vision and Plan Strategies

- Add a vision statement reflecting the importance of agriculture in meeting overall Plan goals. The statement should be proactive in promoting agriculture in the county because of the benefits accrued. Protecting natural resources while promoting the continuance of viable agricultural enterprises works hand in hand to enhance tourism, recreation, and commercial agriculture businesses which provide local employment. 263-13
- We recognize the desire to maintain the scenic quality of road corridors in the county, and we believe that robust agricultural operations enhance the beauty of our rural county. 263-14
- Plan strategies should be modified to reflect the desire to "promote growth so as to retain natural resources, existing and potential agricultural uses, and minimize infrastructure costs." 263-15

Agriculture and Forestry Element

- Recommend the statement of principle be revised to state "The plan must encourage conservation and provide protection of El Dorado County's important natural resources. Recognize that the presence and viability of a resource-based economy poses a constraint to development." 263-16

- Recommend that Goal 8.3 be restated as follows: "Encourage sustainable and efficient forest resource production." 263-17

Other Areas of Concern

- While we support open space and scenic quality provided in rural areas, we are concerned that normal agricultural practices should take precedence in land use planning. Where incompatibilities exist, setbacks and adjustments should not be on the agriculturist whose use is well established. Scenic corridors should not interfere with normal agricultural practices. 263-18

- We recognize it is the county's desire to enhance wildlife habitat, but we also recognize that the State Department of Fish and Game has jurisdiction over the management of wildlife. 263-19

- While we understand that Capital Improvement Plans will be prioritized based on the highest quantity receiving benefit, thereby putting Community Regions over Rural Regions, we must assert that Rural Regions need not be ignored. Roads and existing infrastructure and their continued maintenance are required in order to support basic health and safety needs as well as resource-based businesses. The county receives benefit from agricultural, forestry, agri-tourism, and commodity sales operations and road maintenance is a necessary component to that continued success. 263-20

We look forward to seeing these issues addressed adequately in subsequent versions of the General Plan documents. We thank you for the opportunity to participate in this important process. The point of contact for our organization for all future correspondence is the undersigned. For telephone inquiries please contact Valerie Zentner, Executive Director, at (530) 622-7773.

Sincerely,

Norman A. Krizl
President

cc: El Dorado County Board of Supervisors
El Dorado County Agricultural Commissioner, Bill Snodgrass

August 13, 2002

Howard Neilsen, Chairman
El Dorado County Agricultural Commission
311 Fair Lane
Placerville, CA 95667

Subject: Draft Policies – General Plan, Agriculture and Forestry Element

Gentlemen,

The El Dorado County Farm Bureau has reviewed the proposed policies for the Agriculture and Forestry element of the General Plan. Our comments, provided in policy number order, are as follows:

AF-1A

D. The lands "possess topographical and other features that make them suitable for agricultural production". **Comment: Make sure that *"topographical and other features"* does not limit vineyard development that may require terracing.** 263-21

F. That "the Board of Supervisors has determined that the lands are best suited for agricultural production rather than other uses." **Comment: We agree if this means that the Board has land use zoning responsibilities, but otherwise they are not qualified to determine which lands are best suited for agriculture.** 263-22

AF-2e

The County "shall revise the Right to Farm Ordinance to include a provision to place a deed restriction on all new parcels created adjacent to agricultural lands requiring the new owner to sign a statement acknowledging that his or her parcel is adjacent to a parcel engaging in agricultural activities." **Comment: We support the addition of a mandatory real estate disclosure to property buyers in or adjacent to an agricultural zoned parcel that standard agricultural practices will be applied to those parcels.** 263-23

AF-2f A "threshold of significance and monitoring program for loss of agricultural land shall be established . . . shall be applied to rezone applications requesting conversion of agricultural lands to nonagricultural uses." **Comment: While we support in concept this type of protection for agricultural land uses, how this threshold is determined is important and, therefore, should be subject to public review and input.** 263-24

AF-3b The "County shall support policies of water purveyors to prevent the conversion of water currently allocated for agricultural uses to nonagricultural consumptive uses." **Comment: What is currently allocated? Can we determine that figure or can we only determine what is actually being used? Again, while we support in concept this type of protection for agricultural water use, the basis of the threshold is important and should be subject to public review and input.** 263-25

AF-4a A. " . . . use of approved fertilizers, pesticides, and crop protection;" **Comment: We agree if it is intended to mean that the state approves fertilizers, pesticides and crop protection, not the county.** 263-26

AF-4c A. "Mining activities, when mined lands will be reclaimed to meet or exceed current agricultural capabilities, or". **Comment: Strike the words "or exceed" from the sentence as this imposes an unknown future requirement on the landowner.** 263-27

AF-7 **Forestry section, general comment: Strike the word "(Preserve)" wherever it appears with the words "Timberland Production Zone (TPZ)".** 263-28

AF-7a "Lands suitable for timber . . . pursuant to the California Timberland Productivity Act". **Comment: Add a period after the word "Act" and delete the remainder of the paragraph. The Act defines the requirements.** 263-29

AF-7b The "County shall adopt and implement a procedure". **Comment: Delete in its entirety. The county has no authority to adopt additional requirements, the state establishes standards for timber production.** 263-30

AF-7c B. "Soils meeting Timber Site Classifications . . . " **Comment: Delete in its entirety. The state has purview over soils classifications for timber.** 263-31

AF-8 **Comment: The 3000 foot elevation criteria for dictating land use is not supported and appears arbitrary. Although we understand and agree with establishing a method of identifying timberland for protection, it should be done in a site-specific manner and not based solely on elevation.** 263-32

AF-8 **General Comment: Nowhere in the forestry section is there any reference to protections for the Right to Farm. It should be recognized that forestry is an agricultural enterprise that should also be protected under Right to Farm ordinances.** 263-33

AF-9a **Comment: The 3000 foot elevation comment above applies here.** 263-34

We appreciate the opportunity to participate in the evaluation of the General Plan and hope our remarks are helpful in ensuring a strong element that continues to protect agriculture in El Dorado County.

Sincerely,

Norman A. Krizl, President

cc: Bill Snodgrass, Agricultural Commissioner
Conrad Montgomery, Planning Director

August 30, 2002

General Plan Team
El Dorado County Planning Department
2850 Fairlane Court
Placerville, CA 95667

Subject: Draft Policies – General Plan

Gentlemen,

The El Dorado County Farm Bureau has reviewed the proposed policies for the General Plan. We participated in the Plant and Wildlife Technical Advisory Committee review of the Open Space and Conservation Element and some of our comments were recorded as part of that process. We also took part in the Agricultural Commission's review of the Agriculture and Forestry Element and have submitted our comments under separate cover for that portion.

Below are additional comments to those already provided that we submit for your review and consideration. Our comments are provided in policy order within each Element identified.

Land Use

LU-12d	We concur that agricultural uses and structures should be exempt from viewshed restrictions in scenic corridors.	**263-35**
LU-15a	We believe that reconciling the zoning ordinance to the General Plan is a high priority following its adoption.	**263-36**

Health and Safety

General	Drought protection and fire protection are not addressed adequately in this element.	**263-37**
HS-4a	We concur that this would be beneficial. The adoption of fire protection standards that can be consistently applied in the county's rural regions is imperative to encourage continued agricultural development in those areas.	**263-38**
HS-5a	The county should not only cooperate with other agencies to identify opportunities for fire fuel reduction, they should *encourage* it.	**263-39**

Conservation and Open Space

CO-1a	The Agriculture and Forestry element addresses soils for these industries.	263-40
CO-2b	Slopes of 30 percent or greater can be utilized for vineyard terracing and other agricultural practices. Prohibiting all discretionary projects based on slope is too restrictive.	263-41
CO-6f	The county agency and water purveyors are already working to develop and implement water efficiency programs. Many agriculturists already utilize irrigation management systems in their normal practices.	263-42
CO-7a	No drought protection or fire safety is listed as important qualities of water features. Rivers are not listed as water features that should be included in the county's database.	263-43
CO-7c	How can buffer zones be specified when the waterways have not been identified?	263-44
CO-7e	How can the county require development to enhance the "aesthetic and natural character" of a site without defining "aesthetic"? Too vague, and this ambiguity flows throughout the General Plan.	263-45
CO-7f	Delete the word "minimum" in the last sentence that states "compensation shall be a minimum of 1:1" as it imposes an open-ended requirement on mitigation measures.	263-46
CO-10b	Does this mean that the county will require a Habitat Conservation Plan? The nature and extent of habitat planning and protection is vague at best. The county needs to better define how it envisions this objective being met.	263-47
CO-10f	The word "suspected" should be deleted from the phrase stating "in areas known or suspected to support special status species or their habitats". Any protection provided should be based on actual knowledge of existing species. Also, land set-aside based on "potential" habitat is unreasonable.	263-48
CO-11a	Ditto comment on CO-10b above.	263-49
CO-11b	Ditto comment on Co-10b above.	263-50
CO-11c	Strike the words "or may" from the phrase "that will or may affect important habitat features". May is too open-ended.	263-51
CO-11d	Ditto comment on CO-10b above.	263-52
CO-11e	We already have an invasive plant management program in place. Weed eradication is not always possible, but management is.	263-53
CO-12	These objectives are extremely detailed and should not be included in the General Plan as written. They are more appropriate for implementation plans or ordinances at a later time.	263-54

CO-15d	Agricultural practices should not be restricted by viewshed or scenic corridor requirements. Crop conversions or normal agricultural activities may cause a change to the landscape but should be protected under the right to farm.	263-55
CO-17b.C	Ditto comment CO-15d above. Scenic highways should not restrict agricultural practices.	263-56
CO-19a	Define "visual appeal".	263-57
CO-19b	Ditto comment CO-15d above. Discretionary permits for agricultural accessory uses along ridgelines should be allowed and not restricted.	263-58

Agriculture and Forestry

General	During the hearing the discussion of choice soils being the basis for agricultural districts was addressed. A question of whether vineyards would indeed qualify since they do not necessarily require choice soils was raised. An effort could be made to identify "soils of local importance" that do support viable agriculture but do not meet the choice soils requirements. This may allow those agricultural operations to enjoy the protections of the agricultural district.	263-59

General Plan

General	Throughout the Draft General Plan there appears to be a combination of general policy, procedure (implementation), and ordinance level information. The General Plan should contain the *vision* for the county's future and should be at a broader level than many of the policies currently reflected in the draft plan.	263-60
	The vision should not only seek to protect agriculture but should actively encourage it as a solution to many of the community's concerns. In order to provide for wildlife habitat, open space, watershed health, and recreational uses we should encourage well-managed natural resource based businesses to succeed in the county.	263-61
	Agriculturists, by definition, are natural resource managers, as they must care for the land upon which their livelihoods depend. To encourage sustainable agricultural use of the land is to protect it from over development and depletion of resources.	263-62

We appreciate the opportunity to participate in the evaluation of the General Plan and hope our remarks are helpful in ensuring strong elements that continue to protect agriculture in El Dorado County.

Sincerely,

Norman A. Krizl, President

cc: Bill Snodgrass, Agricultural Commissioner
Conrad Montgomery, Planning Director

January 8, 2003

General Plan Team
El Dorado County Planning Department
2850 Fairlane Court
Placerville, CA 95667

Subject: Draft Policies – General Plan

Gentlemen,

The El Dorado County Farm Bureau has reviewed the proposed policies for the General Plan Housing Element. Below are comments addressing our concerns about farmworker housing that we submit for your review and consideration. Our comments are provided in policy number order.

Housing

Goal HO-4 **To recognize and meet the housing needs of special groups of county residents, including . . . agricultural employees . . . through a variety of programs.**

Policy HO-4h **The County shall work with the State Department of Housing and Community Development to develop a program to track the approval and status of employee housing, particularly housing in the Tahoe Basin and housing for farmworkers.** 263-63

Comments: We are concerned that the County address the needs of housing for agricultural employees. With El Dorado County's topography, the successful management of our vineyards, orchards, and small farms requires manual labor for many of the planting, pruning and picking tasks. As our crops come into full production, the demand for labor will increase dictating a need for more permanent work crews. Therefore, we consider it crucial that we address the needs of agricultural worker housing now in order to accommodate our future labor needs.

Farm Bureau encourages the county to strengthen policy HO-4h to provide incentives for the development of farm worker housing, such as fee waivers, density bonuses, and fast-track approval of permits. The county should seek and apply for government funding that is available to develop farm employee housing. Incentive programs that encourage development of housing, including eventual ownership by employees, should be sought and encouraged. We support the use of government loans to assist low-income families in acquiring their own homes. 263-63

The Farm Bureau believes these comments are consistent with the policies stated in HO-1k, HO-1p, HO-1q, and HO-1t and only serve to strengthen the resolve to provide affordable housing for our county's farm workers.

We appreciate the opportunity to participate in the evaluation of the General Plan and hope our remarks are helpful in ensuring strong elements that continue to protect agriculture in El Dorado County.

Sincerely,

Norman A. Krizl, President

cc: Bill Snodgrass, Agricultural Commissioner
Conrad Montgomery, Planning Director

ATTACHMENT 2. EL DORADO COUNTY FARM BUREAU
DRAFT GENERAL PLAN COMMENTS

The contents of this attachment include the issues and concerns of the **El Dorado County Farm Bureau** (EDCFB) relating to the Draft General Plan. The comments are broken down by element and discussion of policies within each element that we consider either favorable or unfavorable for agriculture. In many cases, our comments provided in Attachment 1 on the draft policies echo our concerns in the Draft General Plan outlined herein.

For the sake of brevity, we will apply acronyms to the various alternatives as follows: **NP** is the No Project/1996 General Plan Alternative, **RC** is the Road Constrained Alternative, and **EC** is the Environmentally Constrained alternative. Rather than recommending any one overall General Plan Alternative, we will specify our positions on an issue-by-issue basis and hope this will be helpful in selecting an overall plan that is beneficial to agriculture.

Land Use Element

Agricultural District Overlays

We believe that Agricultural District Overlays, as provided in the NP and RC alternatives, are crucial to maintaining protections for agricultural land use. By defining Ag Districts we send a clear message not only to agriculturists but to our rural neighbors that agricultural uses are a priority within the District. Ag operations, large and small, within the district should be allowed and an appropriate ag zoning should be applied. The Right to Farm ordinance should apply to all parcels engaged in agricultural operations within the district. Agricultural Districts should incorporate existing agricultural operations where possible, regardless of current zoning. **263-64**

Agricultural Districts and zoning policy should not only protect agricultural land use but should promote new ag development by its very nature. Agriculturally zoned parcels outside of an Ag District should not be conferred any fewer rights or burdened with more restrictions than those within the district. Zoning flexibilities will be needed to accomplish this type of protection. We recommend that a "global" approach to correcting zoning deficiencies within Agricultural Districts be accomplished after the General Plan is adopted. Citizens who "opt-in" to re-zone their ag operations should not be burdened with the re-zone application process, but the county should assist in streamlining a process to meet these needs. **263-65**

We recognize that not everyone within an Agricultural District will elect to be engaged in ag operations and not every parcel is suited to agriculture. Therefore, there should be some allowance for exclusion of parcels from ag use even within an agricultural district based on inadequate soil type, soil depth, hydrology, growing conditions/climate, and topography if it determined to render the parcel unsuitable for ag as stated in the NP alternative. **263-66**

We support the Ag District (-A) definition included in the RC alternative. Its first paragraph is identical to that included in the NP alternative, but does not specify parcel size or infer ranch marketing rights. Although we do recognize the need to set aside agricultural parcels in some organized fashion, and we do support the rights of farmers to enjoy marketing their products on their land (as allowed by state law), we feel these detail requirements would be better served by being included in an ordinance rather than the General Plan. **263-67**

Important Biological Corridor (-IBC)

This corridor is proposed for the EC alternative. While the emphasis is on core areas that are important to wildlife, forage, cover, and migration to provide continuous habitat corridors, it is inappropriate to apply the proposed restrictions to private agricultural enterprises. Farmers and ranchers must be allowed to take measures necessary to protect their crops and livestock. As land stewards, many farmers manage their operations to enhance wildlife habitat. The Farm Bureau supports incentive-based programs for conservation and land management issues, not the regulatory approach. **263-68**

Agriculture and Forestry Element

Agricultural Conservation and Production

Most of our comments on the NP alternative are the same as the Farm Bureau's previous letters (see Attachment 1). We agree that Agricultural Districts are critical to protecting and promoting agriculture in the county. We support the Right to Farm Ordinance as a deed restricted disclosure. We support farm-related housing and cluster development on agricultural lands. The Farm Bureau supports the Williamson Act contract as a proven method of protecting agricultural lands from other development. We support agricultural marketing uses by right on agricultural parcels, as is supported by state law. We also believe that criteria applied to parcel size, soils, and slope should be included in ordinances instead of within the body of the General Plan. 263-69

The RC alternative recognizes that a significant amount of successful and important agricultural production occurs on non-choice soils. We concur with that judgment as wine grapes, berries, and other crops can be grown on less than prime soil. Livestock grazing for goats and sheep can be accomplished in forage areas not suitable to cattle. We agree that the county should develop and maintain criteria for determining what lands are suitable for agriculture recognizing that topography, soils, and elevation should be used as guidelines for inclusion of ag lands, not exclusion. We agree that it is important to develop a methodology for discouraging conversion of agricultural land to non-ag uses. We support ag housing development using density bonuses and other incentives for permanent and seasonal employees. 263-70

The EC alternative recognizes existing agricultural production, Williamson Act contracts, and lands of 50% choice soils or more. This policy would not promote new agricultural development, and could exclude existing operations from ag zoning. We believe that by using Ag Land zoning as proposed in the EC alternative without Agricultural Districts the county might protect existing agriculture but would not encourage new agricultural projects. We recognize that agricultural crops and production techniques will change in the future to meet consumer demand, and we want to be positioned to attract new agricultural projects to the area in order to maintain the ag economic base. 263-71

The importance of affordable, reliable water supply for agricultural operations cannot be overstated. The NP alternative provides the strongest protection for agriculture by stating the county will provide for an adequate, long-term water supply to support agricultural uses. The RC and EC alternatives state that the county will encourage water suppliers to improve the efficiency and distribution of existing agricultural supplies. That is weak and does not address non-purveyor water supply concerns. Confusing water conservation with water development could have a devastating impact on agriculture. Unless new water projects are developed to meet the water demands of new commercial, industrial, and residential development, it is only a matter of time before agriculture's water supplies will be diverted to other beneficial uses. Development of new water supplies and delivery systems may be required to support agricultural operations on lands not currently being served by existing water purveyors. Unless the agricultural water demand is treated on an equal footing with other beneficial water uses, the future sustainability of agriculture in this county will be threatened. 263-72

The Implementation Programs identify several processes following the General Plan adoption that are critical to protecting agriculture. We agree that the zoning ordinances, setbacks, right to farm deed restrictions, agricultural marketing, and other agricultural ordinances will need to be reviewed and modified as appropriate through public process. We support that review and believe that the details of these potential changes should be stricken from the RC and EC alternatives and left to be defined through the ordinance process. The details included in AF-A, for example, would lock us in to certain criteria and prevent us from establishing thoughtfully developed ordinances that address each of these areas of concern. 263-73

Forest Land Conservation and Production

Our previously submitted comments apply to the NP alternative (see Attachment 1) and will not be restated herein. As with other comments above, we support moving the details out of the General Plan and developing an ordinance to address elevation, soils, minimum parcel size, and other criteria if it is 263-74

appropriate to be applied to timberland. Many suitable timber parcels can be managed in a variety of locations so ordinances should be developed that provide flexibility in determining which parcels qualify for timberland protections. We support the TPZ as a proven method for protection of timberland from other development. We support protection of timberland under the Right to Farm ordinance. We support forestry policies that encourage management of overgrowth, pest, and disease. 263-74

The forest products industry, while diminished from its previous prominence, is still our largest agricultural producer in El Dorado County. We support livestock grazing, timber thinning, and prescribed burning of understory to manage fuel loads. Not only is this necessary to provide a sustainable climate for this industry, but it provides a healthy forest floor, healthy watershed, improved wildlife habitat, and fire protection for inhabitants of nearby rural communities that border the forest. As a business sector, it is crucial to pro-actively support sustainable forest management practices in order to support the economic benefit enjoyed by our residents, both as neighbors and as employees. 263-75

The forestry industry is already heavily regulated by the state and federal agencies. We support a minimum amount of county land use regulation and review of forest management practices. We support the RC alternative policies for forestry land use. 263-76

Conservation and Open Space Element

Our previously submitted comments apply to the NP alternative (see Attachment 1) and will not be repeated herein. In general, we believe that most of the Conservation and Open Space policies should not apply to agricultural operations. Standard agricultural practices should be allowed on parcels appropriately identified for agriculture. Many of these requirements are more appropriate to commercial, industrial, and residential development rather than to agricultural development. However, our concern is that if agriculture is not exempted from these restrictions there will be negative impacts in the future, so we have taken the time to review and comment on many of these areas of concern. Further, we are concerned that parcels located outside an Agricultural District would be held to these rigid standards. Our remarks are identified in detail in Attachment 3, which addresses the mitigation measures specified in the Draft Environmental Impact Report. 263-77

Geological Resources

In reviewing the RC and EC alternatives, we disagree with discouraging grading during a stated period of time that is intended to reflect "the rainy season". Although average rainfall and historical records may support a general timeframe for the rainy season, we only serve to restrict appropriate actions that the weather would otherwise permit. For example, in the winter/spring of 2003 you could been grading in February and March quite fine due to low rainfall, but you would have bogged down in April. We feel it is unnecessary to include this type of specific requirement in the General Plan. 263-78

In reviewing the RC alternative, we disagree that disturbance of slopes 30% or greater should be prohibited. Wine grapes, berries, and other crops can be grown on terraced land of greater than 30%. Certain livestock perform well on steeper grades. This is overly restrictive and dogmatic in approach, and the details should not be included in a General Plan. The EC alternative treats slopes differently whether in or out of the IBC overlay. The EC alternative recognizes that the public interest (roads, bridges, etc.) could warrant disturbance on steeper land. We disagree with restricting land use by slope percentage on agricultural development in our out of any IBC overlay. 263-79

Water Resources

The RC and EC alternatives require buffer zones be applied around natural watercourses, wetlands, and other water features. The implementation measures require that a methodology be established for determining the criteria to be applied. The state departments of Water Resources, Fish and Game, and Water Control Boards along with the federal agencies of Fish and Wildlife, Corps of Engineers, and Bureau of Reclamation are responsible for managing waterways and wetlands. If the county feels that buffer zones are needed, great care should be taken to identify that need based on science and without 263-80

duplicating state and federal agency regulations. With our topography it would be easy to over regulate private landowners, including agricultural operations, to protect wildlife habitat along riparian waterways. This policy is more appropriate to commercial, industrial, and residential development, not agricultural development. 263-80

The RC and EC alternatives strive to manage ground and surface water quality. An assumption is made that pollutants are being discharged. This is a concern for agricultural projects as care is taken to use integrated pest management practices and best management practices for soils management to minimize pollutant discharges. Agricultural irrigation discharges are kept to a minimum as many projects have converted to efficient drip irrigation that minimizes over watering. It is unreasonable to expect ground disturbing discretionary agricultural projects to include a water quality plan unless a water quality issue has previously been identified. 263-81

Biological Resources

In the RC and EC alternatives it states that an independent biological resources study will be required for project applications that propose grading or other disturbance in "areas known or *having the potential* to support special status species". In recent Endangered Species Act (ESA) legal decisions, the courts ruled that actual habitat had to exist before protections would be allowed, not *potential* habitat. This is too vague. In any case, agricultural projects should not be required to protect "potential" habitat during grading or ground disturbing practices. 263-82

In the RC and EC alternatives, the details of an oak woodlands protection policy have been removed and an implementation measure added to develop an ordinance for these protections. We support that action. We also support that policy CO-7 in the two alternatives named should only apply to urban areas. 263-83

In the EC alternative, a policy and implementation procedure require development of an Important Biological Corridor (-IBC) Overlay District. We disagree that private landowners and agricultural properties should be impacted by these constraints. Many agriculturists and private landowners provide significant wildlife habitat voluntarily. Since agricultural land use is not a permanent change to the land, as would be a subdivision or a commercial project, it should not be treated as such. Because of the open space and natural resource values associated with agricultural land use, ag should be encouraged over permanent structures or development in biological corridors. We support incentive based programs for wildlife corridor management, not regulatory. 263-84

Cultural Resources

The RC and EC alternatives require that all ground-disturbing projects have on-site monitoring during construction for cultural resources impacts. We disagree that these requirements should be imposed on private landowners and agricultural operations. See our comments in Attachment 3 on the DEIR mitigation measures applicable to Cultural Resources. 263-85

Open Space

In the RC and EC alternatives they note the importance of the Williamson Act in providing open space. We would encourage the county to develop a Williamson Act Open Space procedure that allows citizens to set aside property into open space while keeping the land on the tax rolls. It should be another tool available to citizens in addition to the Williamson Act Agricultural Preserve and easements that are used to protect the open nature of the land. When agricultural land is taken out of production and placed into a conservation easement, a re-zone application and public process should be required. This would ensure that adjacent landowners are aware of the land use change and any restrictions to the use of their land as well as to ensure that the county is aware of any potential loss of property tax. 263-86

Whereas agricultural lands provide open space, they are indeed privately owned managed resources "including forest products, rangeland, [and] agricultural lands important to the production of food and fiber" as stated in Policy CO-11b. Unlike public open space and mandated developer mitigated open 263-87

space, the agricultural lands should be free of view shed and scenic corridor restrictions that are placed on other lands. Proposed Implementation and Mitigation Measures in the RC and EC alternatives for the Conservation and Open Space Element are addressed in more detail in our comments on the DEIR in Attachment 3. 263-87

General

As we further define El Dorado County's future growth and development, we should not lose sight of the importance of agricultural operations to our economic base and the quality of life. We live in a beautiful location and we are able to grow a vast variety of crops and animals here. Natural resources recreation and agri-tourism go hand in hand, providing a draw to visitors from out of the area. We must be diligent to not over regulate agriculture in the county by inadvertently imposing requirements on the ag industry that were actually designed for commercial, industrial, and residential development impacts. 263-88

We must aggressively pursue future water supplies to ensure that agriculture can remain viable to meet the needs of a growing California. With adequate water supply and land use protections that promote continued agricultural development in El Dorado County, we will continue to provide the bounty and beauty we enjoy today. 263-89

ATTACHMENT 3. EL DORADO COUNTY FARM BUREAU DRAFT EIR COMMENTS

The contents of this attachment address the issues and concerns of the **El Dorado County Farm Bureau** relating to the Environmental Impact Report for the draft General Plan. The format is presented by category and section of the EIR followed by our comments and recommendations.

Agriculture and Forestry

Mitigation Measure 5.2-1: Identify Acceptable Mitigation for Loss of Agricultural Land.

Comments: While we agree that a loss threshold needs be addressed for loss of Agricultural Land, we feel that a public process and discussion is prudent. A comparison of mitigations used by county's comparable to El Dorado County would be warranted. It may be prudent to develop more than one loss ratio based on the soil quality, topography, geology, and hydrology of the parcels being taken out of agricultural production for development. 263-90

Recommendation: Develop an ordinance, subject to public review and comment with input from the agriculture community, to specify acceptable loss thresholds.

Mitigation Measure 5.2-2: Limit the extent of ranch marketing activities, wineries and other non-agricultural uses within agricultural designations.

Comments: This measure states that ranch marketing presents the possibility that substantial acreage of agricultural land could be removed from production. Ranch marketing uses such as wineries or stores, including parking areas, take only limited amounts of space. This space is insignificant in comparison to the total acreage of ag land used in farming activities. By having the right to engage in accessory uses on agricultural land, more opportunity exists to promote agricultural development, not to take it out of production. 263-91

Recommendation: Remove this mitigation measure as it is unnecessary.

Mitigation Measure 5.2-3: Incorporate productive and suitable agricultural land into Agricultural Districts.

Comments: We concur that agricultural lands should be identified and incorporated into Agricultural Districts wherever possible. However, the designation of an agricultural parcel outside of the Ag District should not confer fewer benefits to the parcel outside of the district. All parcels that are in production agriculture or that could be used for agriculture should be zoned accordingly. 263-92

Recommendation: Expand this measure to clarify that agricultural parcels outside of Agricultural Districts enjoy the same benefits as parcels within a District.

Right to Farm Ordinance: County Code 17.13 addresses the right to farm in unincorporated areas and in agricultural districts.

Comment: This ordinance needs to be expanded to cover all properties zoned RE5 and above in agricultural districts to preserve farming within the county. There are a number of active, but small, farming operations within these zone designations particularly in the south county area, that are negatively impacted by excluding them from this type of coverage. Encroachment of residential development is a significant threat to all agricultural operations including growing grapes. An objective of the general plan relating to agricultural districts is "to develop agricultural lands in an orderly manner". 263-93

Recommendation: Amend the scope of the ordinance to embrace agricultural districts regardless of the historical zoning inconsistencies. This ordinance should be expanded to cover all properties located in the unincorporated area which have "Agricultural Operations". 263-93

Visual Resources

Mitigation measure 5.3-1: Extends limitations on ridgeline development within scenic corridors or identified viewing locations to include all development.

Comments: This section also covers a range of visual corridor objectives. Agricultural practices should not be restricted by impacts to ridgelines. While this objective may be suitable to commercial, industrial, and home developments, agriculture should be exempted. If a farmer converts his crop and it impacts a view shed, scenic corridor, or ridgeline, he should not be impacted as that is a normal agricultural practice being applied. 263-94

Related signage for agri-tourisim should be exempt from this section as agriculture is a conspicuous part of the local landscape. Visitors come to the area for a range of experiences such as ranch marketing, wine tasting, natural resource recreation, and signage helps to safely guide these visitors to various destinations. Low profile signage prevents unnecessary stopping on highways, rubbernecking, traffic slowdowns and maintains the appeal of our county.

Recommendation: Exempt agriculture and agri-tourism businesses from view shed or scenic requirements.

Mitigation measure 5.3-3: Creation of new sources of substantial light or glare that would adversely affect daytime or nighttime views.

Comments: Ranchers and livestock owners may use lighting in order to protect their animals from depredation. Agriculturists should be exempted from restrictions on outdoor lighting. 263-95

Recommendation: Exempt agriculture from this requirement.

Water Resources

Mitigation Measure 5.5-1(a), 5.1-3(a), 5.5-1(c), 5.5-3: A series of items discussing plans for managing water utilization through restricted access.

Comments: The criteria established are too restrictive for agricultural projects to meet technically and on a timely basis. The attempt to control water shortage through water conservation is best directed to residential, commercial, and industrial applications. Not all agriculture in the county is irrigated with water supplied by purveyors. In order to support applications for both ministerial and discretionary permits, water studies would be required to build a barn or a winery. Meeting the requirements of these mitigation measures would be slow, expensive, and ultimately "show stoppers" for agricultural development. 263-96

Residential development should have water saving methods such as drip irrigation, percentage maximum for water hungry lawns in residential subdivisions, and commercial/industrial parks. Golf courses, parks, and large public areas should utilize recycled public water for irrigation of facilities.

Recommendation: Remove these items in their current form and propose a more general approach to the development of water resources to support agriculture in underserved areas of the county. Exempt agriculture from meeting these new approval requirements for every discretionary or ministerial permit.

Mitigation Measure 5.5-6: This section discusses impact of runoff from agricultural lands, particularly from vineyards and orchards, in regards to nitrogen discharges and pesticide runoffs.

Comments: We are unaware of any documented problem of an exact or similar nature from this in El Dorado County. The application of certain fertilizers and some pre-emergents occur in the spring when rain is possible, but the bulk of spray activities occur for crops during the dry portion of the year virtually eliminating potential for run-offs. 263-97

Recommendation: Remove this measure as it is not a demonstrated concern within the county.

Geology, Soils, and Mineral Resources

Mitigation Measure 5.9-4: Additional development that could affect the rate or extent of erosion.

Comments: This prohibits development or disturbance on slopes exceeding 25%. Certain livestock perform very well on slopes steeper than 25% and wine grapes have been terraced in Europe for generations on steeper terrain. This should not apply to agricultural development. 263-98

Recommendation: Exempt agricultural development from this requirement.

Mitigation Measure 5.9-4(c): Apply erosion control measures to agricultural grading.

Comments: This requires all agricultural grading that turns over one acre or more of soil to obtain a grading permit. Tillage and cultivation are normal agricultural practices and should not require a grading permit. 263-99

Recommendation: Delete this requirement as it would only seek to impose more regulations and fees on farmers for normal agricultural practices allowed by the Right to Farm.

Environmental Issues

Mitigation Measure 5.10, 5.10-2, 5.10-3 Noise: This section covers noise by decibels and hours of the day with the stated goal to "control unnecessary noise". Based on this agriculture could not make noise between the hours of 7PM, and 7 AM Mon-Friday, and on the weekend only between 8AM - 5PM.

Comment: This is too restrictive and is more onerous than the existing code. Some agricultural practices are dictated more closely by daylight hours, wind drift, humidity, and temperature rather than by a stated timeframe. These levels of restriction will negatively impact the lumber mill in Camino along with the construction and agricultural communities through the restricted hours of operation. Specifically, routine seasonal spraying of fungicides on crops needs to occur at lower temperatures and low wind conditions which are typically found during the early morning hours. 263-100

Recommendation: Exempt agriculture or significantly modify to accommodate fundamental agricultural practices.

Biological Resources

Mitigation Measures 5.12-1(b) and (d): Minimize erosion and maximize retention of natural vegetation. Develop and implement an integrated natural resources management plan.

Comments: The impact of such a policy and a management plan has the potential of limiting and precluding the use of individual property from the landowner's intended use. Additionally, the scope and the potential significance of any such findings are not categorized and compensatory programs to minimize the impact on property values are not identified. It is quite possible to find some biological resource on virtually any property within the county which makes the potential negative impact of such a zoning ordinance incredibly high. Applying this level of standards to all ministerial and discretionary projects is far too restrictive. Normal agricultural practices on private land should not be impeded by these requirements. 263-101

Recommendation: Remove this ordinance requirement. 263-101

Mitigation Measures 5.12-1(e): This relates to the loss of habitat due to fragmentation.

Comments: While we enjoy a diverse animal and plant habitat in El Dorado County, to prescribe all development projects, including agriculture, to comply with the requirements of this section is too extreme. To apply a net-loss ratio to habitat loss that is *twice* that of ag land loss is unreasonable. Agricultural land use is not a permanent change to the land, as would be a subdivision or a commercial project, and it should not be treated as such. Because of the open space and natural resource values associated with agricultural land use, ag should not be mitigated as a permanent structure or development should. We support incentive based programs that reward land stewardship. We do not favor regulating habitat management on private agricultural land to this extent. 263-102

Recommendation: Exempt agricultural projects from these requirements.

Mitigation Measures 5.12-1(f, g): These relate to the loss of woodland habitat and oak tree preservation.

Comments: Both of these measures are far too detailed to be included in the General Plan. Both could have severe impacts in the development of new agricultural operations, land reclamation projects, and general property management. 263-103

Recommendations: Delete from the EIR and, instead, develop a woodland habitat and oak tree ordinance.

Mitigation Measure 5.12-3(b): Impacts on Wildlife Movement. Apply IBC overlay to lands identified as having high wildlife habitat values.

Comments: The requirement to apply the IBC overlay to private agricultural lands should be deleted. Farmers and ranchers, by definition, are resource managers and provide valuable wildlife habitat. It is unreasonable to ask agriculturists to manage their private land in such a way as to endanger their crops and livestock. Agricultural land use is not a permanent change to the land, as would be a subdivision or a commercial project, and it should not be treated as such. Because of the open space and natural resource values associated with agricultural land use, ag should be encouraged over permanent structures or development in biological corridors. It is inappropriate to require these measures of land stewards who have cared for the habitat that exists on their land. 263-104

Recommendation: Delete this requirement for agricultural parcels.

Cultural Resources

Mitigation Measure 5.13-1: Targets the adoption of a cultural resource ordinance that would include 100 foot study setbacks, resource buffers and a countywide cultural resources sensitivity map.

Comments: The impact of such an ordinance has the potential of limiting and precluding the use of individual property from the landowner's intended use. Additionally, the scope and the potential significance of any such findings are not categorized and compensatory programs to minimize the impact on property values are not identified. It is quite possible to find some historical influence on virtually any property within the county which makes the potential impact of such an ordinance incredibly high. Agricultural operations on private land should not be held to these requirements. 263-105

Recommendation: Remove this ordinance requirement or exempt agriculture from its scope.

Mitigation Measure 5.13-1(f): Incorporate new CO-8e policy to support public and private efforts to record historic districts, sites, buildings, and objects in the national register . . .

Comments: While the stated intention of historic corridors and districts is to preserve the historic nature of the area, these distinctions also bring with them certain restrictions. Restrictions can include view sheds, road development, building design, and signage. Agricultural operations on neighboring lands should not be affected in any way by any historic site restrictions

Recommendations: Exempt agricultural impacts from any historic designation restrictions.

263-106

We recognize that following adoption of a General Plan, one of the most important activities required of all of us is to revise the Zoning Ordinance to reflect the vision of the county in the General Plan. We fully support the Interim Conformity Review Process proposed under 5.1-3 (c).

263-107

In the form of general comments, we feel that it is important to keep the General Plan as a high level document. The General Plan should remain flexible to allow for the development of supporting ordinances and procedures which should be more detailed.

263-108

There are portions of the EIR that are very detailed, appearing to guess at potential outcomes and looking to address problems that may not exist. Some thresholds and criteria seem to be arbitrarily assigned, and in many cases, unreasonable to "real life" experience in a rural setting. By establishing thresholds within the General Plan we have locked the county into a requirement that may not even be valid to address the stated concerns. By shifting the specific details from the General Plan to the Ordinance process, time is allowed for thoughtful development of policies and procedures based on sound practices, research, and public input by those affected by the ordinance.

263-109

LETTER 264

EL DORADO COUNTY FARM TRAILS ASSOCIATION

03 JUL 15 PM 1:37
RECEIVED
PLANNING DEPARTMENT

July 15, 2003

General Plan Team
El Dorado County Planning Department
2850 Fairlane Court
Placerville, CA, 95667

Dear Sir of Madam:

This is to advise you that our Board of Directors voted at our regular meeting on July 14 to support and endorse the recommendations of the County Agricultural Commission concerning the General Plan alternatives and the Draft Environmental Impact Report as stated in Mr. Snodgrass' letter to you dated July 10, 2003.

Our association believes that it is extremely important for the General Plan to provide the framework and policies which will ensure adequate protections and favorable conditions for the preservation and promotion of agricultural lands and related agricultural activities. 264-1

We believe the conclusions reached and recommendations made by the Agricultural Commission are well reasoned and if adopted, will provide a good basis for the preservation and promotion of agriculture in our county for years to come. We urge that their recommendations be given serious consideration for incorporation into the General Plan.

Thank you.

Sincerely,

Darrell Bray

Darrell Bray
President

EL DORADO COUNTY FARM TRAILS ASSOCIATION
P.O. BOX 542 • CAMINO, CA 95709 • PHONE: 530-647-2363

El Dorado County Fire Safe Council

P.O. Box 1237
Pollock Pines, CA 95726
Phone/Fax: (530) 647-1098
Email: EDCFiresafe@attbi.com

"Public and Private Partners Working Together to Protect People, Homes, and Natural Resources"

July 15, 2003

03 JUL 15 PM 3:00
RECEIVED
PLANNING DEPARTMENT

Heidi Tschudin, Contract Planner
El Dorado County Board of Supervisors
330 Fair Lane
Placerville, CA 95667

Dear Ms. Tschudin,

Enclosed are comments and proposals on the El Dorado County Draft General Plan, several of which were previously submitted as a draft on August 29, 2002. Specific recommendations herein are made to the General Plan Drafts of April 2003. These comments are formatted to the Draft Roadway Constrained Six-Lane Alternative and are intended to be a template for Fire Safe inclusions in whatever alternative is selected and does not endorse any alternative. 265-1

These proposals are editions/amendments to the text but are inadequate to totally deal with the issue of wildfire safety. These comments and proposals are supported by Federal, State, and local agencies that are responsible for fire protection in the County. Letters endorsing this support are forthcoming. 265-2

We are still concerned that our offer to provide, using Title III funds with no cost to the County, a Fire Safety Consultant to assist you in this General Plan review process on areas dealing with wildland fire and fire prevention. This remains the most likely threat to the health and welfare of our county residents. Thank you for your consideration of our input. 265-3

Sincerely,

Vicki D. Yorty
Coordinator
Attachment
Copy to: Helen Baumann, Chair, El Dorado County Board of Supervisors
Charlie Paine, Supervisor District 4/member El Dorado County Fire Safe Council
Conrad Montgomery, El Dorado County Planning Department
U.S.D.A. Forest Service, Eldorado National Forest
U.S.D.A. National Resource Conservation Service
California Department of Forestry and Fire Protection
High Sierra Resource Conservation and Development Council
Georgetown Divide and El Dorado Resource Conservation Districts
El Dorado County Fire Chief's Association
El Dorado County Fire Prevention Officer's Association

COMMENTS AND RECOMMENDATIONS ON THE DRAFT EL DORADO COUNTY GENERAL PLAN TO REDUCE THE THREAT TO LIFE, PROPERTY, STRUCTURES AND THE ENVIRONMENT CAUSED BY WILDFIRE

A CONSOLIDATED RESPONSE REPRESENTING THE CONCERNS OF FEDERAL, STATE AND LOCAL AGENCIES HAVING PUBLIC SAFETY AND ENVIRONMENTAL PROTECTION RESPONSIBILITIES

AN ADDENDUM TO TESTIMONY AND WRITTEN RESPONSE GIVEN BY THE EL DORADO COUNTY FIRE SAFE COUNCIL - AUGUST 29, 2002

We are pleased that some of the earlier Fire Safe Council recommendations have been incorporated into the El Dorado County Six-lane "Plus" and Environmentally Constrained Alternative General Plan Drafts. While the following recommendations are keyed to the Six-lane "Plus" Alternative, they apply equally to both alternatives and differ only in page references and numbering. The No Project and 1996 General Plan Alternatives fail to substantially address wildfire danger concerns. The lack of Wildfire Safety expertise on the General Plan Planning Staff is apparent in both drafts. Lacking this expertise, Fire Safety Considerations in both drafts need revision and augmentation. 265-4

While the California Uniform Building and Uniform Fire Codes govern most aspects of fire safety relating to structures of all types and uses of all kinds require actions to reduce the loss of life and property, there are no Fire Safe requirements which integrate such codes with the multiple exposures of fires originating within urban areas which threaten wildlands, wildland fires which threaten urban areas or wildland interface fires which threaten both. Goals, Measures and Policies must be included in the General Plan to provide appropriate Fire Safe measures. 265-5

Both constrained alternatives contain a Vision **"to plan for and contend with adverse natural conditions such as high wildfire danger and drought"** [page 8] and consider the Wildfire Hazard as a Planning Challenge [page 9]. Specific Fire Safe Direction must be incorporated into the Final General Plan if for no other reason than a County Wide Fire Safe plan will soon be required as a prerequisite for future funding under the National Fire Plan. Many of the following recommendations listed as a Policy or a Measure could easily be enacted after General Plan adoption as a County Ordinance if the General Plan shows the need. 265-6

Introduction

WILDFIRE HAZARD [Page 12] **Should be rewritten as suggested here:**

Each year, hundreds of homes are destroyed or damaged by wildland fires. El Dorado County is not exempt from wildfire losses. People who live in or plan to move into an area where homes are intermixed or adjacent to grass, brush, woodlands or forests may be in jeopardy and their lives may be at risk. No one may remember the last wildfire in any given area but the historical record tells us that, sooner or later, wildfires will occur. Few who have lived through a wildfire maintain their prefire attitudes. Those who have not cannot imagine such an experience and are more or less convinced that wildfire cannot affect them. Unfortunately the control of wildfires is not an exact science. 265-7

A wildfire responds to the weather, topography and fuels in its environment. Under extreme burning conditions, the behavior of a wildfire can be so powerful and unpredictable that fire protection agencies can only wait until conditions moderate before suppression actions can be taken. Some will never recover from the loss of a loved one and other values lost in a fire will never be restored. Today new Homeowner's Insurance Policies are not available in El Dorado County from several traditional insurers and more are considering terminating coverage because of the wildfire risk. At the very least, insurance costs for those fortunate enough to obtain it, have risen.

On a more positive note, fire prevention planning is well developed in the County The County Planning Department routinely requires a Fire Safe Plan in Tentative Map and Building Permit Conditions of Approval. Over 200 such plans have been developed and approved. California Public Resource Code #4291 which requires clearance of flammable vegetation from around structures has been enforced in some (but unfortunately not all) jurisdictions for over 20 years. Public Resource Code #4290 and Title 14 Regulations for Fire Prevention and for the provision of Fire Support Infrastructure in State Responsibility Areas (SRA) have been enforced since 1982. County Amendments to the SRA Fire Safe Regulations were added in 1986. A proposal to provide additional Fire Prevention information by revisions to the County of El Dorado Design and Improvement Standards Manual has been funded and will be developed by the El Dorado County Fire Prevention Officer's Association. **265-7**

Land Use Element

Add: *Goal LU-1: To provide for appropriate land use developments that reduce the threat to life, property, structures and the environment from wildfires.* **265-8**

Policy LU - 1a: The County shall identify Communities, Community Regions and Rural Centers which are classified as High or Very High Fire Hazard Severity by the California Department of Forestry and Fire Protection (CDF) and/or are listed in the Federal Register of August 17, 2001 entitled "Urban Wildland Interface Communities within vicinity of Federal Lands that are a High Risk for Wildfire". Additional lands so classified by the Fire Protection Agency Having Jurisdiction (AHJ) shall be similarly identified. Said designations shall be available to the public. **265-9**

Policy LU – 1b: All development, regardless of size, shall be reviewed for compliance with California Public Resource Codes #4290 and #4291, State Responsibility Area (SRA) Fire Safe Regulations contained in Title 14-Division 1.5 and El Dorado County and AHJ Fire Safe Requirements. **265-10**

Renumber Goal LU - 1 and policies that follow to LU - 2

Renumber Goal LU - 2 and policies that follow to LU - 3 **265-11**

Renumber Goal LU - 3 and policies that follow to LU - 4

Add: *Goal LU – 5: To provide Rural Region development requirements which recognize the wildfire hazard and which provide standards to reduce losses from wildfire.* **265-12**

Policy LU - 5a: Rural residential uses shall not be situated on lands classified as High or Very High Fire Hazard Severity by the California Department of Forestry and Fire Protection (CDF) and / or are listed in the Federal Register of August 17, 2001 entitled "Urban Wildland Interface Communities within vicinity of Federal Lands that are a High Risk for Wildfire" unless ignition resistant construction, adequate access, fire support infrastructure and defensible space measures are required and provisions for annual or other maintenance have been provided in deeds or other documents as appropriate. **265-13**

Policy LU - 5b: A Fire Safe Plan approved by CDF and the AHJ is required for approving new development of any kind on lands covered with grass, brush, woodlands or forests. **265-14**

Policy LU - 7a A. **Add:** *As set forth in the Public Services and Utilities Element Goals and Policies LU - 1, LU -5 and LU - 7g.* **265-15**

Transportation and Circulation Element

Goal TC – 1: **Edit the last line to read:** *efficient movement of people, emergency equipment and goods.* **265-16**

Policy TC – 1b: **Add:**. *Communities, Community Regions and Rural Centers which are classified as High or Very High Fire Hazard Severity by the California Department of Forestry and Fire Protection (CDF) and / or are listed in the Federal Register of August 17, 2001 entitled "Urban Wildland Interface Communities within vicinity of Federal Lands that are a High Risk for Wildfire" and additional areas so classified by the Fire Protection Agency Having Jurisdiction (AHJ) shall have at least two means of ingress and egress for residents and emergency vehicles.* **265-17**

Policy TC – 1e: **Add:** *Roads in areas identified in Policy TC - 1b shall have grades, widths, surfacing, turning radii, load carrying capacity, turnouts and turnarounds for large fire apparatus as required in Title 14, SRA Fire Safe Access Regulations and as documented in the County of El Dorado Design and Improvement Standards Manual unless exempted by other SRA Regulations, where El Dorado County Department of Transportation (DOT) and the AHJ find that alternative construction has the Same Practical Effect (SPE) or where DOT finds said requirements conflict with the County's Hillside Grading Requirements.* **265-18**

Housing Element

Building Codes and Enforcement [Page 116]: **Remove all references to dates of publication of various codes since almost all have been reissued since the dates cited.** **265-19**

Policy HO - 2a: **Add:** *Existing homes and residential neighborhoods shall be upgraded to meet defensible space and ignition resistance by providing rehabilitation and retrofit incentives.* **265-20**

Policy HO - 3f: **Add:** *Rehabilitation of dwellings which do not meet current standards shall be reconstructed and/or retrofitted with ignition resistant materials which* **265-21**

have the Same Practical Effect (SPE) as current setback and defensible space requirements. 265-21

Policy HO - 4a: **Add:** *Developments for groups with special needs (elderly, handicapped, poor mobility etc.) shall be discouraged in areas with poor emergency medical and rescue access and which have conditions which may delay evacuation.* 265-22

Policy HO - 5a: **Add:** *Class "A" roofing assemblies, attic and wall insulation, dual pane windows and metal screens shall also be required since energy efficiency also results in increased ignition resistance.* 265-23

Policy HO - 6c: **Add:** *Except as restricted in Policy HO - 4a.* 265-24

MEASURE HO – G: **Add:** *Relaxation of road standards may be evaluated subject to the restrictions in Policy HO - 3f, TC - 1b and TC - 1e.* 265-25

MEASURE HO – J: **Add:** *All changes which facilitate the provisions to provide affordable and workforce housing shall have the Same Practical Effect (SPE) of current SRA Fire Safe Regulations.* 265-26

Public Services and Utilities Element

Goal PS – 2: **Add:** *"and fire protection."* 265-27

Policy PS - 2g: Where public or private water systems are not available, on site water storage which meets standards set by the AHJ shall be provided for fire protection purposes. 265-28

Policy PS - 2h: Commercial developments within Agriculture Districts, unable to be supplied with public or private water supply systems, shall be required to meet the National Fire Protection Association Standards for Suburban and Rural Firefighting. 265-29

Policy PS - 7a: **Add:** *Optimum Fire and Emergency Medical Services shall be encouraged through Mutual Aid Agreements, Joint Power Authorities or Emergency Response Agreements established by the California Office of Emergency Services.* 265-30

MEASURE PS – K: Portions may be redundant given proposed revisions to the Design and Improvement Standards Manual and the development of a County Fire Safe Plan. 265-31

Health, Safety and Noise Element

FIRE SAFETY [Page 229]: **Rewrite:** *Fire Safety for residents of El Dorado County has become a critical concern for those responsible for providing fire protection. Many homes have been built in remote areas with high and very high fuel hazards, limited access with long response times for suppression and medical resources and insufficient water for fire fighting purposes. Recent wildland fires in the County have caused major wildland resource damage, damage to infrastructure and have required large investments to restore resources and infrastructure.* 265-32

Currently El Dorado County has 2 Fire Safe Councils: one covering the western slope of the county and the other the Tahoe Basin. There are also several local community-based councils. Representatives from CDF, local fire protection agencies, CHP, County Sheriff, U S. Forest Service, homeowner associations, the insurance industry and the public at large sit on these councils. **265-32**

Policy HS - 1a: **Add:** *...and shall actively participate in the development of a Countywide Fire Safe Plan.* **265-33**

Policy HS - 2a: **Add:** *... through revisions to the County of El Dorado Design and Improvement Standards Manual, the development of a Countywide Fire Safe Plan and the enactment of ordinances and regulations which require fire safe applications.* **265-34**

Policy HS - 2c: **Substitute:** *"regulate" for "preclude", "until" for "unless", and "has been" for "can be"* **265-35**

Policy HS - 2d: **Add:** *... through the adoption and enforcement of fire protection, prevention and suppression measures so that all structures will meet defensible space and ignition resistance requirements. Standards will be applied during reviews for all permitted development.* **265-36**

Policy HS - 2f: CDF Fire Hazard Severity Ratings and Communities at Risk designations (See Policy LU - 5a and TC - Ib) shall be a standard disclosure along with flood, seismic and other hazards to buyers and others planning land uses. **265-37**

Policy HS - 2g: A Fire Safe Plan shall be prepared for all new developments on lands covered with grass, brush, woodlands or forests. These developments include; 1) New parcels and subdivisions, 2) Building Permits for new construction, 2) Use Permits, 4) The siting of manufactured homes, 5) Road Construction including the construction of a road which does not currently exist or the extension, relocation, realignment or improvement of an existing road, 6) Grading for building pads, vehicle turn around sites, driveways for any other purpose which, in the opinion of the AHJ, might affect fire protection activities or which alters or modifies vegetation. Such plans must be approved by CDF and the AHJ prior to the issuance of a Certificate of Occupancy or filing of the Final Map. **265-38**

Policy HS - 3a: **Add:** *...and shall consider the allocation of Title III and other Grant Monies to facilitate planning and the accomplishment of fuel management opportunities.* **265-39**

Policy HS - 3c: Fuel management activities which include, but are not limited to, clearing, thinning, maceration, physical removal and the use of prescribed fire when performed to reduce fire hazards done for the protection of life and property shall not be encumbered, limited or prohibited by any General Plan land use designation, zoning or overlay. The County shall not require permits for such activities except as may be required to meet air quality standards. **265-40**

Policy HS - 9b: Exemptions to Burn Day Restrictions shall be granted where a prescribed fire proposed by the AHJ will reduce fuel hazards, provide defensible space or otherwise benefit fire suppression effectiveness, where a Burn Plan has **265-41**

been prepared that includes smoke management requirements and all other prescription elements including equipment and staffing have been met. 265-41

Conservation and Open Space Element

Policy CO - 4d: Fire suppression activities which may include the construction of firelines, backfiring, aerial retardant drops, dipping or pumping from lakes, ponds, rivers or other bodies of water shall not be encumbered, limited or prohibited by any General Plan land use, designation, zoning or overlay. 265-42

Policy CO –5f: The preservation of important habitats shall include an active program to eradicate highly flammable, noxious non-native species including, but not limited to, Scotch Broom and Russian and Star Thistles. 265-43

Policy CO - 11c: The establishment of Open Space (e.g., conservation easements, nature preserves, greenbelts, common areas, etc.) within or adjacent to residential developments shall have Fuel Modification and Maintenance Standards developed, approved by CDF and the AHJ. These standards shall be included in Conditions of Approval, Final Map Requirements, Special Use Permits and/or CC&Rs as appropriate. 265-44

Policy CO – 11d: Lands zoned for rural residential use adjacent to or within unmanaged or unregulated wildlands designated as described in LU - 5a and TC - 1b shall require structures to be ignition resistant and have development restricted until adequate access, defensible space and fire support infrastructure including water for firefighting have been provided. 265-45

MEASURE CO – G: **Add:** *references to policies HS - 2g and HS - 3b* 265-46

MEASURE CO – 0: **Add:** *... native, low volume, fire resistant plants.* 265-47

Agriculture and Forestry Element

Policy AF- 4: **Add:** *...through one or more of the following. 1) Avoiding abrupt changes between developed and undeveloped areas suitable for timber production by maintaining large parcels with minimum development (Zoned LDR, RL or larger as buffers, 2) Insuring forest management activities including timber harvesting, thinning, planting and other agricultural treatments including the application of pesticides and herbicides and the use of prescribed fire shall not be curtailed by County regulations.* 265-48

LETTER 266



POST OFFICE BOX 141 • RESCUE, CALIFORNIA 95672 • TELEPHONE/FACSIMILE: 530/823.1503

"For Communities, HCP's provide a way to plan economic development and to avoid having development stalled for years by costly court battles. They improve the overall environmental quality of a community and may even help attract new residents and business by creating a more healthy and beautiful community."

Benefits for Wildlife and Communities,
The Quiet Revolution USF&WS

El Dorado County
Planning Department
2850 Fairlane Court
Placerville, Ca 95667

July 15, 2003
(FAX 642-0508)

Subject: Comments for the General Plan Draft Environmental Review

Please note comments from Quality Growth will be coming in from separate sources and should be treated as being from the Group. Some may be combine with comments of various members or with other groups, which could cause for duplication. However, this may be more beneficial for the General Plan Team as we understand our combined document had to be separated by issue or topic in the past. 266-1

Respectfully Submitted on Behalf
Of El Dorado County Taxpayers for
QUALITY GROWTH

Jan McKinsey & Other Members

Faxed (6 pages plus 16 pages)

WATER SUPPLY
SURFACE WATER

According to the DEIR Water Demand Forecast Numbers, it appears the low end or most conservative approach for a low growth forecast would be the No Project in the Western Slope and Alternative 1 in the Tahoe Basin. The overall county-wide annual system water demand is estimated to be 109,700 acre feet in 2025 and 129,600 acre feet at build-out. 266-2

Where would all this water come from? Doesn't the amount shown above even exceed the total potential maximum including PL 101-514 and Project 184?
As stated in the DEIR: "the ability of the west-slope water purveyors to develop major new water supply projects is in question. A large number of uncertainties surround these potential projects and such projects must satisfy numerous regulatory requirements and withstand various legal challenges".
How can the County, even with restricted mitigation, adopt a General Plan based on potential water? 266-3
Isn't an environmental review required for potential projects, as well as surviving any legal challenge, required before it can be justified for the basis of the General Plan?

Wouldn't a feasible approach be to require a General Plan Amendment as new water is secured, regulatory requirements are addressed and met, and any legal challenge resolved? 266-4
Why wouldn't this be feasible and provide the most protections for existing residents and property owners?

Please note that any approvals or support for the No Project (Western Slope) and Alternative 1 in the Tahoe Basin is only be based on Water Demand Forecast Numbers. Policy and mitigation is a separate issue. 266-5
It appears the methodologies use to determine the Water Demand Forecasts is Flawed. To understand the amount of impacts, shouldn't the data be based on "actual" water and not Population/Housing and Employment growth for Land Use? 266-6

Although knowing how much water demand is required for population projections can be useful and has value, it has become apparent that the forecast demands exceed any realistic new sources of water. Therefore, the Forecast Water Demand numbers are not useful for parcel approvals and 266-7

the management of the water resource -- making it a Flawed Approach. Is the County planning on using the Water Demand Forecast to adopt a General Plan? How will the County justify adopting a plan beyond actual available water? The bottom line is: "Shouldn't water availability be based on "actual water" and not based on population/housing and employment growth for land use?" 266-7

DEIR Vol 3 Technical Appendix E identifies the method used for Water Demand Forecasts. Housing and employment growth forecasts were developed and used to maintain consistency with the GP Process. It also noted water demands were estimated on "households" rather that "residential units" which includes an allowance for vacancies. 266-8

Additionally, in order to translate the land use forecasts into water demand, it was necessary to determine how much growth will occur for each purveyor. Then an acreage distribution factor was calculated based on the purveyors "existing" service area boundaries. This "big-picture" analysis of water demand also used region-specific demand factors for EID.

The above method used to calculate the Water Demand Forecast is complicated for the public by the additional statement: "ECO:LOGIC and EPS, based on conversations with the purveyors, determined that is was preferable to uses the demand factors provided by each purveyor rather than develop comprehensive factors by land use for the Western Slope or the Tahoe Basin. Using the demand factors and or data provided by the purveyors allow for consistency and comparability between planning documents and water supply and demand analyses conducted by each purveyor." 266-9
---- How the purveyor demand factors were developed and applied is confusing. Similar confusing language is in Section 5.5. Isn't this contradictory? - and - Doesn't all this convoluted approach to Forecasting Water Demand confuse the public?
However, Shouldn't Forecasting Water Demand be based on real achievable water? Then, wouldn't a land-use model land be developed based on a secured water supply? Therefore, isn't the above method flawed? Isn't this what you would call a "Paper Water" approach?
We request a land-use model be developed using actual physically available guaranteed secured water.

It is noted in Section 5.5 a variety of methodologies were used. EDCWA is conducting an ongoing countywide water planning process *"using the same water demand estimates used in this section"*. It appears this info/data is being used 266-10

for the Draft EDCWA Water Resources Development and Management Plan as well as by the Purveyors for their Urban Water Management Plans. Having not seen the documents referenced in the DEIR and believing the above approach is Flawed brings into question the data being developed for these documents. 266-10

Another specific concern on the above method for analysis is the allowance for vacancies. Once an impact or use is established, doesn't the overall or cumulative impacts need to be included and address? What happens in times of housing shortages, won't there be "No Vacancies"? 266-11

Another concern is estimating water demand for "households" rather than residential units (should be parcels, which the public is familiar with). This is very confusing. These additional concerns are noted to further demonstrate the opinion that the method is Flawed. 266-12

The public is familiar with Ordinance No. 4325 El Dorado County Public Water Planning Ordinance, also generally known as the Water Supply and Demand Report. In this approach the County ties the Demand with parcels. Using this approach has become the accepted approach to addressing Water Supply and Demand. Without providing the County WS&D Report in the DEIR further confuses the public. 266-13

Please note The County's Water Supply and Demand Report is not the same as the EID Water Supply and Demand Report. In the NOP phase, QG requested that the latest County Water Supply and Demand Repot be included in the DEIR. Only the EID 2002 Update to the Annual Water Demand and Supply Report was used as reference material available at the County Planning Department.

Additionally, it should be noted EID adopted the 2003 Update to the Annual Water Supply and Demand Report in June 2003. Could the County update their Water Supply and Demand Report to include the 2003 EID Update? Could the County Updated Report then be used for a land use model based on actual existing water? The base year for the Water Demand Forecasts was 1999 as explain on page of a March 5 2002 Report. Couldn't a more current County Updated Water Supply and Demand Report be used as the base year for a Land Use Model based on actual water? 266-14

Aren't projections needed for a potential actual available "real" water supply (not land use or housing/employment growth based data) to determine if the Demand can be met - if and when - the secured water rights become available? 266-15

Then before adopting a General Plan, shouldn't an actual amount of secured "physically available/ guaranteed" water be identified before new parcels are approved? Shouldn't the amount of total committed water for tentative maps (not just the current demand) be clearly identified? 266-15

According to Table 5.5-1, existing water demand for EID is estimated to range from 37,095 afy to 37,806 afy. It is also stated that EID currently has a system firm yield of 43,280afy. What is the Safe Yield? Shouldn't this information be available in providing for a guaranteed water supply? 266-16

In the past, the EID Water Supply and Demand Report did not take into consideration tentatively approved parcels yet to be served. The County's Water Supply and Demand report would address tentatively approved parcels. I could not find where this potentially required demand was not addressed in the Water Demand Forecasts. Please provide this information. Therefore, EID could make the statement that they are currently able to meet the Existing Demand. Other information is also missing. What would the current existing water demand be for all tentative and tentatively approved parcels requiring water? For each purveyor? For EID by total area and by region? Does that demand exceed existing supplies? 266-17
What are the demand amounts within district boundaries for already zoned parcels yet to be approved? For each of the Alternatives? Does that demand exceed existing supplies? What are those demand amounts for projects and specific plans requiring annexation?

If the water supply can not meet the demands of tentatively approved parcels - or - already zoned parcels within district boundaries, why would annexations be considered or approved prior to letting those, so to speak, first in line projects go forward? Is this a legally sound position for the County to take? Can't a legal argument be made by some of those properties that they have been taxed for being inside EID District Boundaries while others could be approved outside the District Boundaries prior to their parcels? 266-18 Please explain why development agreement properties requiring annexation could be considered for approval before already zoned and existing parcels within district properties? 266-19

As an example of "Pie in the Sky Planning"; "at a EID Hearing on water availability and infrastructure the conversation went like this. "An EID engineer made the 266-20

statement that upgrades and the facilities master plan has and would be based on the proposed sources and amounts of water identified in the General Plan. Then an EID Director asked; "what kind of planning is that if there's no water to put in the lines?" Wouldn't "paper water planning" contribute to over estimating infrastructure needs, costs/ bonds and costs to ratepayers? Given the constraints the County must address, What are the benefits of basing water demand forecasts on anything but realistic projections?

266-20

After looking at these types of figures for several years, I'm confused by the DEIR method and data. It took several hours of struggling to try to understand the methodologies and the various Tables and I'm still not sure I really understand it. If I didn't get it as far as the Forecast Demand Numbers go, then I need a lesson. Doesn't this confuse the public? How difficult is this data for the general public to understand? Shouldn't this information be user friendly?

266-21

Support and approval should be given to all the most restrictive mitigation that will protect the existing water supply. In addition, project approvals beyond the existing supplies should not occur until a General Plan amendment is processed to address the amount of new water and how many parcels it could serve.

266-22

HABITAT CONSERVATION PLANS

Please adequately address this issue.

Subject **FROM**: Planning Commission Hearing on Habitat Conservation Plans and NOP Scoping Comments for the General Plan.

Although discussions have occurred on HCPs for rare plants or red-legged frogs, the differences and importance for the preservation of Wildlife Habitat Areas and Corridors in the higher density areas has been overlooked.

266-23

We recommend establishing HCP guidelines and/or criteria in the higher density areas to protect these areas from further loss.

HCPs are just as important if not more so in High-Density Residential areas. The Wildlife Habitat Corridors and open space they provide are and have been a social and economic benefit in marketing real estate to draw new property owners to El Dorado County. Once here, existing residents consider protection of these areas as part of their environment and important to their property values and Quality of Life. This has been part of El Dorado County's Community Character, Culture and Heritage.

Many times as projects come forward for development review they give a site description such as; "....the site is characterized by dense oak woodlands which provide wildlife habitat and corridors for wildlife movement." The next thing we see is rooftop upon rooftop and the key features and character of the area is lost.

It is recognized not every area can be protected and development must occur. However, Identifying and Establishing interconnected criteria as Key Factors for protection baselines must be developed for HCPs in Higher Density areas. This effort can supplement the preservation and conservation of "Big Block" HCPs for specific status species while protecting the overall variety of wildlife in our immediate backyards.

266-23

Examples of "KEY FACTORS" that can be used in combination to determine the value to preserve or develop conservation measures for an area are;

- Locally designated or known to be a dense Oak Woodland/or Forest. Examples could be the Bell Forest or the Local Natural Forest area in the recent Pedregal Project.
- New Oak Preservation standards with emphasis on "Retention rather than Replacement" while also addressing Oak Canopy.
- Known riparian/wildlife corridors providing shelter or nesting for a variety of species (including but not limited to special status species).
- Mapping/and protection of riparian areas including Intermittent as well as Year Round Streams.
- Establishing Stream Setbacks:
  a) Perennial Streams, Rivers, and Lake: 100 feet from the high water mark, or from the edge of the riparian zone, which ever is greater;

b) Intermittent streams: 50 feet from the ordinary high water mark or from the outside edge of the high water zone which ever is greater;
c) Wetlands 50 feet from the edge of the identified wetland.

- "Retention of Reoccurring" nesting trees/areas (especially for special status species) and used along with protections and avoidance measures during construction while nesting is occurring. This can include owls or other species that do not have special status.
- Ponds, Lakes, Rivers or Streams that provide for migratory patterns for waterfowl and wildlife.
- Steep slope protection with setbacks from inner gorge areas.
- Incorporating wildlife corridors interconnected to parks and open spaces.
- Utilizing natural drainage systems and above ground vegetated open channel drainages.
- Avoid impacts and by providing on-site mitigation for wildlife so the wildlife impacted receives the benefits.
- Educational programs for homeowners to enhance the nearby natural areas to provide habitat for Community Wildlife.

266-23

We have attached (HCP - The Quiet Revolution by USF&WS) as an example of how HCP's can be used in EDC Community Regions, and a (List of Wildlife from the Weatherstone EIR ½ block from a Placerville Business District) to show an example of the wildlife that live in high-density areas.

266-24

PUBLIC REVIEW PROCESS

Please include this letter as scoping comments for the Notice of Preparation on the General Plan. At this point we are unclear as how this Planning Commission Hearing and any Documents/Letters will be used in conjunction with the adoption of a New General Plan.

Thank you for your consideration on the above issues.

Respectfully Submitted on Behalf of
EL Dorado County Taxpayers for
QUALITY GROWTH

Please note mitigation, plans or studies can not be deferred.

266-25

Comments on Biological Resources in the DEIR

A. The effects on riparian habitats are not adequately disclosed.

The analysis of land use intensity by habitat presented in Table 5.12-4 (DEIR, p. 5-12-36) is fairly effective in disclosing how the effects of each alternative affect the differently plant communities in the county. However, little information is presented on riparian or stream course habitat and how the alternatives may have a differential effect across the landscape on these important and sensitive habitats. An analysis similar to the one completed for vegetation communities could have been completed. For example, a rough estimate of impacts could have been inferred from an analysis of the land use allocation (ranked as high-medium-low) within a buffer distance of 300 feet of the stream. This data could have been summarized by sub-basins with the result allowing one to evaluate the differences between the alternatives as one moved across the county. Such information would allow one to evaluate where development might occur with respect to potentially sensitive stream zones and to assess which alternatives where the least disruptive. In the absence of this information, we can only guess at the effects that the alternatives might have on the stream network. 266-26

B. The consequences of the lengthy time to complete implementation actions on biological resources are not evaluated.

Several elements of the implementation program for the Conservation and Open Space Element have timeframes for implementation that extend 3 to 5 years. Until the measures are implemented, there are no standards in place to guide application of the policies. This difficulty has been noted in other elements as well. The Land Use and Housing section identifies a new policy to manage this absence (DEIR, p. 5.1-66) that relies upon the 1996 general plan policies. In many cases, the existing zoning ordinances or 1996 general plan are inferior policies. Instead of relying on old measures, the new general plan should establish interim standards to be in effect until the zoning ordinances and other implementation measures have been adopted. 266-27

This is especially the case in situations where the 1996 plan deferred the development of standards to the creation of zoning ordinances that was never completed. In particular, details in the oak woodland policy (Policy 7.4.4.4) and stream course setbacks (Policy 7.4.2.5) are each deferred to the creation of a zoning ordinance. Since no such ordinances were ever created, upon approval of the general plan, there will be little information to guide development when these biological resources are affected. Thus, the consequences of up to 5 years of development without the guidance provided in the zoning ordinances must be disclosed.

The following mitigation measure addresses this omission. In cases where zoning ordinances from the 1996 plan have not been adopted, the following could be applied:

Setbacks from streams, lakes, ponds and other waterways

Setbacks shall be a minimum of 200 feet from the center line of perennial streams and 100 feet from the center line of intermittent streams, lakes, ponds and other sensitive aquatic habitats (e.g. seeps, wetlands). Uses permitted within the setbacks shall be guided by policies CO-3d and CO-3e. Mitigation measures designed to address impacts to these sensitive areas shall be guided by policy CO-3f in the EC alternative.

266-27

Oak woodland conservation

Modify the language of the canopy retention policy to eliminate the ability to replace oak woodland canopy until such time as a zoning ordinance establishes guidance for replacement and mitigation of oak woodland losses. The project's environmental analysis shall address the potential for the project to adversely affect oak woodland resources. The evaluation shall also include measures to avoid, minimize, and mitigate project effects on such resources.

C. Differences between the boundaries of the Pine Hill ecological preserve compared to the Recovery Plan Area result in effects that are not disclosed.

266-28

The No Project/1996 Plan alternatives include a preserve area for the Pine Hill plants that is not the same as the Recovery Plan. Some areas in the No Project/1996 preserve area are not included in the Recovery Plan area and vice versa. This lack of consistency may lead to situations where areas important to recovery of these species are degraded. These differences may also lead to a situation where mitigation measures have been required for a property outside of the Recovery Plan, but within the No Project/1996 Plan preserve boundaries, will not count toward the recovery goals for these species. Thus, mitigation measures provided by a property owner (and at some cost to that owner) may not count toward the protection of these species that is ultimately needed to gain federally permitted water from Folsom Lake. These effects of adopting a preserve boundary that does not include the Recovery Plan area need to be disclosed in the EIR. 266-28

D. Important Biological Corridor Overlay (IBC)

This is an important planning tool that should be included in any alternative. The current formation of the layer seems to emphasize areas important to habitat connectivity that would lose integrity if subdivided and developed to the maximum allowed by the underlying land use. From a review of the landscape, areas not in the IBC might still be important for connectivity, but their underlying land use (e.g. natural resource, rural residential, open space) is not in conflict with maintaining the habitat integrity. The overlay points to places on the landscape where we should think a bit differently about development in order to protect important resources. Ultimately, maintaining habitat connections across the landscape depends on both the areas in the IBC and the adjacent natural resource and open space land use designations. This point is not made well in the DEIR. Confusion on this point could lead to the public expecting that the only lands important to connectivity lie within the IBC and this is not the case. 266-29

E. It should be disclosed that opportunities for conservation funding from the State of California depend on the county adopting an oak woodland management plan.

In 2002, an amendment to the Wildlife Conservation Law of 1947 called the Oak Woodland Conservation Act became effective. The Act establishes a program in California for 266-30

investing in the conservation of oak woodlands through conservation easement purchase, annual payments and restoration. To be eligible for this funding, a county must adopt an oak woodland management plan that addresses oak mitigation measures, tree inventory, canopy retention and monitoring. The Act is contained in Appendix A of this section on biological resources.

266-30

If the County does not adopt an oak management plan that includes measures that satisfies the State's requirements, we can not gain access to these state funds for oak woodland conservation. This lost opportunity should be disclosed in the EIR.

F. The California Endangered Species Act, as it relates to protection of listed plants, is not properly described.

The DEIR does not provide an adequate or full discussion of the application of California Endangered Species Act (CESA) to listed plants. A description of the application of CESA to listed plants that is posted on the California Department of Fish and Game's website is contained in Appendix B on this section on biological resources.

266-31

APPENDIX A

Policies and mitigation measures that should be included in the El Dorado County General Plan

APPENDIX B

Oak Woodland Conservation Act

BILL NUMBER: AB 242 CHAPTERED
BILL TEXT

CHAPTER 588
FILED WITH SECRETARY OF STATE OCTOBER 9, 2001
APPROVED BY GOVERNOR OCTOBER 7, 2001
PASSED THE SENATE SEPTEMBER 14, 2001
PASSED THE ASSEMBLY SEPTEMBER 14, 2001
AMENDED IN SENATE SEPTEMBER 13, 2001
AMENDED IN SENATE SEPTEMBER 10, 2001
AMENDED IN SENATE AUGUST 30, 2001
AMENDED IN SENATE JULY 12, 2001
AMENDED IN SENATE JUNE 25, 2001
AMENDED IN ASSEMBLY APRIL 16, 2001

INTRODUCED BY Assembly Member Thomson
(Coauthors: Assembly Members Alquist, Jackson, and Wayne)
(Coauthor: Senator Oller)

FEBRUARY 14, 2001

An act to add Article 3.5 (commencing with Section 1360) to Chapter 4 of Division 2 of and to add and repeal Section 1363.5 of, the Fish and Game Code, relating to oak woodlands conservation.

LEGISLATIVE COUNSEL'S DIGEST

AB 242, Thomson. Wildlife conservation: oak woodlands.

The existing Wildlife Conservation Law of 1947 establishes the Wildlife Conservation Board, and requires the board, among other things, to determine the areas in the state that are most essential and suitable for wildlife production and preservation, as prescribed.

This bill would enact the Oak Woodlands Conservation Act to provide funding for the conservation and protection of California's oak woodlands. The bill would create the Oak Woodlands Conservation Fund in the State Treasury, and would authorize the expenditure of moneys in the fund, upon appropriation by the Legislature, for purposes of the act. The bill would require the board to administer the fund, as prescribed, and would provide that moneys in the fund shall be available to local government entities, park and open-space districts, resource conservation districts, private landowners, and nonprofit organizations for implementation and administration of the act, as provided.

The bill would require each city or county planning department that receives a grant for the purposes of the act to report to the city council or board of supervisors of the county, as appropriate, on the uses of those funds within one year from the date the grant is received.

The existing Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act of 2000 (the Villaraigosa-Keeley Act) provides that not less than $5,000,000 of the proceeds of bonds issued under that act be allocated, upon appropriation by the Legislature, for the preservation of oak woodlands.

This bill would provide for the transfer of not less than

$5,000,000 and not more than $8,000,000, as determined by the Wildlife Conservation Board, to the Oak Woodlands Conservation Fund to be used for the purposes of the bill.

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1. The Legislature hereby finds and declares all of the following:

(a) The conservation of oak woodlands enhances the natural scenic beauty for residents and visitors, increases real property values, promotes ecological balance, provides habitat for over 300 wildlife species, moderates temperature extremes, reduces soil erosion, sustains water quality, and aids with nutrient cycling, all of which affect and improve the health, safety, and general welfare of the residents of the state.

(b) Widespread changes in land use patterns across the landscape are fragmenting the oak woodlands wildland character over extensive areas.

(c) The future viability of California's oak woodlands resources are dependent, to a large extent, on the maintenance of large scale land holdings or on smaller multiple holdings that are not divided into fragmented, nonfunctioning biological units.

(d) The growing population and expanding economy of the state have had a profound impact on the ability of the public and private sectors to conserve the biological values of oak woodlands. Many of the privately owned oak woodlands stands are in areas of rapid urban and suburban expansion.

(e) A program to encourage and make possible the long-term conservation of oak woodlands is a necessary part of the state's wildlands protection policies and programs, and it is appropriate to expend money for that purpose. An incentive program of this nature will only be effective when used in concert with local planning and zoning strategies to conserve oak woodlands.

(f) Funding is necessary to sufficiently address the needs of conserving oak woodlands resources for future generations of Californians.

(g) California voters recognized the importance of funding that is needed to sufficiently protect the state's oak woodlands by passing Proposition 12, the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act of 2000 (the Villaraigosa-Keeley Act), which included not less than five million dollars ($5,000,000) for oak woodlands conservation.

SEC. 2. Article 3.5 (commencing with Section 1360) is added to Chapter 4 of Division 2 of the Fish and Game Code, to read:

Article 3.5. Oak Woodlands Conservation Act

1360. This article shall be known, and may be cited, as the Oak Woodlands Conservation Act.

1361. For purposes of this article, the following terms have the following meanings:

(a) "Board" means the Wildlife Conservation Board established pursuant to Section 1320.

(b) "Conservation easement" means a conservation easement, as defined in Section 815.1 of the Civil Code.

(c) "Fund" means the Oak Woodlands Conservation Fund.

(d) "Land improvement" means restoration or enhancement of biologically functional oak woodlands habitat.

(e) "Local government entity" means any city, county, city and county, district, or other local government entity, if the entity is otherwise authorized to acquire and hold title to real property.

(f) "Nonprofit organization" means a tax-exempt nonprofit organization that meets the requirements of subdivision (a) of Section 815.3 of the Civil Code.

(g) "Oak" means any species in the genus Quercus.

(h) "Oak woodlands" means an oak stand with a greater than 10 percent canopy cover or that may have historically supported greater than 10 percent canopy cover.

(i) "Oak woodlands management plan" means a plan that provides protection for oak woodlands over time and compensates private landowners for conserving oak woodlands.

(j) "Special oak woodlands habitat elements" means multi-and single-layered canopy, riparian zones, cavity trees, snags, and downed woody debris.

1362. It is the intent of the Legislature that this article accomplish all of the following:

(a) Support and encourage voluntary, long-term private stewardship and conservation of California's oak woodlands by offering landowners financial incentives to protect and promote biologically functional oak woodlands over time.

(b) Provide incentives to protect and encourage farming and ranching operations that are operated in a manner that protects and promotes healthy oak woodlands.

(c) Provide incentives for the protection of oak trees providing superior wildlife values on private lands.

(d) Encourage local land use planning that is consistent with the preservation of oak woodlands, particularly special oak woodlands habitat elements.

(e) Provide guidelines for spending the funds allocated for oak woodlands pursuant to the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act of 2000 (the Villaraigosa-Keeley Act (Chapter 1.692 (commencing with Section 5096.300) of Division 5 of the Public Resources Code)).

(f) Establish a fund for oak woodlands conservation, to which future appropriations for oak woodlands protection may be made, and specify grant making guidelines.

1363. (a) The Oak Woodlands Conservation Fund is hereby created in the State Treasury. The fund shall be administered by the board. Moneys in the fund may be expended, upon appropriation by the Legislature, for the purposes of this article.

(b) Money may be deposited into the fund from gifts, donations, funds appropriated by the Legislature for the purposes of this article, or from federal grants or loans or other sources, and shall be used for the purpose of implementing this article, including administrative costs. Funds from the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act of 2000 (the Villaraigosa-Keeley Act (Chapter 1.692 (commencing with Section 5096.300) of Division 5 of the Public Resources Code)), but not including funds dedicated as matching funds for the federal Forest Legacy Program, shall be deposited in the fund.

(c) To the extent consistent with the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act of 2000 (the

Villaraigosa-Keeley Act (Chapter 1.692 (commencing with Section 5096.300) of Division 5 of the Public Resources Code)), the board may use money designated for the preservation and restoration of oak woodlands in the Oak Woodlands Conservation Fund for projects in conjunction with the California Forest Legacy Program (Div. 10.5 (commencing with Sec. 12200) of the P.R.C.)), but only for the purposes specified in this article and only if the following requirements are met:

(1) The Department of Forestry and Fire Protection shall make an initial recommendation to the board.

(2) The board may deny any initial recommendation to the Department of Forestry and Fire Protection. Subsequently, if the department alters an initial proposal, in a manner that the board determines to be significant, the board may withdraw its initial approval of the recommendation at any time during the process.

(d) The purposes for which moneys in the fund may be used include all of the following:

(1) Grants for the purchase of oak woodlands conservation easements. Any entity authorized to hold a conservation easement under Section 815.3 of the Civil Code may hold a conservation easement pursuant to this article. The holder of the conservation easement shall ensure, on an annual basis, that the conservation easement conditions have been met for that year.

(2) Grants for land improvement.

(3) Cost-sharing incentive payments to private landowners who enter into long-term conservation agreements. An agreement shall include management practices that benefit oak woodlands and promote the economic sustainability of farming and ranching operations.

(4) Public education and outreach by local government entities, park and open-space districts, resource conservation districts, and nonprofit organizations. The public education and outreach shall identify and communicate the social, economic, agricultural, and biological benefits of strategies to conserve oak woodlands habitat values, including watershed protection benefits that reduce soil erosion, increase streamflows, and increase water retention and sustainable agricultural operations.

(5) Assistance to local government entities, park and open-space districts, resource conservation districts, and nonprofit organizations for the development and implementation of oak conservation elements in local general plans.

(6) Technical assistance consistent with the purpose of preserving oak woodlands.

(e) Not more than 20 percent of all grants made by the board pursuant to this article may be used for the purposes described in paragraphs (4), (5), and (6) of subdivision (d). Not less than 80 percent of funds available for grants pursuant to this article shall be expended for the purposes described in paragraphs (1), (2), and (3) of subdivision (d).

(f) Notwithstanding any other provision of law, this article governs the expenditure of funds for the preservation of oak woodlands pursuant to paragraph (4) of subdivision (a) of Section 5096.350 of the Public Resources Code.

1363.5. (a) Commencing on June 30, 2003, and annually thereafter, the board shall report to the Legislature and the Governor concerning the activities and expenditures of the fund.

(b) (1) In the first report to the Legislature, the board shall provide its best estimate of the total amount, in terms of acreage,

species, and coverage, of oak woodlands habitat purchased with funds from the Habitat Conservation Fund and other funds pursuant to the California Wildlife Protection Act of 1990 (Chapter 9 (commencing with Section 2780) of Division 3.

(2) In each subsequent annual report, the board shall update the information required by paragraph (1) to reflect additional oak woodlands habitat purchased with funds from the Habitat Conservation Fund pursuant to Chapter 9 (commencing with Section 2780) of Division 3, and any purchases made with moneys deposited in the Oak Woodlands Conservation Fund.

(c) The board shall annually provide its best estimate in the report, the acreage, cover, and species of oak woodlands habitat purchased with all moneys from the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Fund.

(d) The board shall make all information available online at its Web site.

(e) This section shall become inoperative on July 1, 2020, and, as of January 1, 2021, is repealed, unless a later enacted statute that is enacted before January 1, 2021, deletes or extends the dates on which it becomes inoperative and is repealed.

1364. Moneys in the fund shall be available to local government entities, park and open-space districts, resource conservation districts, private landowners, and nonprofit organizations for the purposes set forth in subdivision (d) of Section 1363.

1365. The board shall develop and adopt guidelines and criteria for awarding grants that achieve the greatest lasting conservation of oak woodlands. The board shall develop these guidelines in consultation with the Department of Forestry and Fire Protection, the Department of Food and Agriculture, the University of California's Integrated Hardwood Range Management Program, conservation groups, and farming and ranching associations. As it applies to the award of grants for the implementation of this article, the board criteria shall specify that easement acquisitions that are the most cost-effective in comparison to the actual resource value of the easement shall be given priority.

1366. (a) To qualify for a grant pursuant to this article, the county or city in which the grant money would be spent shall prepare, or demonstrate that it has already prepared, an oak woodlands management plan that includes a description of all native oak species located within the county's or city's jurisdiction.

(b) To qualify for a grant pursuant to this article, the board shall certify that any proposed easement was not, and is not, required to satisfy a condition imposed upon the landowner by any lease, permit, license, certificate, or other entitlement for use issued by one or more public agencies, including, but not limited to, the mitigation of significant effects on the environment of a project pursuant to an approved environmental impact report or to mitigate a negative declaration required pursuant to the California Environmental Quality Act (Division 13 (commencing with Section 21000)) or the Public Resources Code.

(c) To qualify for a grant under this article, the applicant shall demonstrate that its proposal provides protection of oak woodlands that is more protective than the applicable provisions of law in existence on the date of the proposal.

(d) A county or city may develop an oak woodlands management plan. A nonprofit corporation, park and open-space district, resource conservation district, or other local government entity may apply to

the board for funds to develop an oak woodlands management plan for a county or city, but the county or city shall maintain ultimate authority to approve the oak woodlands management plan.

(e) The process for developing an initial oak woodlands management plan, and the adoption of significant amendments to a plan, as determined by the county or city, are subject to the Ralph M. Brown Act (Chapter 9 (commencing with Section 54950) of Part 1 of Division 2 of Title 5 of the Government Code).

(f) A proposal by a local government entity, nonprofit corporation, park and open-space district, private landowner, or resource conservation district for a grant to be expended for the purposes of this article shall be certified by the county or city as being consistent with the oak woodlands management plan of the county or city. If the land covered by the proposal is in the jurisdiction of more than one county or city, each county or city shall certify that the proposal is consistent with the oak woodlands management plan of each county or city.

(g) If two or more entities seek grant funding from the board pursuant to this article for the same jurisdiction, the county or city shall designate which entity shall lead the efforts to manage oak woodlands habitat in the area.

1367. On or before April 1, 2002, the board and the Department of Forestry and Fire Protection shall develop a memorandum of understanding regarding the protection of oak woodlands that does all of the following:

(a) If necessary, creates a specific process for working together to use money from the fund in conjunction with the California Forest Legacy Program Act of 2000 (Division 10.5 (commencing with Section 12200) of the Public Resources Code).

(b) Lists elements a county or city shall include in its oak woodlands management plan. Items included in the plan shall assist a county or a city to specify conservation priorities and prevent oak woodlands habitat fragmentation while minimizing the cost and administrative burden associated with developing the plan. The elements may include any or all of the following:

(1) Tree inventory mapping.

(2) Oak canopy retention standards.

(3) Oak habitat mitigation measures.

(4) A procedure to monitor the effectiveness of the plan and to modify the plan as necessary.

(c) Designates an online repository for oak woodlands management plans that will be easily accessible to the public and any other state agency involved in oak woodlands conservation efforts.

(d) Discusses the relationship between oak woodlands conservation efforts under this article and efforts by other state agencies to protect oak woodlands, including efforts to combat sudden oak death, and outlines a plan, as necessary, for coordinating with these agencies.

1368. The board may not approve a grant to a local government entity, park and open-space district, resource conservation district, or nonprofit organization if the entity requesting the grant has acquired, or proposes to acquire, an oak woodlands conservation easement through the use of eminent domain, unless the owner of the affected lands requests the owner to do so.

1369. A city or county planning department may utilize a grant awarded for the purposes of this article to consult with a citizen advisory committee and appropriate natural resource specialists in

order to report publicly to the city council or the board of supervisors on the status of the city's or county's oak woodlands. Each city or county planning department that receives a grant for the purposes of this article shall report to the city council or to the board of supervisors of the county, as appropriate, on the use of those grant funds within one year from the date the grant is received.

1370. No money may be expended from the fund to adopt guidelines or to administer the fund until at least one million dollars ($1,000,000) is deposited in the fund.

1372. Nothing in this article grants any new authority to the board or any other agency, office, or department to affect local policy or land use decisionmaking.

SEC. 3. An amount not less than five million dollars ($5,000,000) and not more than eight million dollars ($8,000,000), as determined by the Wildlife Conservation Board, from moneys in the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Fund available for oak woodlands conservation pursuant to paragraph (4) of subdivision (a) of Section 5096.350 of the Public Resources Code shall be transferred to the Oak Woodlands Conservation Fund created pursuant to Section 1363 of the Fish and Game Code, to be used for the purposes of Article 3 (commencing with Section 1360) of Chapter 4 of Division 2 of the Fish and Game Code.

APPENDIX C

California Endangered Species Act
And Listed plants

California Department of Fish and Game
Habitat Conservation Planning Branch

http://www.dfg.ca.gov/hcpb/species/t_e_spp/nat_plnt_consv.shtml

NATIVE PLANT CONSERVATION

The legal framework for conserving plants merits clarification due to the existence of an early state law protecting plants. The Native Plant Protection Act (NPPA) of 1977 (Fish and Game Code Section 1900-1913) directed the Department of Fish and Game (DFG) to carry out the Legislature's intent to "preserve, protect and enhance rare and endangered plants in this State." The NPPA gave the California Fish and Game Commission the power to designate native plants as "endangered" or "rare" and protected endangered and rare plants from take.

The California Endangered Species Act of 1984 (Fish and Game Code Section 2050-2116) expanded upon the original NPPA and enhanced legal protection for plants, but the NPPA remains part of the Fish and Game Code. To align with Federal regulations, California Endangered Species Act (CESA) created the categories of "threatened" and "endangered" species. It converted all "rare" animals into the Act as threatened species, but did not do so for rare plants. Thus, there are three listing categories for plants in California: rare, threatened, and endangered.

The Department requires a CESA Section 2081 (a) permit for take of candidate or listed threatened and endangered plants for scientific, educational, or management purposes, and a CESA Section 2081 (b) permit for incidental take of listed threatened and endangered plants from all activities, except those specifically authorized by the NPPA [see the specific list of exceptions in 1913 (a) and (b)]. The Department considers the term "building site" in Section 1913(b) to mean work (e.g., landscaping or fire prevention measures) around an existing building.

Since rare plants are not included in CESA, mitigation measures for impacts to rare plants are specified in a formal agreement between the Department and the project proponent.

The Department's Wildlife and Habitat Data Analysis Branch maintains a "special plants" list consisting of approximately 2000 native plant species, subspecies, or varieties that are tracked by the Department's Natural Diversity Database (NDDB). These plant taxa are either officially State or federally listed, proposed, or candidate species, or other species, subspecies, or varieties that are of concern due to reasons such as rarity, threats, or the species' close association with declining habitats, or for which more information is needed. Status and threat rankings are assigned to the plant taxa on the Special Plants List, which is available on the Department's web page.

The California Native Plant Society (CNPS) publishes and maintains an Inventory of Rare and Endangered Vascular Plants of California in both hard copy and electronic versions

(www.cnps.org/rareplants/inventory/6thEdition.htm). The Inventory assigns plants to the following categories:

1A Presumed extinct in California
1B Rare or endangered in California and elsewhere
2 Rare or endangered in California, more common elsewhere
3 Plants for which more information is needed
4 Plants of limited distribution.

Additional rarity, endangerment, and distribution codes are assigned to each taxa.

Plants on Lists 1A, 1B, and 2 of the CNPS Inventory consist of plants that may qualify for listing, and the Department recommends they be addressed in CEQA projects (CEQA Guidelines Section 15380). However, a plant need not be in the Inventory to be considered a rare, threatened, or endangered species under CEQA. In addition, the DFG recommends, and local governments may require, protection of plants which are regionally significant, such as locally rare species, disjunct populations of more common plants, or plants on the CNPS Lists 3 and 4.

To guide documentation of potential impacts to plants, the DFG has adopted Guidelines for Assessing the Effects of Proposed Projects on Rare and Endangered Plants and Natural Communities. These guidelines are available on the Department's web page, and are provided to all project proponents, lead agencies, and the interested public when they request Department participation or information.

EL DORADO HILLS
COMMUNITY SERVICES DISTRICT

July 15, 2003

Honorable Board of Supervisors
County of El Dorado
330 Fair Lane
Placerville, CA 95667

RE: General Plan Comments

Dear Board Members:

The El Dorado Hills Community Services District is pleased to submit comments on the proposed General Plan, a living document that will guide the future growth and development of our community and county for the next 25 years. The mission of the El Dorado Hills Community Services District is to ***"improve the quality of life for El Dorado Hills residents through responsible leadership and by providing superior service and facilities."*** The District is not comfortable with any of the alternatives as presented but would support the 1996 General Plan Alternative as one that will best meet the needs of our residents. It provides the CSD with the opportunity to work with the County on projects that directly affect our residents and their quality of life. It has already been tested in the courts and with the Writ recommendations included will be a legally defensible document that will restore the County land use authority. The other alternatives have many internal inconsistencies and could be tied up in courts for several years. The County cannot afford to be without a General Plan for much longer. Too many other funding sources are jeopardized due to the lack of a General Plan. 267-1

The population in El Dorado Hills has doubled during the past ten years, from 14, 000 residents to just over 29,000 (Department of Finance, January 2003). The remainder of unincorporated County has increased approximately 14% during that same time frame. With the bulk of growth occurring on the Western Slope, most particularly in El Dorado Hills, the County has a vested interest in assuring that the accessibility, affordability and quality of future growth will continue to attract developers and employers to the rest of the County, not just EDH.

"Moderation in all things." The General Plan alternatives are anything but moderate in their approaches to planning. The vision is to keep the County's "rural character" is unrealistic given that the County's western entry, as planned, will be a blending with the eastern developed boundary line of Sacramento County/City of Folsom, expressing little or no "rural character". A more realistic vision for growth in the County should propose to be ***balanced*** between the rural areas and full service community regions that independently meet the needs of local residents – a true self-sufficient community region. 267-2

1021 Harvard Way • El Dorado Hills, CA 95762-4353 • 916.933.6624 • Fax 916.933.6359
e-mail: edhcsd@eldoradohillscsd.org • www.edhcsd.org

All the alternatives appear short sighted as none take into consideration the imminent ***incorporation of El Dorado Hills*** or other unincorporated community regions that may want to control their self-direction for the next 25 years. The County is best suited to fill the gaps of services between community regions and to meet the needs of residents on a macro scale, to realize improved program delivery efficiencies. Cities and community regions are best suited to meet local needs of population centers. 267-3

The District has reviewed all the alternatives and the Draft EIR's and has participated with various other community groups that have worked diligently to assemble specific comments on the various alternatives. The District wishes to support the recommendations of both the El Dorado Business Alliance and EDH Area Planning Advisory Committee (APAC) and requests the County give serious consideration to their letters and recommendations. These groups have put in many long hours of study, deliberation and writing. 267-4

Parcel Specific Requests for the El Dorado Hills Community Services District:

The EDH CSD Board of Directors requests the following land use designations be considered for three parcels listed below. The change will be consistent with actual best use of the property and the District's Master Plan. They are:

1. **Parcel # 113-020-11.** The 10.8-acre parcel is located on the east side of Silva Valley Road, adjacent to the northern end of Rolling Hills Middle School (the Winncrest Triangle). It is designated as Natural Open Space in the El Dorado Hills Specific Plan (Serrano) and the District would like to work with El Dorado Hills Investors and the County to have the parcel re-classified for Recreational Facilities. 267-5
2. **Parcel #107-020-18** (the CSD Maintenance yard). This X-acre parcel, located on the east side of Latrobe Road, serves as the CSD maintenance facility. The property is currently designated as Public Facility and the District would like to request a change to Commercial use. 267-6
3. **Parcel # 107-1446-29** (Ridgeview Open Space). This parcel, once a proposed school site, is adjacent to the District's Ridgeview Park. The property is not easily accessible and is best suited as parkland. Please change the land use of this parcel to recreational facility. 267-7

Thank you for the opportunity to participate in the public comment process.

Sincerely,

Dianna Hillyer
Director of Planning

EL DORADO
WINE GRAPE GROWERS ASSOCIATION
POST OFFICE BOX 2121, PLACERVILLE, CALIFORNIA 95667

RECEIVED
7/15/08
10:03 am

El Dorado County General Plan Team
Placerville, CA 95667

Dear Team Members,

The contents of the following letter specifically address the issues and concerns of the El Dorado Grape Growers Association relating to the Environmental Impact Report for the pending General Plan. The format for the feedback is to identify the category and section of the EIR followed by our comments and recommendations.

Agriculture and Forestry

Mitigation Measure 5.2-2: Limit the extent of ranch marketing activities, wineries and other non-agricultural uses within agricultural designations.
Comments: This really does not have any relevance for the wineries as it is intended to limit the amount land dedicated to ranch marketing uses. This measure states that ranch marketing presents the possibility that substantial acreage of agricultural land could be removed from production. Ranch marketing uses such as wineries or stores, including parking areas, take only limited amounts of space. This space is insignificant in comparison to the total acreage of ag land used in farming activities.
Recommendations: Remove this as it is really a non-issue within the county.

268-1

Water Resources

Mitigation Measure 5.5-1(a), 5.1-3(a), 5.5-1(c): A series of items discussing plans for managing water utilization through restricted access.
Comments: These items do not adequately address the real issues such as the need for additional water storage capacity and incentives or programs for conservation. Residential development should have water saving methods such as drip irrigation, percentage maximum for water hungry lawns in residential subdivisions, and commercial/industrial parks. Golf courses, parks, and large public areas should utilize recycled public water for irrigation of facilities.

268-2

Recommendation: Remove these items in their current form and propose a more general approach to the development of water resources to support of agriculture in underserved areas of the county. 268-2

Mitigation Measure 5.5-6: This section discusses impact of runoff from agricultural lands, particularly from vineyards, in regards to nitrogen discharges and pesticide runoffs.
Comments: We are unaware of any documented problem of an exact or similar nature from this in El Dorado County. The application of certain fertilizers and some pre-emergents occur in the spring when rain is possible, but the bulk of spray activities occur for vineyards during the dry portion of the year virtually eliminating potential for run-offs. 268-3
Recommendation: Remove this as it is really a non-issue within the county.

Environmental Issues

5.10 Noise: This section covers noise by decibels, and hours of the day. Based on this agriculture could not make noise between the hours of 7PM, and 7 AM Mon-Friday, and on the weekend only between 8AM - 5PM.
Comment: This is too restrictive and is more onerous than the existing code. These levels of restriction will negatively impact the lumber mill in Camino along with the construction and agricultural communities through the restricted hours of operation. Specifically, routine seasonal spraying of fungicides on grapes needs to occur at lower temperatures and low wind conditions which are typically found during the early morning hours. 268-4
Recommendation: Remove or significantly modify to accommodate fundamental agricultural practices.

Right to farm ordinance: County Code 17.13 addresses the right to farm in unincorporated areas and in agricultural districts.
Comment: This ordinance needs to be expanded to cover ALL properties * RE5 and above in agricultural districts to preserve farming within county. There are a number of active, but small farming operations within these zonings, particularly in the south county area, that are negatively impacted by excluding them from this type of coverage. Encroachment of residential development is a significant threat to all agricultural operations including growing grapes. An objective of the general plan relating to agricultural districts is "to develop agricultural lands in an orderly manner". 268-5
Recommendation: Amend the scope of the ordinance to embrace agricultural districts regardless of the historical zoning inconsistencies. This ordinance should be expanded to cover all properties located in the unincorporated area which have "Agricultural Operations". This is in line with the position taken by the Farm Bureau and the Ag. Commissions as put forth in the Agricultural Commission meeting of May 14, 2003

Visual Resources

Mitigation measure 5.3-1 Extends limitations on ridgeline development within scenic corridors or identified viewing locations to include all development.
Comments: This section also covers a range of visual corridor objectives. Agriculture and signage for agri-tourisim should be exempt from this section as it is a conspicuous part of the local landscape. Additionally, visitors come to the area for range of experiences such as ranch marketing, wine tasting etc. and signage helps to safely guide these visitors to various destinations. Low profile signage prevents unnecessary stopping on highways, rubbernecking, traffic slowdowns and maintains the appeal of our county.
Recommendation: Secure exclusion for agriculture and agri-tourism

268-6

Cultural Resources

Mitigation Measure 5.13-1: Targets the adoption of a cultural resource ordinance that would include 100 foot study setbacks, resource buffers and a countywide cultural resources sensitivity map.
Comments: The impact of such an ordinance has the potential of limiting and precluding the use of individual property from the landowner's intended use. Additionally, the scope and the potential significance of any such findings are not categorized and compensatory programs to minimize the impact on property values are not identified. It is quite possible to find some historical influence on virtually any property within the county which makes the potential impact of such an ordinance incredibly high.
Recommendation: Remove this ordinance requirement

268-7

Biological Resources

Mitigation Measures 5.12-1(d): Develop and implement an integrated natural resources management plan.
Comments: This potentially has the same impact as outlined under the Cultural Resources and could trample individual landownership rights.
Recommendation: Remove this ordinance requirement

268-8

Mitigation Measures 5.12-1(f, g): These relate to the loss of woodland habitat and oak tree preservation.
Comments: Both of these measures are far too detailed to prescribe a desired outcome of an aggressive environmental agenda. Both could have severe impacts in the development of new vineyards, land reclamation projects and general property management.
Recommendations: Remove these in their current form. One alternative would be to simply state the desire to develop a woodland habitat and oak tree ordinance

268-9

In the form of general comments, we feel that it is important to keep the general plan as a high level document. There are portions of the EIR that are very detailed, appear to be guessing at potential outcomes and

268-10

looking to address problems that do not exist. This is not surprising, but it does point out the need to challenge every issue passionately. 268-10

The next item is the formulation for suitable agricultural lands. Grape plants are amazingly hearty plants that can grow in a range of soils, some of which could not support other conventional agricultural projects. With nearly 57,000 acres under consideration for agricultural districts, it is imperative that the full range of farming and ranching ventures are considered before making any final decisions. Actually, the better thought is just could this land be used for Agriculture. 268-11

The EDWGGA strongly supports the recommendations contained in this letter. 268-12

Sincerely,

Kathy Krizl

Kathy Krizl
El Dorado Wine Grape Growers Association

Cc: Helen Baumann, Supervisor District II
Bill Snodgrass, Agricultural Commissioner

EL DORADO
WINE GRAPE GROWERS ASSOCIATION
POST OFFICE BOX 2121, PLACERVILLE, CALIFORNIA 95667

03 JUL 15 AM 10: 03
RECEIVED
PLANNING DEPARTMENT

El Dorado County General Plan Team
Placerville, CA 95667

Dear Team Members,

The contents of the following letter specifically address the issues and concerns of the El Dorado Grape Growers Association relating to the Draft policies for the General Plan Agriculture and Forestry Element, and the Conservation and Open Space Element. The format for the feedback is to identify the category and section of the draft plan followed by our comments and recommendations.

Agriculture and Forestry Element

Agriculture Policies

Policy AF-1a. These policies discuss choice agricultural soils and topographical features suitable for agricultural production
Comments: Grapes can be grown on much less than choice soils and on sloped land.
Recommendations: Secure exclusion for vineyard development. 269-1

Implementation Program

Measure AF-A.3. This section discusses revising "the Right to Farm Ordinance to include a provision to place a deed restriction on all new parcels created adjacent to agricultural lands requiring the new owner to sign a statement acknowledging that his/her parcel is adjacent to a parcel engaging in agricultural activities." 269-2
Comments: While the El Dorado Wine Grape Growers supports this in principal it does not completely address the whole issue.
Recommendations:
1. The Real Estate disclosure should also cover agricultural districts.
2. The Right to Farm ordinance should cover all deeded by right zoning such as RE-5, RE-10, SA-10, PA etc. It should be noted that for example that the majority of the members of the El Dorado Wine Grape Growers Association have small vineyards that are not always zoned "Agricultural with 20 plus acres." 269-3
3. In present zoning in for example, there are many parcels that are in Agricultural production in Camino, Fairplay etc. that have zoning as

noted above. What makes the quality of the grapes so high here is that there are true small farms that are watched carefully by owners in residence.
4. Within the agricultural districts we support combining properties when neighboring properties do boundary line adjustments regardless of zoning without a rezoning process. The process shall allow the new property to become the parcel that is most likely to be more favorable to agricultural production. For example: RE-5 to SA-10 or PA.

269-3

269-4

Conservation and Open Space Element

Geological Resources Policies

Policies CO-1d and CO-1e. These policies discuss disturbance of slopes 30 percent and greater being prohited.
Comments: Slopes of 30 percent or greater can be utilized by vineyards, and similar agricultural practices.
Recommendations: Secure exclusion for vineyard development.

269-5

Open Space

Policies CO-11b.C. This policy section discusses "acquisition and maintenance of important areas for outdoor recreation including ...scenic highway corridors."
Comments: Agricultural practices should not be reviewed in scenic corridors. Some of the most scenic areas in this county as well as the state contain agricultural areas which is one of the main attraction for tourists, artists, and photographers.
Recommendations: Secure exclusion for vineyard development.

269-6

In the form of general comments, we feel that it is important to keep the general plan as a high level document. The Implementation Program sections discuss in detail which activities are allowed by right, and which activities will require special use permits. These are details which should be included in specific ordinances, not in a General Plan. The goals in the new alternatives are appropriate for the General Plan.

269-7

The EDWGGA strongly supports the recommendations contained in this letter.

Sincerely,

Kathy Krizl

Kathy Krizl
El Dorado Wine Grape Growers Association

Cc: Helen Baumann, Supervisor District II
Bill Snodgrass, Agricultural Commissioner

To: Planning Department
El Dorado County

05 JUL 15 PM 12:11
RECEIVED
PLANNING DEPARTMENT

Subject: General Plan Input
Parcel #070-210-37

From: John and Gail Eldridge
4681 Holiday Lake Dr
Shingle Springs, CA 95682
(530) 677-1389

I wish to bring to your attention a proposed land use change on the "Roadway Constrained Plan" involving my property. I have owned the parcel for 25+ years and planned to retire there. It, and the surrounding parcels have always been 5 acres per home. My 21.1 acre parcel has 5 acre parcels on three sides — all of which have occupied homes. The fourth side has 2 acre ajoining parcels (also occupied). Ours is almost the only piece in the whole area which is not already occupied. We have waited all these years for retirement. We have lived in our present home in Shingle Springs for 30 years. 270-1

I understand that criteria for designating a parcel from 5 acres to 10 acres status is to hold splitting to 4 parcels. Four 5 acre parcels (LDR) fit

perfectly on my 21 acre parcel. Since all adjoining parcels are "5 acre use", I feel it is inconsistent to require me to have only two 10 acre parcels. Having been layed-off from my job of 38 years (along with 850 other people) four years ago, which they called early retirement, I can not afford to build my retirement home that I have planned for 26 years unless I can sell three 5-acre units, keeping one parcel upon which to build myself. I can not afford to build on and keep a 10 acre parcel.

Other criteria involve "wildland fire danger." I have already had the manzanita and other brush cleared by a professional bulldozer person. My neighbors were glad to see us preparing to split to improve the brush/fire situation.

"Limited or substandard access" is not an issue to our parcel. I have been paying into a "Zone of Benefit" (neighborhood road association — overseen by the County) for 20+ years. Carlson Road is a paved road, full width, that is maintained exceptionally well under the County's guidance.

PG+E power surrounds ~~and~~ my parcel and current power lines run all the way along my parcel.

270-1

Wells on ajoinning properties (and on my property, drilled about 18 years ago) yield from 30 to 50 gallons per minute. That is exceptional for our county.

Please consider that my property: 1) is absolutely surrounded by ajoinning 5-acre parcels, 2) it has been professionally cleared of most brush, 3) it has an excellent paved road (which I have paid into for 20 years), 4) PG&E power lines already run on the property, 5) it is gently sloping so building sites pose no difficulties, and 6) ground water wells are exceptional. 270-1

I hope you will make the land use of my parcel, #070-210-37, consistent with the ajoinning/surrounding 5-acre use designations.

Sincerely,
John Eldridge
7-15-03

From: David Hull [mtnrock@earthlink.net]
Sent: Tuesday, July 15, 2003 11:26 AM
To: generalplan@co.el-dorado.ca.us
Subject: comments on General Plan EIR

Ladies and Gentlemen,
Please consider the following comments, primarily relating to water resources, in reviewing the validity of the El Dorado County General Plan EIR:

1. In Appendix E, describing how future water demand was estimated, it is stated that no future increase in water demand for agriculture or watering recreational turf is assumed. How realistic is this, especially in light of experience in other counties, like San Joaquin (Tracy), where residents are faced with needing many new ball fields and other recreational services to support increased demand from growing populations? How likely is it that no new golf courses will be proposed in the next 25 years? 271-1

2. It may be covered in a part I missed, but I find no discussion regarding water reserves for fight major wild fires. How much water is needed to fight an "average" major wildfire? What if such a fire occurs in a drought year? 271-2

3. Why not use experience and data from nearby mountain counties to help estimate the increased demand from groundwater withdrawals, especially with regard to increasing wine grage acreage? For example, in Amador County, in the Shenandoah Valley wine area, many wells have gone dry and had to be deepened by hundreds of feet because of the high numbers of new wells drilled in the past decade. It is likely that El Dorado will experience similar problems. 271-3

4. There are likely many other leaking underground storage tanks in the county now, and probably more to be found in the future, they just haven't been identified yet. A general monitoring plan for county wells may help prevent minor groundwater pollution problems from becoming huge problems. 271-4

5. In section 5.5, while it is stated that not much is known regarding groundwater conditions, the sentence that says "groundwater recharges rapidly to fractured aquifer systems" is probably not true for deeper conditions. As wells increase in number and production, and therefore must be deeper to maintain demand, underground water levels will decrease and will not recharge as rapidly. Therefore, any reliance on groundwater to meet future demand is dubious at best, unless more information is obtained about potential supply, especially in the western part of the county. 271-5

Thank you.

Nancy Fegan
957 Oak Terrace
Placerville, CA 95667

July 15, 2003

TO: General Plan Team
El Dorado County Planning Department
2850 Fairlane Court
Placerville, CA 95667

FROM: Janise Gee
3096 Lennox Drive
El Dorado Hills, CA 95762

Dear General Plan Team,

I would like to focus my comments on current traffic noise exposures and safety issues on Silva Valley Parkway, and obtain information regarding any further environmental impact the proposed future Silva Valley Interchange will have on increased traffic, noise, and pollution. What mitigation measures will be taken to address these issues, current and future? Will transportation, noise, and environmental studies be conducted?
Will non-local traffic increase, using SilvaValley Parkway as a direct route to Highway 50? 272-1

As a resident of Highland Hills, and whose backyard faces Silva Valley Parkway, I am subjected daily to loud and intolerable levels of road traffic noises that I consider to be above the county acceptable level of 60dB in a noise sensitive residential area. These sounds have become a stressful intrusion into my life, and much more than just an annoyance. The traffic noises have penetrated through closed double paned windows, resulting in sleep disruption and my inability to concentrate during the day. This is most evident during the early commute hours between 6-8am, when a large volume of non-local traffic originating from Green Valley Road, traveling at speeds well beyond the speed limit of 45mph, make their way to Highway 50. Silva Valley Parkway is a faster route to Highway 50, with very few stops or lights than El Dorado Hills Blvd. There is also a greater volume of heavy construction vehicles and commercial trucks that travel up and down the road during most of the day. These heavy vehicles generate the greatest amount of noise, which is further intensified by the uneven pavement on the road. 272-2

Silva Valley Parkway becomes a winding two-lane road north of Harvard Way, and I have observed cars crossing the centerline or driving on the shoulder to overtake 272-3

slower ones. There are pedestrians, joggers, and cyclists who also use the road, and with the speed at which some of these vehicles travel, safety becomes an issue. Widening the road to four lanes would only encourage more traffic and noise. To my understanding, the current LOS does not necessitate any road widening at this time.

272-3

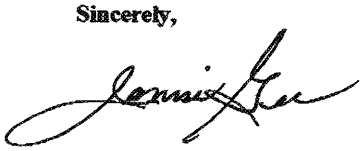
I believe the residents living along Silva Valley Parkway would greatly benefit from some noise mitigating measures such as:

Reducing the speed limit from 45mph to 35mph
Redirecting the flow of non-local traffic
Restricting heavy construction vehicles
Planting vegetation and/or creating earth berms to function as noise absorbers along the road where necessary
Resurfacing the road with noise absorbing pavement
Installing additional stop signs

272-4

Thank you.

Sincerely,



Janise Gee
3096 Lennox Drive
El Dorado Hills, CA 95762
916 933-7828

LETTER 273

Rec'd
7/15/03

Ray P. Griffiths
POB 617
Georgetown, CA 95634
530/333-1299

15 July 2003

El Dorado County Planning Department
2850 Fair Lane Ct.
Placerville, CA 95667

Re: El Dorado County General Plan Draft EIR Comments

Transportation

As quoted on page 1.2 of the DEIR, *"This EIR will inform the County's decision on the adoption of a general plan by providing information on significant environmental impacts of each of the proposed alternatives and recommending measures to mitigate those impacts where feasible."* Page 3-13 lists the objectives of the project, including maintenance of the County's natural beauty and environmental quality; a strong economy supported by agriculture, resource extraction, tourism, research and development, and services; development occurring in separate communities, separated by open space; availability of sufficient public services and utilities concurrent with development; a safe, efficient transportation system; a jobs/housing balance including affordable housing; and, sufficient park and recreation facilities.

Page 3-15 includes a section under Organization of the General Plan on Transportation and Circulation, which includes goals and policies, which includes: streets and highways, transit, transportation systems management, bicycle facilities, rail transportation, and air transportation.

Page 3-19, under Factors Common to Each Equal-Weight Alternative, as section on Nonautomobile Transportation states, *"All of the equal-weight alternatives have an equal emphasis on the nature and extent of nonautomobile transportation modes. These modes include transit, bicycle transportation, rail transportation and aviation."*

Table 3-9, pg. 3-48 and Table 3-11, pg. 3-66 consider the road improvements under two alternatives, #1, the "No Project Alternative" and #3, the "Environmentally Constrained Alternative". Both of these alternatives consider the potential expansion of US 50 to eight lanes. It seems reasonable to consider the potential costs of such an expansion before including them as alternatives. Therefore, I asked Mr. Bruce Roberts, in the District 3 Design Department of CALTRANS for rough estimates of the cost per mile of such an expansion. He stated in a personal communication, that expansion of US 50 to 6 lanes (addition of an HOV lane to the middle of the easement), would likely run between $3.6 million and $4.7 million per mile (average $4.1 per mile). (These figures were actual costs for a 7 mile and a 10 mile expansion done by CALTRANS.) He stated that the costs of adding a mixed-flow lane were extremely variable, depending on the cost of easement acquisition. However, he did state that expansion of US 80 by adding mixed-flow lanes cost approximately $8 million per mile. 273-1

Proposed US 50 expansions for Alternative #1 include 1 HOV lane from Ponderosa Road to the County Line (7.5 mi.), and one mixed-use land from Cambridge Road to the County Line (4.5 mi.). Proposed US 50 expansions for Alternative #3 include 1 HOV lane from Ponderosa Road to the County Line (7.5 mi.), and one mixed-use lane from Cameron Park Drive to the

County Line(6 mi.). The estimated cost of adding the HOV lanes in both alternatives is $30 million ($4.1 million X 7.5 mi.). Using the $8 million per mile as a low-end estimate for adding mixed-use lanes results in a cost of $36 million for Alternative #1, and $48 million for Alternative #3 ($8 million X 4.5 miles and 6.0 miles respectively). The total estimated cost of proposed US 50 expansion is $66 million for Alternative #1 and $78 million for Alternative #3. Pg. 6-3,4, Alt. #6 was rejected because US 50 at 6-lanes has no further capacity. **Has the DEIR identified funding sources sufficient to capitalize the cost of expanding US 50 to 8 lanes?** 273-1

Pg. 6-27, Alternative #11, Transit Emphasis. First paragraph, [*"The extension of light rail from the end of the planned Folsom line to El Dorado Hills would be included under this alternative. An improved commuter, feeder, and local bus system; improved park-and-ride facilities; and extensive nonvehicular system would also be included."*] Second paragraph, [*"A land use density of 7 to 15 dwelling units per acres over a contiguous area of at least 25 square miles, including El Dorado Hills, would likely be needed to support this alternative."*]

Pg. 5.4-15, the *Sacramento-Placerville Transportation Corridor Draft Master Plan* (El Dorado County Transportation Commission 2002) is mentioned as the relevant document for consideration of the railroad corridor. The use of the Sacramento-Placerville Transportation Corridor for commuter rail was not analyzed in the *Master Plan.* The EDC GP DEIR therefore cannot tier off that document in light of the information referenced below. **The limitations placed on land uses by transportation are so significant that a separate analysis of the use of the Sacramento-Placerville Transportation Corridor as a commuter line must be performed in the EDC General Plan EIR.** 273-2

I contacted Mr. Clem Bomar, Chief Officer of Capital Project Implementation for CALTRANS regarding the costs of renovating the rail on the Sacramento-Placerville Transportation Corridor. Renovating the rails to Class III (capable of carrying a train at 60 mph) would cost approximately $1 million per mile, plus $3-500,000 per crossing, depending on requirements, (personal communication). Colorado Rail Car manufactures a DMU (a self-propelled commuter rail car) that can pull up to two other cars(or even more), each holding up to 98 persons (246 including standing, 185 seated in double deck designs. Three attached cars carry 278 people, over 700 with standees,). **Please see attached Colorado Rail Car brochure**. 273-3

If the rail line from Folsom to El Dorado County were upgraded to Class III (60 mph) at a cost of $1 million/mile and commuter rail cars were used, what density would be necessary to support the capital outlay, compared to Alternative #11? Is a Transit Emphasis Alternative then feasible, and what is the extent of high density residential that would be necessary to support such a system?

Water

Pg. 5.5-37, for the No Project Alternative (Buildout) - Impact Discussion the DEIR states: [" . . . *up to approximately 38% of EID's demand at buildout potentially would not be met. GDPUD's shortages under this alternative at buildout could be up to approximately 6,070 af and about up to 33% of its buildout demand potentially would not be met."*]

Pg. 5.5-36 states, [*"Agricultural customers of EID could experience significant disruptions if they do not have readily available alternative sources such as groundwater. Even those customers with access to groundwater could be affected if water tables are reduced during times of drought. As described in the existing setting section above, GDPUD also can be expected to reduce water deliveries to agricultural customers during major shortages."*] Next paragraph

states, [*"Future agricultural production (and related income and employment benefits) from potential new vineyards, Christmas tree plantations, olive and citrus orchards, etc. may not take place if the shortages associated with this alternative and summarized in Table 5.5-1 occur."*] On pg. 5.5-30, it states, [*" . . . the Wood Rodgers estimates assume that agricultural growth will slow as the demand for water increases throughout the county over time."*] On pg. 5.2-23 is a list of the Thresholds of Significance of impacts to Agriculture. It is a well-known fact that agricultural land on which agriculture is not practiced, is highly subject to subdivision into homes since it is often more level and soil conditions are amenable to development. **Why was not the imminent shortage of agricultural water included in the list of potentially significant impacts listed on page 5.2-23? If shortfalls of 1/3 or more by water purveyors are considered likely without the development of additional surface water development, would not that shortfall likely come at the expense of agricultural water? Would not additional development in areas outside those served by the water purveyors also affect agriculture, especially if agricultural uses are forecast to increase from 1,638 af to 2,869 af by 2025?** (see pg. 5.5-30) **Please analyze the effects of future water shortages on agriculture in the FEIR.** 273-4

Biology

I searched the DEIR for any mention of weeds and their spread on land subject to development. New roads, and land disturbed by grading are subject to invasion by weeds introduced from various sources. **Why was there no indication of the potential loss of wildlife habitat, agricultural impacts and costs associated with weed control on newly developed lands? Please analyze the potential impact of introduced weeds and the control costs as a consequence of additional development.** Mitigation measures could include mapping of weed infestations, eradication efforts, mandatory cleaning of grading equipment between jobs, use of certified weed-free mulching materials, use of competing vegetation (native drought-tolerant species) for landscaping, etc. 273-5

For all the reasons indicated on pages 5.12-11 to 5.12-90, it is crucially important that any alternative include the Important Biological Corridor (-IBC) overlay. Please also consider Bureau of Land Management (BLM) lands that are adjacent to the -IBC overlay for inclusion. Pages 5.12-89 and -90 consider many of the natural linkages important to wildlife movement. To those, I would include the two U.S. 50 underpasses at Greenstone Road and Shingle Springs Drive. In addition, existing undeveloped parcels (identifiable from assessors maps) in areas with tree or shrub vegetation should be identified and included in the EIR as baseline information, useful to future planning efforts. Roads, parcel splits, even boundary line adjustments in these areas could be conditioned to preserve or mitigate additional development from impacting wildlife by habitat fragmentation. Mitigation may also include planting of native shrubs or trees to provide cover and food resources to wildlife. Please consider the attached list of native species for recommended use for landscaping of newly developed areas. 273-6

Because of the constraints of surface water and transportation costs on future development, I urge the adoption of Alternative #12, Compact Development. It is the only alternative that allows further growth while minimizing impacts to quality of life and services of existing residents. As noted on page 6-37, it is the Environmentally Superior Alternative among all the alternatives considered. Relevant policies from Alternative #9 should also be incorporated into the adopted alternative. Potential improvements in transit, as noted above, should also be incorporated into the adopted General Plan. 273-7

Executive Summary

Economics of FRA-Compliant Diesel Multiple Units (DMUs)

Christina Rader
Director of Economics and Environment
Colorado Railcar Manufacturing, LLC

Summary

While the economic viability of diesel multiple units (DMUs) has been studied in the past, the advent of an FRA Part 238 compliant DMU makes the evidence all the more valuable. This paper compares the life-cycle costs of FRA-compliant DMU technology with the costs of traditional locomotive-hauled equipment for various consist sizes and levels of service, using data on the Colorado Railcar DMU as well as data supplied by Altamont Commuter Express and Tri-Rail on the costs of the commonly-used EMD F-40 locomotives and the GO Transit-style Bombardier bi-level cars. Comparisons between the initial purchase cost for the rolling stock, the cost of the maintenance facility, and costs for fuel, maintenance, and crew show that the DMU technology is estimated to provide substantial savings for consists of smaller passenger capacity. The study concludes that DMUs may save on variable operating costs by as much as 28%. Furthermore, even if DMUs have a purchase cost premium, that premium may be paid back with as little as 2 years of operating cost savings. **Over the life of a DMU, operating cost savings can add up to the equivalent of a 69% discount on the purchase of rolling stock.**

Introduction

DMUs have long seemed appealing to transit properties in the United States for their potential to save money in specific situations, but up until now a DMU that passed the stricter American strength and safety standards in 49 CFR Part 238 was not available. Without compliance, DMUs cannot be run on active freight lines without a waiver from the FRA. Colorado Railcar's DMU meets all of the requirements of 49 CFR Part 238.

Rolling Stock Compared

Traditionally, a locomotive is designed to power large capacity trains by pushing or pulling many coaches behind it. A large diesel engine, often as much as 3200 horsepower, generates electricity to run the traction motors at the wheels. By contrast, the 1200 horsepower, 92-seat DMU is powered by two 600 Detroit Diesel series 60 diesel engines paired with low-maintenance Voith hydrodynamic transmissions. A separate generator provides electrical power to the passenger cabin. The double deck DMU, which has 28% more useable floor space than a Bombardier bi-level, seats 185. The Colorado Railcar DMU differs significantly from the Budd RDC or a European DMU

Note: This summary is for a paper that was originally prepared for the 2003 APTA Rail Transit Conference. APTA, its officers, and employees are in no way responsible for the contents of the paper. Any and all liability arising out of publication or presentation of the paper and/or its contents rests with the author.

because it can pull coaches, and unlike a locomotive-hauled train, it is a good neighbor with both low noise and low emissions.

Previous Studies
Previous studies of DMUs versus locomotive-hauled rolling stock (including those by Ken Sislak in 1996 and by Daniel Jacobs and Ann Galbraith in 1997) have found that DMUs could offer significant savings over locomotive-hauled trains, but have faced significant data limitations.

Study Objective
This study attempts to address some of the data limitations of the above-cited studies and to incorporate detailed data on locomotive-hauled rolling stock and the new FRA-compliant Colorado Railcar DMU. Detailed costs of commuter rail operations that use EMD F-40s and Bombardier bi-levels have been provided by Tri-Rail (which serves Miami to Palm Beach with peak and off-peak service) and by the Altamont Commuter Express (ACE) (which runs peak-hour commuter service between Stockton and San Jose, California). Colorado Railcar has developed detailed estimates on the costs of owning and operating its FRA-compliant DMU, including simulations of fuel consumption and maintenance costs under conditions comparable to ACE and Tri-Rail.

Study Data

The paper compares purchase costs and operating costs that may be affected by an agency's choice of either traditional locomotive-hauled trainsets or DMUs. Costs that do not vary with the type of rolling stock have been excluded, such as management cost and maintenance of shop facilities and shop vehicles, and therefore the operating costs are termed "variable operating costs." Below is a description of how each cost is treated in the study.

Variable Operating Costs

- Fuel: Fuel costs include both in-service fuel and idling fuel. The DMU fully loaded with passengers weighs much less than a locomotive with a coach behind it, and therefore will burn less fuel than locomotive-hauled equipment for shorter trains. As more DMUs are added to create longer trains, locomotives may have a fuel advantage.
- Maintenance: Maintenance costs include inspections, preventative maintenance, repairs, cleaning, servicing, and overhauls. A DMU, with its easily maintained off-the-shelf components, costs less to maintain than a locomotive. Longer trains with multiple DMUs may, however, cost more to maintain than comparably sized locomotive-hauled trains because daily inspections must be performed on every DMU.
- Operating Crew Costs: Crew costs include costs for engineers and conductors. In this analysis, operating crew costs are assumed to be the same for locomotives and DMUs.

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Purchase Costs

- Rolling Stock: DMU consists have been modeled that will meet the agency's schedule, and these consists differ between Tri-Rail and ACE. The DMU is modeled to pull two single-level coaches behind it for Tri-Rail's route, with a 2 to 3 ratio of double deck DMUs to double deck coaches. For ACE's steeper route, Colorado Railcar has modeled a 2 to 3 ratio of DMUs to single-level coaches and a 1 to 1 ratio for double deck DMUs and coaches. Purchase costs for rolling stock include the cost of spare locomotives, coaches, and DMUs. Spare ratios are the same for DMUs, coaches, and locomotives.
- Maintenance Facility: Because Tri-Rail and ACE already have locomotive maintenance facilities (in which the DMU could be maintained), differences in maintenance facility purchase cost are not included in the study analysis. However, an agency that does not already own a maintenance facility could experience savings because the DMU maintenance facility may require less complexity than a facility for locomotives.

Savings for Similar Seating Capacities

The study analyzes the savings that DMUs offer over locomotives with Bombardier bi-levels with similar seating capacities and concludes that DMUs may save on variable operating costs by as much as 28%. Single-level DMUs are estimated to save on variable operating costs by as much as 20%, when compared to locomotives with Bombardier bi-levels. Single-level DMUs pulling double deck coaches are estimated to save up to 28%. Double deck DMUs are estimated to save up to 21%. In several cases, the purchase cost difference between DMUs and locomotives with coaches can be paid back with as little as 2 years of operating savings. Over the life of the DMU, operating cost savings can add up to the equivalent of as much as a 69% discount on the purchase of rolling stock. Exact savings will depend on the specific operating characteristics of each system.

Examples of Savings

- Tri-Rail is projected to save 28% ($1.9 million) per year on variable operating costs using one single-level DMU pulling a double deck coach (277 seats) rather than a locomotive hauling two bi-level coaches (300 seats). The initial purchase cost would be 2% ($1.2 million) more for DMUs, which would be paid back in less than one year of operating cost savings. At a 5% discount rate, the present value of 30 years of operating cost savings is $30 million. The initial cost of DMUs is $53.1 million. Their net cost after operating cost savings is $23.1 million, which is 55% less than the locomotive plus coach cost of $51.9 million. This is equivalent to buying rolling stock at a 69% discount.
- Tri-Rail is projected to save 20% ($1.4 million) per year on variable operating costs using a single-level DMU with two single-level coaches (282 seats) rather than a locomotive with two bi-level coaches (300 seats). The initial purchase cost

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for the rolling stock would be 6% ($3 million) more for DMUs, which would be paid back with a little over 2 years of operating cost savings. This is equivalent to buying rolling stock at a 44% discount.

- Tri-Rail is projected to save 21% ($1.8 million) per year on variable operating costs using two double-deck DMUs plus one double-deck coach (560 seats) rather than a locomotive hauling 4 bi-level coaches (600 seats). The initial purchase cost would be 4% ($3 million) more for DMUs, which would be paid back within 2 years of operating cost savings. This is equivalent to saving 38% on rolling stock purchase costs.
- ACE is projected to save 17% ($250,000) per year on variable operating costs using a double-deck DMU with one double-deck coach (370 seats) rather than a locomotive with three bi-level coaches (420 seats). The initial purchase cost for the rolling stock would be 2% ($500,000) more for DMUs, which would be paid back by 2 years of operating cost savings. This is equivalent to saving 17% on rolling stock purchase costs.

These conclusions do not include any savings that DMUs might generate in track use payments to the railroad or environmental costs. The inclusion of those items could create greater savings with DMU equipment vs. traditional locomotive-hauled trains. For example, the DMU is a good neighbor with significantly less noise than a locomotive and substantially lower emissions. This analysis also underscores the fact that costs of operating any type of rolling stock depend on the operating characteristics of the system.

Opportunity for Further Study

Christina Rader is available to work with transit agencies and their consultants to develop study results specific to the organization. Colorado Railcar appreciates the work that ACE and Tri-Rail put forth to make their data available to the industry and invites other organizations to participate in this effort as well.

AR 13333


Colorado Railcar

Favorable Economics of Colorado Railcar DMU Affirmed



A new paper, "Economics of FRA-Compliant Diesel Multiple Units (DMUs)," details the significant cost savings that Colorado Railcar DMUs can provide over locomotive-hauled trains for various passenger capacities. This validates previous work that has shown that DMUs can save transit agencies millions of dollars in operating costs.

The study concludes that:

- DMUs may save as much as 28% on variable operating costs, which are defined as the sum of fuel, maintenance, and operating crew costs
- Even if DMUs cost more to purchase than traditional rolling stock, the difference can in several cases be paid back with as little as 2 years of operating cost savings
- Owning DMUs is like buying your rolling stock at a 69% discount, when the DMU's lifetime operating cost savings over locomotive-hauled trains are taken into account

Colorado Railcar's Director of Economics and Environment, Christina Rader, has prepared the paper for presentation at APTA's 2003 Rail Transit Conference in San Jose on Wednesday, June 11 from 10:00 a.m. to noon in the Rolling Stock II session.

DMU Operating Cost Savings Add Up. It's Like Purcha

Comparisons Based on Detailed Data

The paper compares rolling stock purchase costs and variable operating costs, which include fuel, maintenance, and operating crew. The study uses detailed data provided by Tri-Rail and Altamont Commuter Express (ACE) on their Bombardier bi-level coaches and EMD F-40 locomotives, as well as estimates for the Colorado Railcar DMU. The Colorado Railcar DMU is FRA-compliant, can be double deck or single-level, and can pull unpowered trailer cars.

Variable Operating Cost Savings and Purchase Costs Calculated for Similar Seating Capacities

The study compares consists of similar seating capacities to determine the savings that DMUs can offer over locomotive-hauled trains. Single-level DMUs pulling double deck coaches are estimated to save as much as 28% on variable operating costs, when compared to locomotives with Bombardier bi-levels. An example of those savings is presented below.

Savings on Variable Operating Cost and
Time to Payback Purchase Cost Difference
An Example Based on Tri-Rail's Operating Conditions*

	Locomotive-Hauled Fleet	DMU Fleet	Savings
Seats	300 seats	277 seats	N/A
Rolling Stock	1 locomotive 2 bi-level coaches	1 single-level DMU 1 double deck coach	N/A
Annual Variable Operating Cost	$6.9 million	$5.0 million	$1.9 million
Fleet Purchase Cost	$51.9 million	$53.1 million	$-1.2 million

28% Savings

Time to payback purchase cost difference using operating savings: 8 months

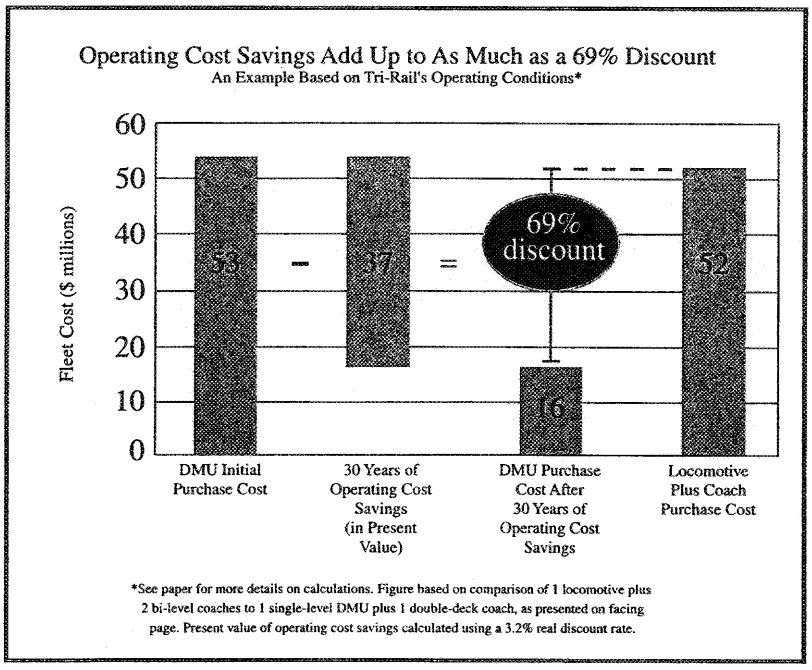
*See paper for more details on calculations.

Single-level DMUs pulling single-level coaches are estimated to save as much as 20% on variable operating costs, when compared to locomotives with Bombardier bi-levels. Double deck DMUs pulling double deck coaches are estimated to save as much as 21%. In several cases, the purchase cost difference between DMUs and locomotive-hauled trains can be paid back within 2 years of operating savings, as in the example above.

ıg Your Rolling Stock at a 69% Discount. Here's How:

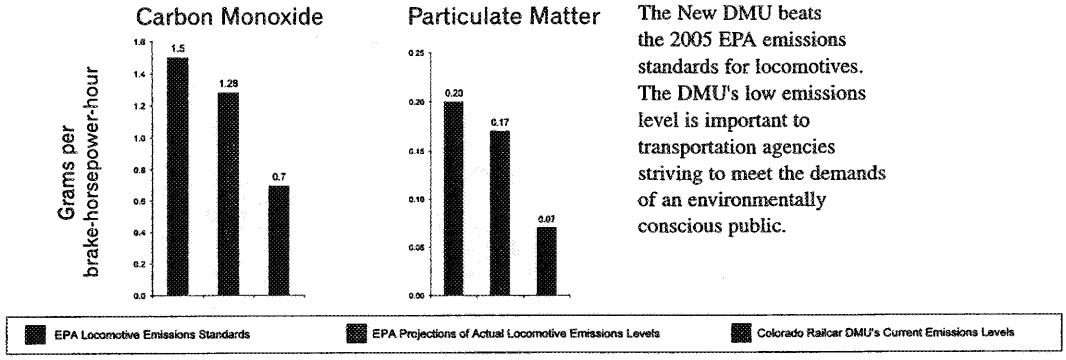
Annual Variable Operating Cost Savings Add Up to a 69% Discount on Rolling Stock Purchase

The paper finds that the annual variable operating cost savings can add up to a significant amount over the lifetime of a DMU. In the example for Tri-Rail presented on the left of the page, adding up the operating cost savings for 30 years would result in a gross savings of $58 million, or $37 million in present value. In this example, subtracting the $37 million savings from the $53 million DMU purchase cost gives a net DMU cost of $16 million, which is equivalent to a 69% discount on the purchase of rolling stock compared to locomotive-hauled trains.



Environmental Benefits

If the environmental benefits of the DMU are included, the savings to the public generated by DMUs are even greater. The DMU is a good neighbor with significantly less noise than a locomotive and substantially lower emissions.



The New DMU beats the 2005 EPA emissions standards for locomotives. The DMU's low emissions level is important to transportation agencies striving to meet the demands of an environmentally conscious public.

Opportunity for Further Study

The results presented in the paper are based on the specific operating conditions of ACE and Tri-Rail, which may differ from the conditions you face. Christina Rader is available to work with you and your consultants to develop study results specific to your organization.

Colorado Railcar appreciates the work that ACE and Tri-Rail put forth to make their data available to the industry, and we invite other organizations to participate in this effort as well.

Contact

If you would like a copy of the study or the executive summary, please contact Christina Rader. These materials are also available at www.ColoradoRailcar.com/economics.htm.
For sales information on the DMU, please contact Tom Janaky, Vice President, Sales.

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AR 13339

New DMU

Self-Propelled Commuter Railcar Meets the FRA 49 CFR Part 238 Structural Requirements



Colorado Railcar

2003 Edition

All New DMU – Fully Tested and Ready for Commuter Transit Service

Meets FRA 49 CFR Part 238 Structural Requirements to Run in Mixed Freight Service



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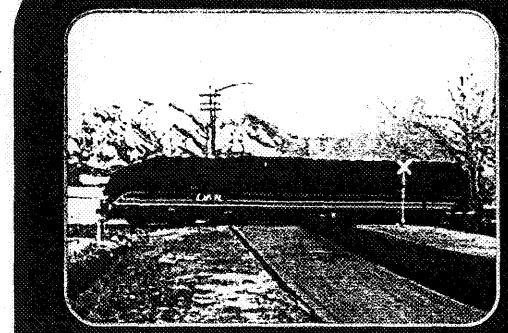
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Low-Floor Coach 8
Bi-Level Low-Floor Coach 10
Bi-Level Low-Floor DMU 12
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Pricing/Consists 22
Manufacturing Facilities 27

Proud to be Built in the USA

For Further Information on Colorado Railcar's DMU

Contact Tom Janaky, Vice President of Sales
303-857-1066 ext 102 • cell: 720-837-8749 • fax: 303-857-4209
1011 14th Street • Fort Lupton, Colorado 80621
email: Sales@ColoradoRailcar.com
web: www.ColoradoRailcar.com

The New DMU — The Train of the Future for Your Community's Commuter Rail Transit Needs







Colorado Railcar's new DMU (Diesel Multiple Unit) - a self-propelled commuter railcar with the capacity to pull coaches - has long been needed by rail planners and transit consultants to meet the challenge of expanding commuter systems in the face of limited funding. Now for the first time a US built, FRA structurally compliant DMU is fully tested and able to run in mixed freight service. Here are four reasons that transit agencies are taking notice of this innovative new railcar:

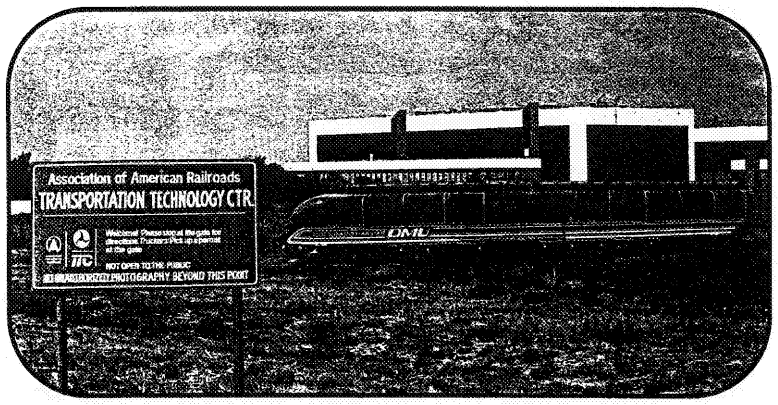
- **Full FRA Compliance** - At one time considered impossible, the new DMU meets all current FRA 49 CFR Part 238, APTA and ADA requirements without waivers.
- **Fuel and Maintenance Efficiency** - The savings in operating expenses offer dramatic cost reductions when compared to locomotive-hauled commuter rail.
- **Neighborhood Friendly** - The DMU is a clean, quiet, efficient, and an attractive addition to any community serviced by commuter rail.
- **Capable of Pulling Coaches** - While maintaining fuel efficiency, the DMU has more than sufficient power to pull two commuter coaches.

The DMU successfully completed its testing at the Transportation Technology Center (TTC) in Pueblo, Colorado and made its debut at the 2002 APTA Annual Conference in Las Vegas. The DMU then embarked on a nationwide tour, receiving accolades from transit officials and consultants at every stop.

Please review the following on Colorado Railcar's new, innovative DMU that is changing the way America looks at intercity and suburban commuter rail.

The New DMU Meets FRA 49 CFR Part 238 Structural Requirements

No Waivers Required



New DMU Exceeds Expectations During Testing

On August 27, 2002, the new DMU began testing at the Transportation Technology Center in Pueblo, Colorado. The regimen included over 1,000 miles of shakedown runs, several laps at 90 mph, sprints up to 110 mph and a full battery of rigorous testing. The new DMU met or exceeded test benchmarks for acceleration, braking, HVAC, and wayside/interior sound levels. Also the DMU exceeded fuel efficiency expectations dramatically by achieving two miles per gallon.

"It's great to see an American manufacturer step up and develop a DMU that meets the FRA and APTA standards," commented Bill Millar, president of APTA, who attended the testing.

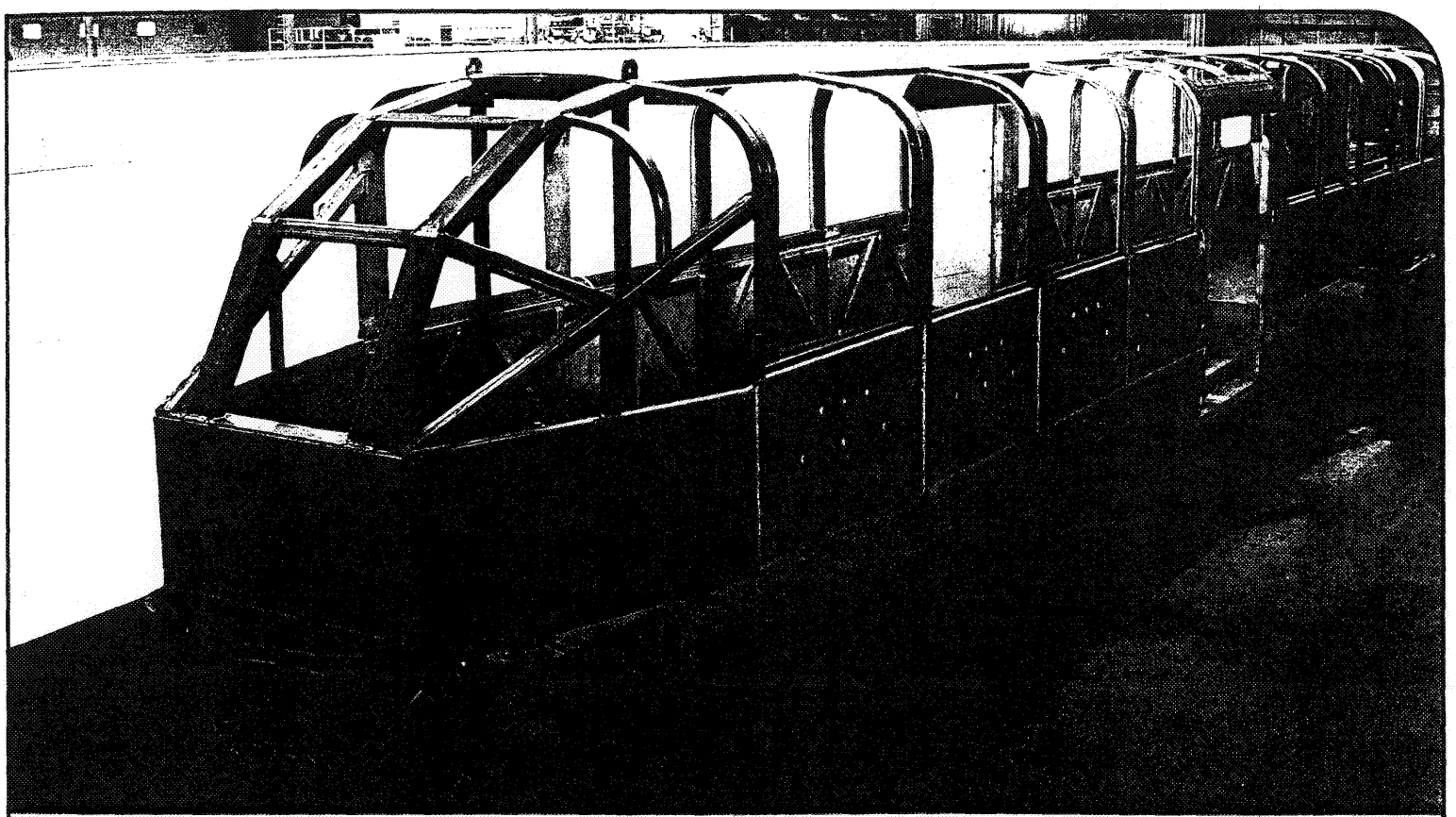
Meets or exceeds new FRA and APTA structural safety specifications for:

- 800,000 Pound Compression Buff Load Strength
- 300,000 Pound Cab Corner Post Strength
- 500,000 Pound Cab Collision Post Strength
- 200,000 Pound Cab Anti-Climbing Mechanism
- Side Structure Impact Strength
- Roof Structure Rollover Strength

On February 26th, 2002, the new DMU was tested and shown to be the first self-propelled commuter railcar to meet the FRA's newest 49 CFR Part 238 structural requirements.

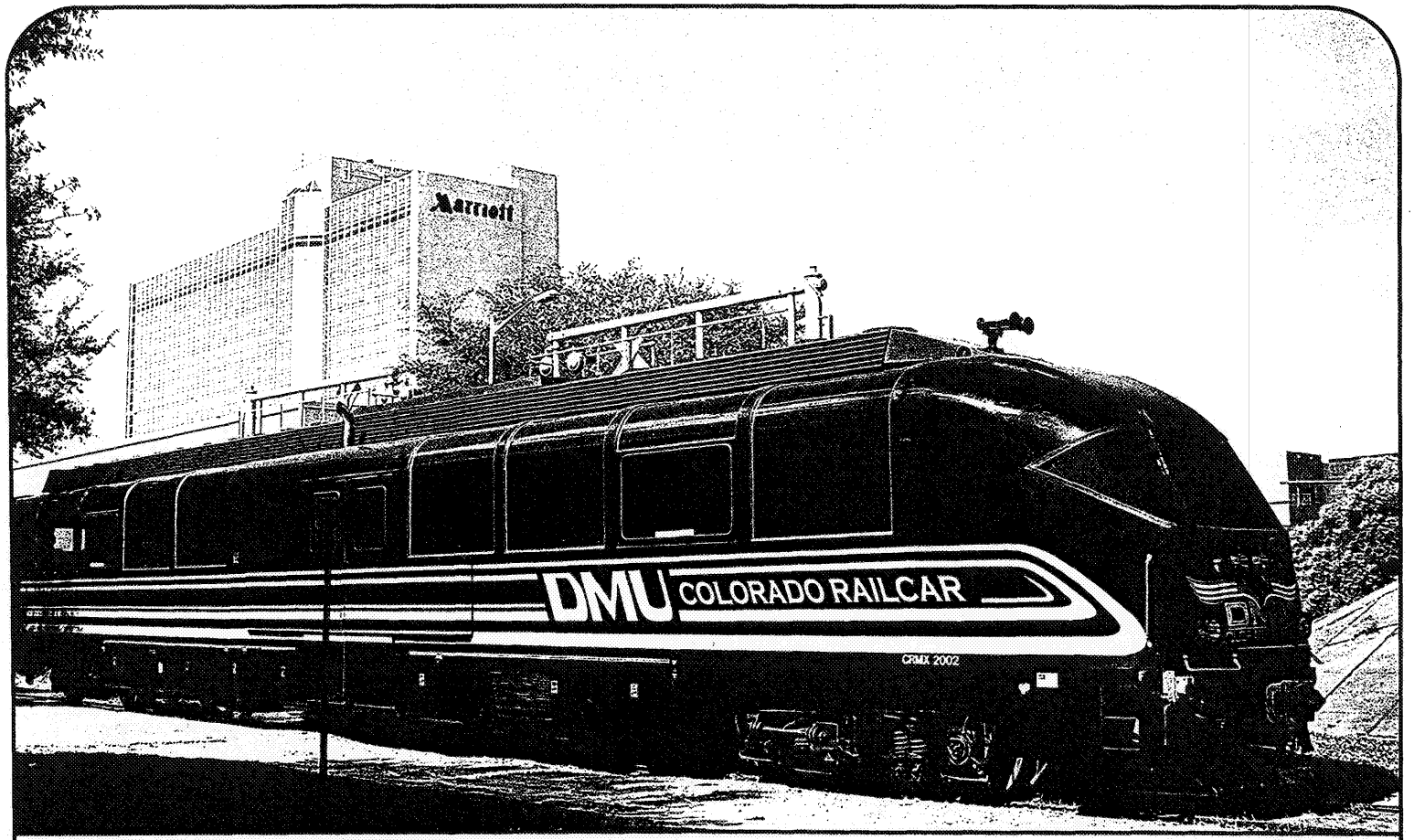
AR 13342

Colorado Railcar's DMU Prototype under Construction



Steel Tubular Body Assembly under Construction — Built to Locomotive Structural Specifications

New Glass Domed Aero DMU



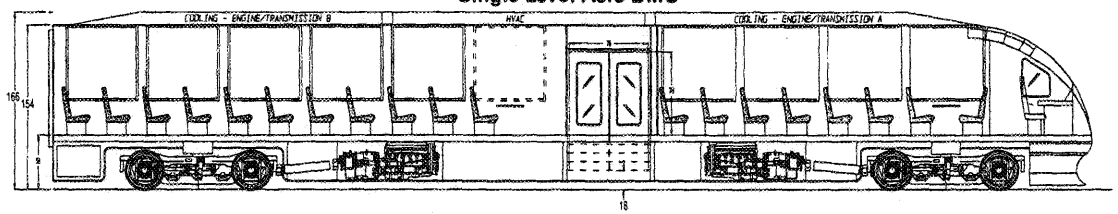
Running Demo of the New DMU in Orlando, Florida during National Tour — October of 2002

Single Level DMU Commuter Car

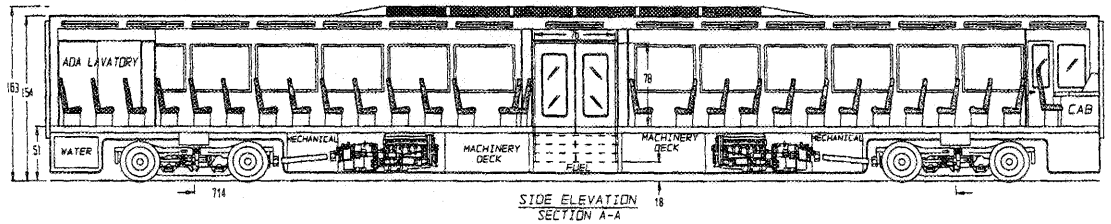
98 Seats

246 Maximum Passenger Capacity - Includes Standees*

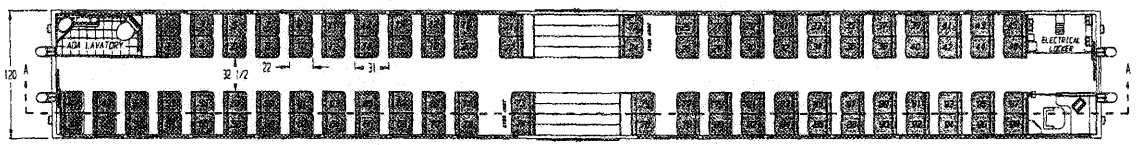
Single Level Aero DMU



Single Level Squared End DMU



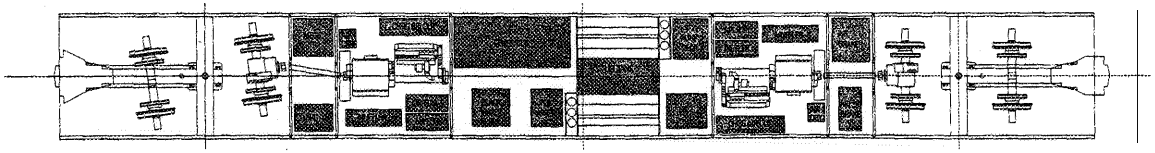
SIDE ELEVATION
SECTION A-A



R-END OF RAILCAR

98 SEATS
(94 SEATS + 4 JUMP SEATS OR 2 WHEELCHAIR)

F-END OF RAILCAR

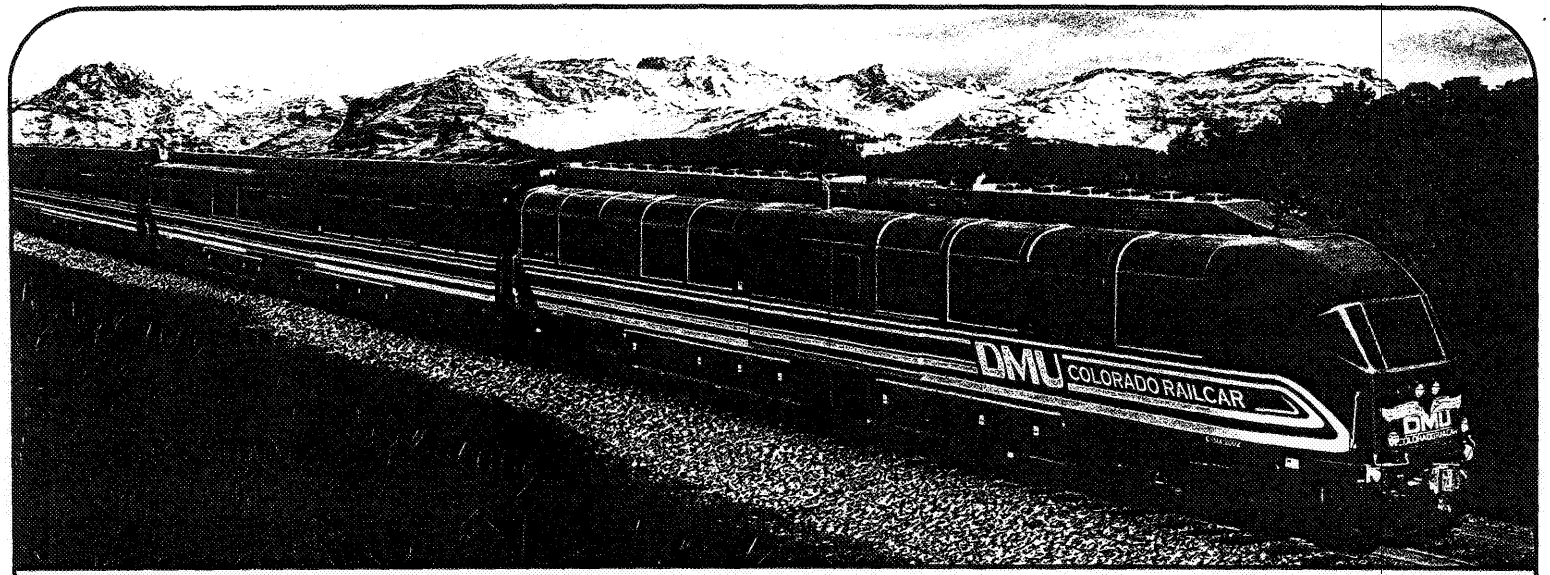


UNDERCAR ARRANGEMENT

*6 pax per sq. meter

New DMU Is Capable of Pulling Coaches — Low-Floor ADA Accessible Coach Is a Perfect Companion

Colorado Railcar has developed new low-floor, high capacity coaches in single and bi-level models.



The new low-floor coaches feature:

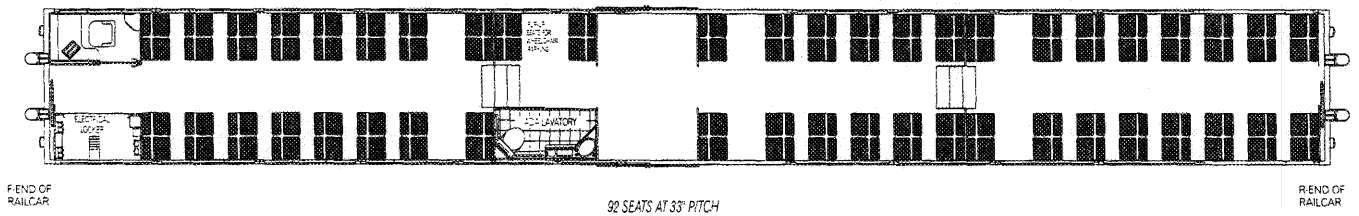
- **High Capacity Seating** – Single level has 92 seats with a control cab, double deck has 185 seats with cab.
- **Full ADA Accessibility** – Wheelchair roll-on boarding helps reduce station dwell time. Used in combination with the DMU, the consist provides mixed platform service. All ADA amenities are at low-floor level including restrooms and wheelchair tie downs.
- **Designed to Meet FRA's 49 CFR Part 238 Specifications** – Designed for mixed freight usage, the low-floor coach will meet the same structural requirements as the DMU including the 800,000 pound compression buff load stress test.
- **Coach Parts Compatibility** – For common systems, coach components and parts are interchangeable with the new DMU.
- **Flexible Cab Configuration** – Cab controls are available as an option.
- **Model Options** – Coaches can have an aerodynamic nose or squared end.
- **Glass Domed Roof Option** – Coaches may be equipped with either a steel roof with flat side glass or a patented glass domed roof offering panoramic views.

AR 13346

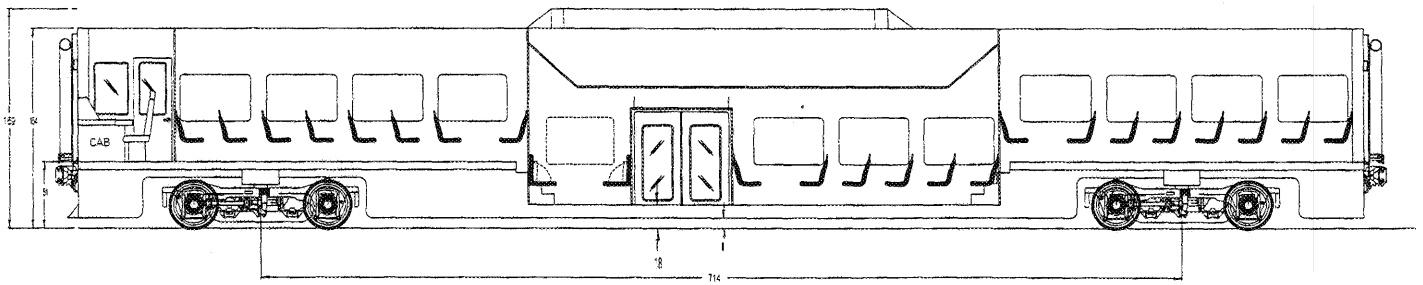
Single Level Low-Floor ADA Accessible Coach w/Cab

92 Seats

254 Maximum Passenger Capacity - Includes Standees*



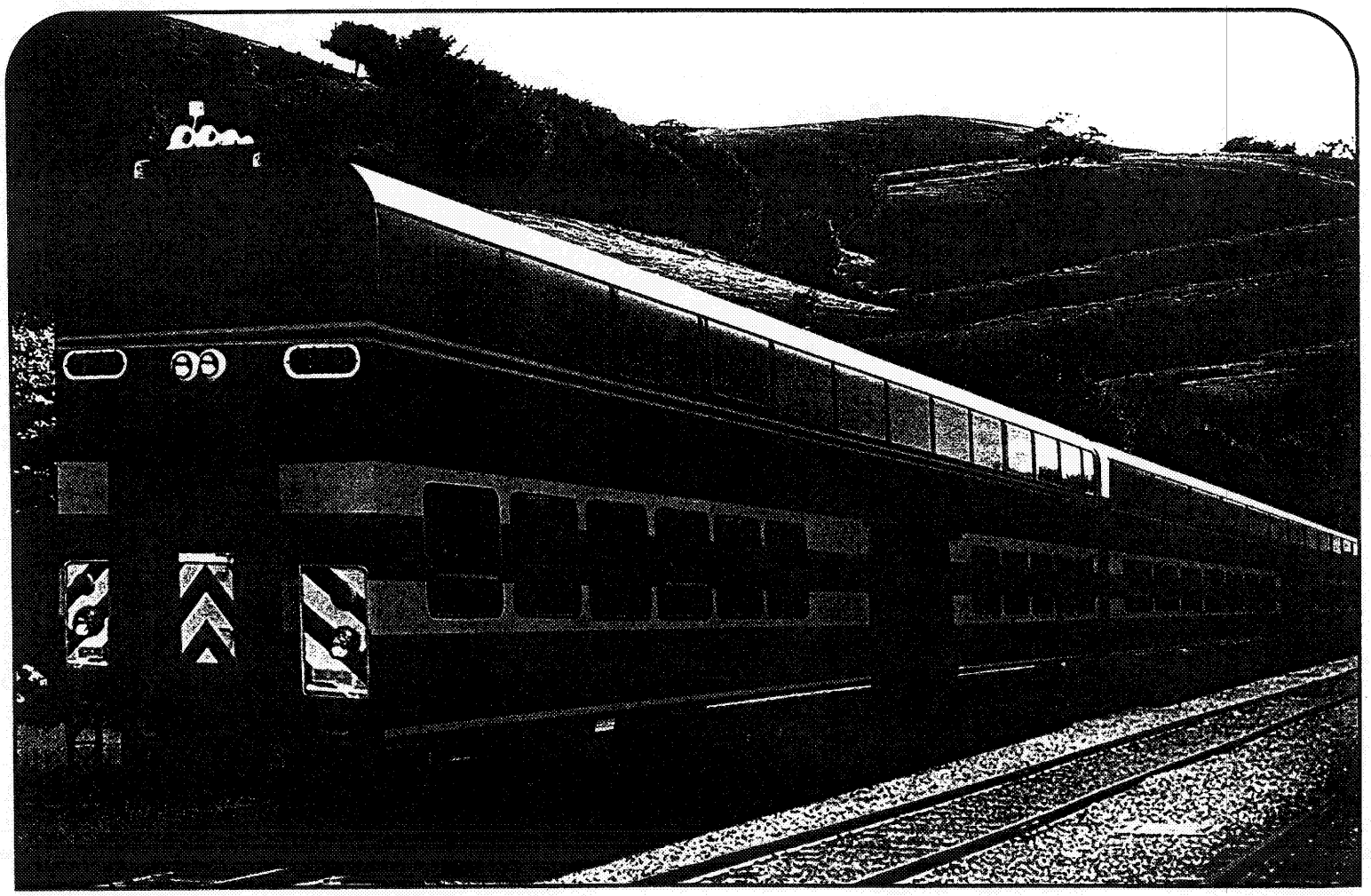
92 SEATS AT 33" PITCH
INCLUDING FOUR FLIP-UP SEATS
FOR WHEELCHAIR PARKING



SIDE ELEVATION

*6 pax per sq. meter

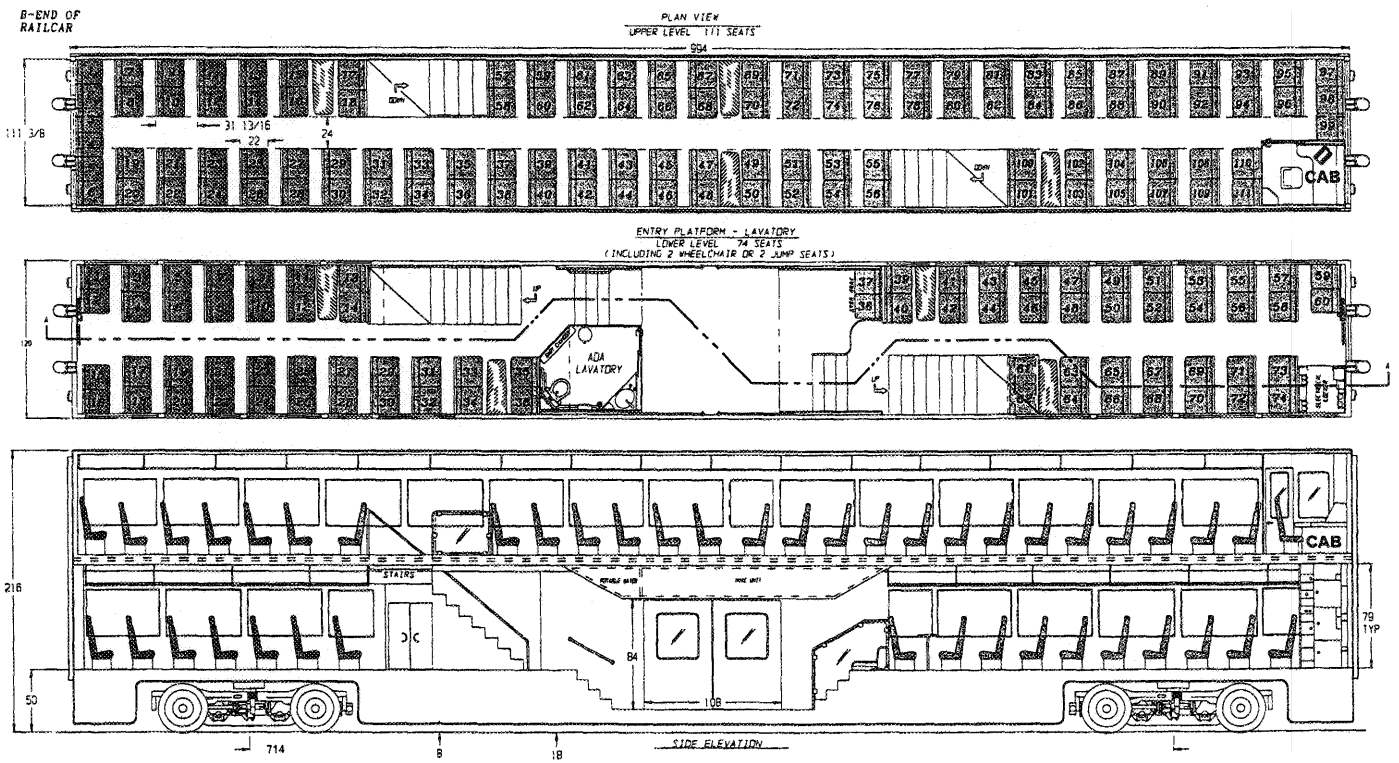
Bi-Level Low-Floor ADA Accessible Coach w/Cab



Bi-Level Low-Floor ADA Accessible Coach w/Cab

185 Seats

412 Maximum Passenger Capacity - Includes Standees*



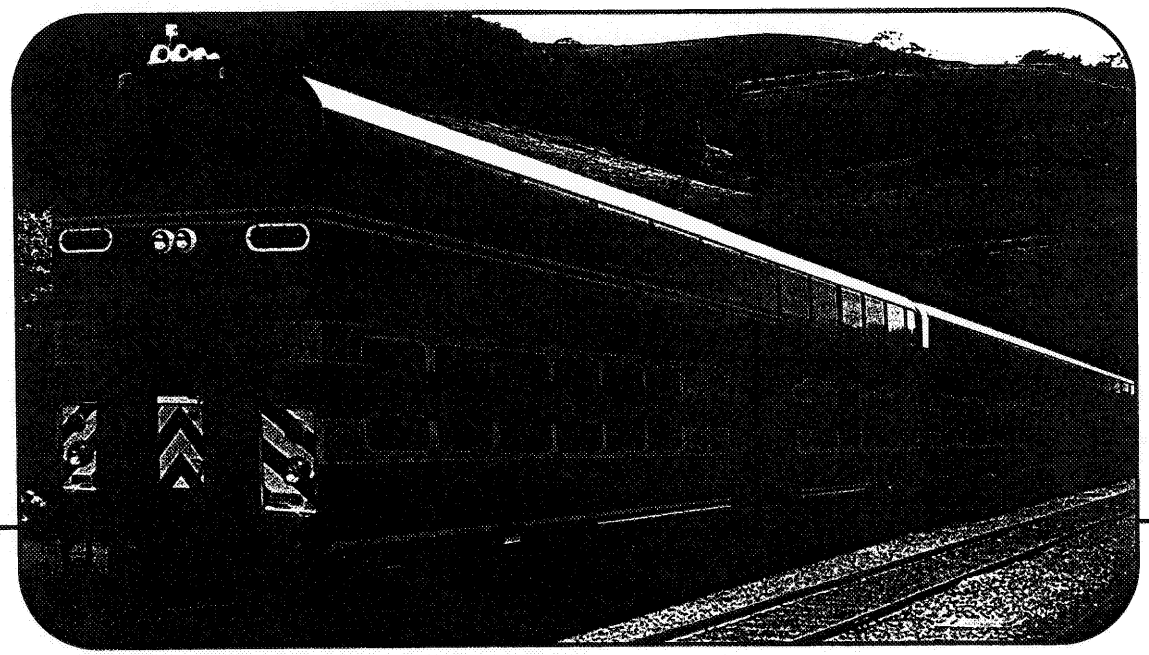
*6 pax per sq. meter

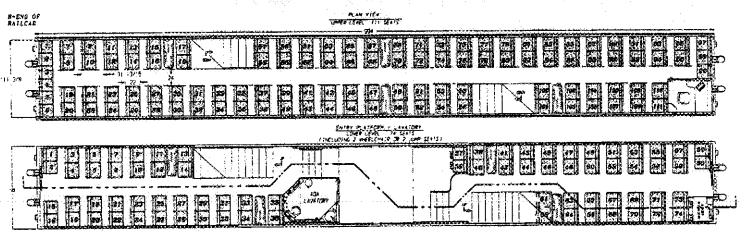
Colorado Railcar

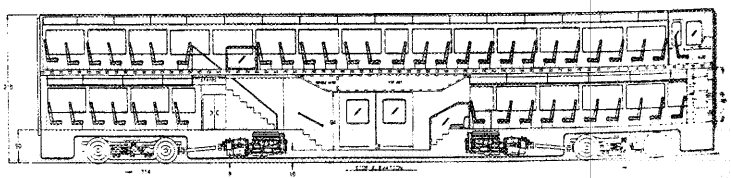
Bi-Level Low-Floor ADA Accessible DMU

185 Seats

412 Maximum Passenger Capacity - Includes Standees*







*6 pax per sq. meter

Powerful Air Conditioning and Heating System Operates with Independent Generator Power Unit

HVAC

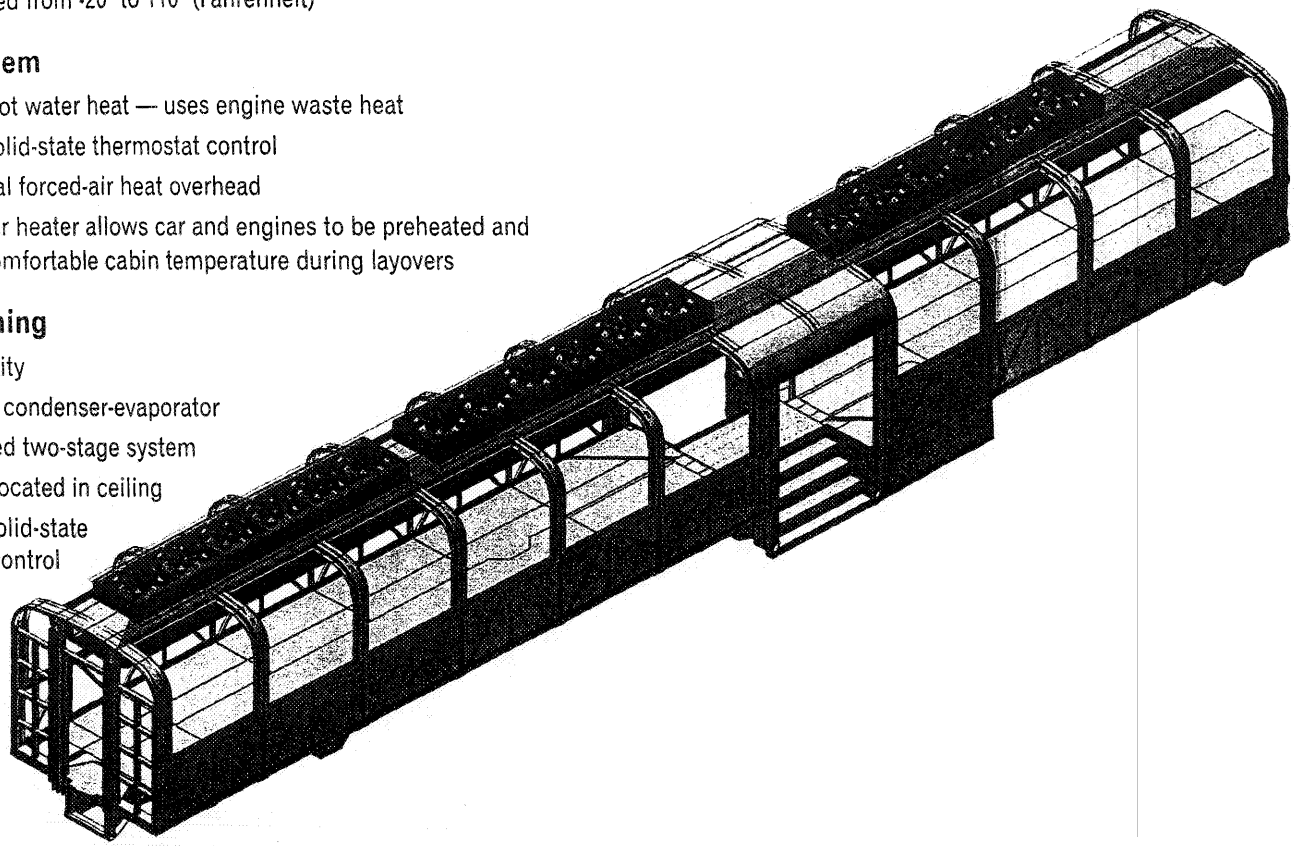
- Comfort-based from -20° to 110° (Fahrenheit)

Heating System

- Baseboard hot water heat — uses engine waste heat
- Automatic solid-state thermostat control
- Supplemental forced-air heat overhead
- Electric water heater allows car and engines to be preheated and maintains comfortable cabin temperature during layovers

Air Conditioning

- 30-ton capacity
- Split system condenser-evaporator
- Roof-mounted two-stage system
- Air handler located in ceiling
- Automatic solid-state thermostat control



AR 13351

New DMU Commuter Railcar Data

General Data	
Type of vehicle	DMU Commuter Car (Self-Propelled Commuter Railcar)
Car builder	Colorado Railcar Manufacturing, LLC
Car Body	
Car structure	Low-alloy, high-tensile steel
Doors	One pneumatically operated two-leaf sliding pocket door per side, service doors at each end; optional vestibule loading through two pneumatically operated single-leaf sliding pocket doors per side
End windows	Fixed, tinted double glazed, meeting FRA Type I standards
Side windows	Fixed, tinted double glazed, meeting FRA Type II standards
Fixed seats	Fixed seats (aluminum frames, molded fiberglass with upholstered inserts), various models available
Trucks/Bogies	Two per vehicle, cast steel with low clearance GSI
Primary suspension	Coil spring
Secondary suspension	Coil spring
Wheelslide protection	Yes
Brakes	Pneumatic disk brakes
Parking brake	Mechanical hand brake
Heating	Hot water radiant floor heat, electric overhead forced-air heat
Air conditioning	Split system - roof mounted, 30-40 tons (depending on car type) per car
Toilet room	One per car, ADA accessible
Electrical System	
Power supply	480 V, 3 ph, 60 Hz, up to 175 kW internal generation from on-board generator or external head end power
Low-voltage power supply	12 VDC emergency battery
Interior lighting	Fluorescent / Halogen
MU	Multiple units can be controlled from end cab car
Drive Train	
Engine	Two Detroit Diesel series 60 motors with electronic fuel control. Each rated at 600 hp.
Transmission	Two Voith T212 BRE with KB190 retarder
Final drive	Two Voith KE553

AR 13352

Railcar Data

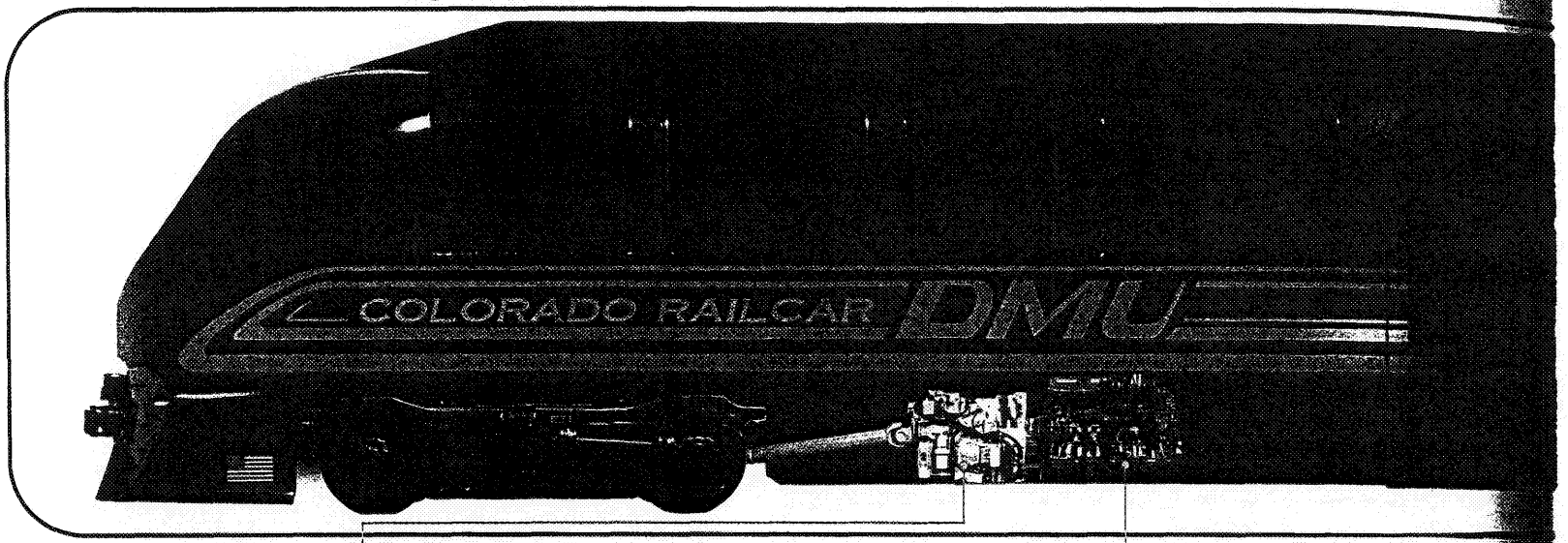
Performance	Single Level	Bi-Level
Maximum design speed	100 mph	100mph
Maximum operating speed	90 mph	90mph
Service braking	2.0 mphps	2.0 mphps
Emergency braking	2.8 mphps	2.8 mphps
Minimum horizontal curve radius	250 ft	250 ft
Minimum vertical curve radius	2,000 ft	2000 ft

Weight and Capacity	Single Level	Bi-Level
Empty weight low-floor coach car – no cab	142,000 lbs	157,000 lbs
Empty weight powered DMU cab car	175,000 lbs	194,000 lbs
Seating low-floor coach car – no cab	92-98	190
Seating powered DMU cab car	92-98	185
Maximum passenger capacity – includes standees	246	412

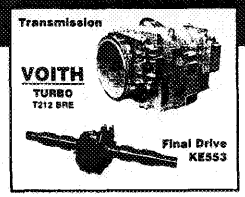
Dimensions	Single level	Bi-Level
Length (over couplers)	85'	85'
Length (over body ends)	83' 6 ½"	83' 6 ½"
Width (over side sheets)	10'	10'
Height (rail to roof)	14' 10 ¾"	19' 6"
Height (rail to lower floor)	51"	18"
Headroom (center aisle)	7' 6"	6' 7"
Doorway width	76"	108"
Doorway height	6' 6" or 9' 3"	6' 6"
Step height (above top of rail)	18" or 51"	18" or 51"
Truck centers	59'-6"	59'-6"
Truck wheelbase	8' 6"	8' 6"
Track gage	4' 8 ½"	4' 8 ½"
Wheel diameter	36"	36"
Aisle width (lower deck)	24"-32"	24"-32"
Aisle width (upper deck)	N/A	24"-32"

AR 13353

DMU Uses Proven Components



Transmission



Voith T212 BRE Turbo Hydrodynamic Transmission

- The "Mercedes" of Heavy Duty Transit Transmissions

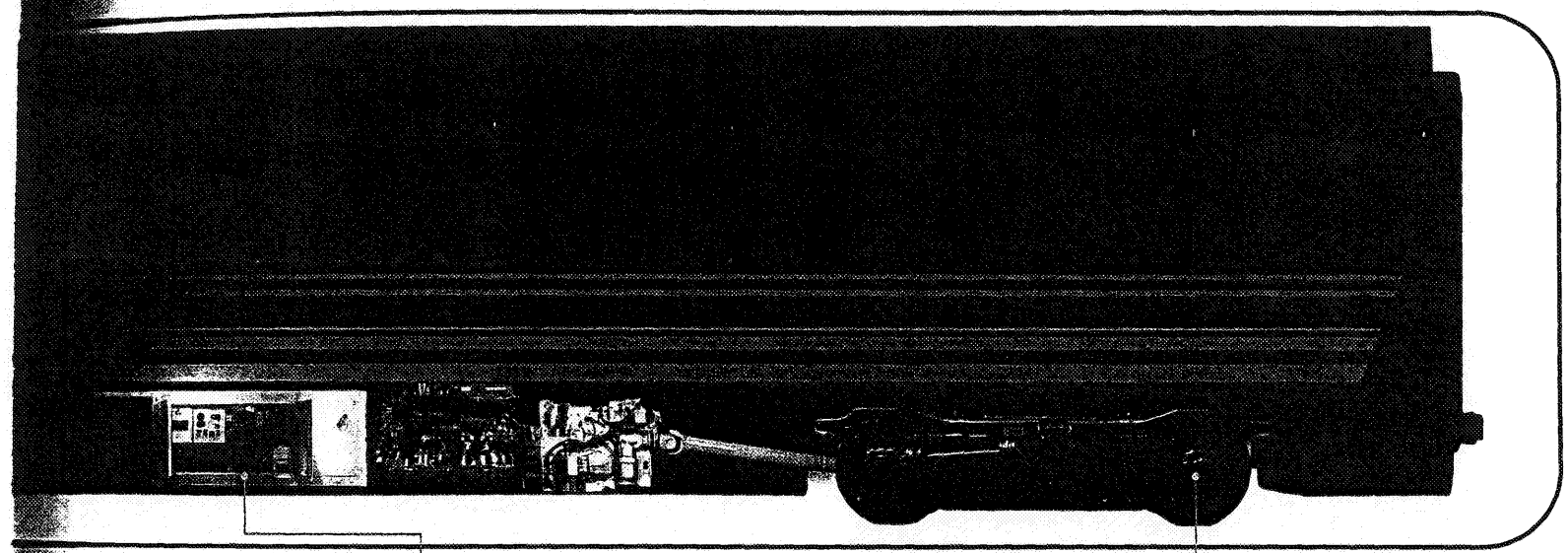
- 2,300 Hydrodynamic Transmissions in Use Worldwide and 75,000 Total Transmissions in Use Worldwide
- Hydrodynamic Braking
- Electronic Control Management System
- 760,000 Miles Before First Major Overhaul
- Readily Overhauled in Agency's Shops

Engine

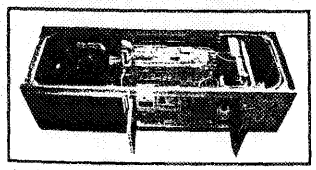


- Two 600 Horsepower Detroit Diesels @ 1800/2100 rpm hp per Engine, Low Configuration
- Electronic DDEC Engine Management System
- Overhead Cam, Fuel Injected

- Lay-Down Configuration Developed by Colorado Railcar
- Two Year Warranty
- Parts/Service Availability at 1300 Outlets Nationwide
- 600,000 Engines in Use Worldwide Running Over a Billion Miles per Week. Engines Are Durable and Easy to Maintain
- EPA Compliant 2005
- Very Fuel Efficient at 2-3 mpg for Single Power Car



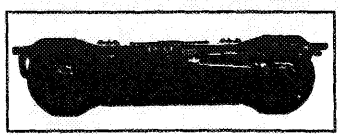
Generator



STADCO 175kw

- 175 kw Stadco 480 volt, 3 phase
- Deutz Water-cooled Diesel
- Provides Power for DMU and up to Two Coach — Full Redundancy When Paired with a Coach or another DMU

Trucks



GSI 36630

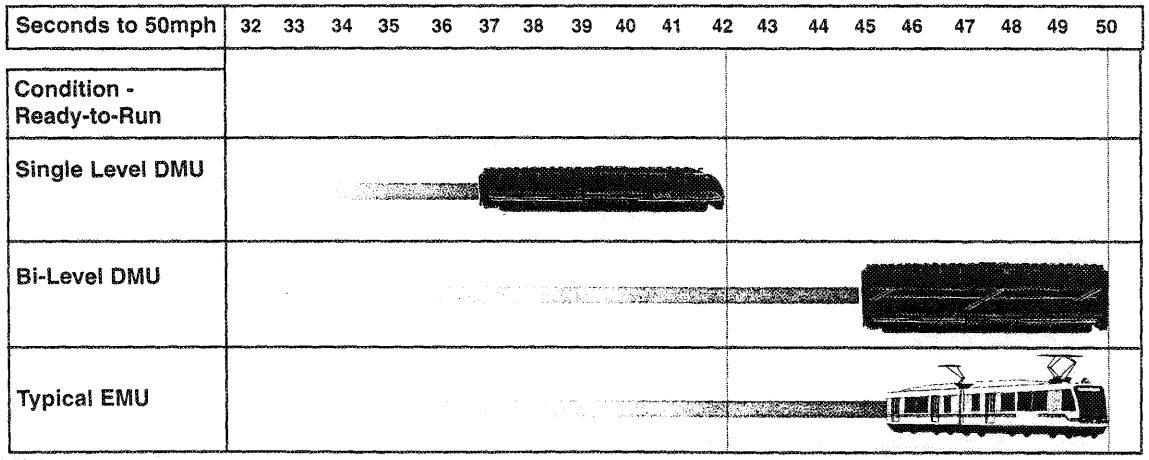
DMU Trucks

GSI Trucks Featured on Bi-Level and Single Level

- GSI Low Clearance Truck
  - ➢ Inside Swing Hanger
  - ➢ Primary and Secondary Springs
  - ➢ Inboard Disk Brakes
  - ➢ Used by METRA, CAL Train and Many Other Transit Agencies
  - ➢ Voith KE553 Final-Drive Used in Each Truck

The New DMU's Performance Specifications

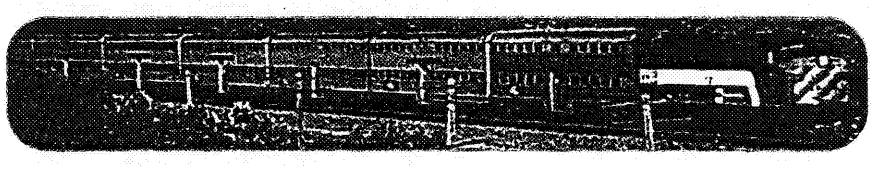
- Acceleration and Braking Similar to a Typical EMU's Performance
- 1,200 Total Horsepower
- Single Level DMU Performance: 12.6 Horsepower per Ton Ready-to-Run — 42 Seconds to 50 mph
- Bi-Level DMU Performance: 10.7 Horsepower per Ton Ready-to-Run, — 50 Seconds to 50 mph



New DMU Provides Significant Operational Savings Over a Commuter Locomotive

Fuel Consumption Comparisons

Locomotive Hauled Commuter Consist



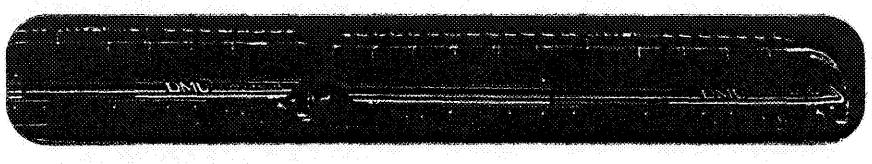
- Locomotive engine produces 3,500 hp
- Locomotive weighs 300,000 lbs
- Locomotive consumes 2 to 3 gallons per mile

Fuel consumed during typical round-trip commute (60 miles)



120 to 180 gallons

DMU



- DMU engines produce 1,200 hp
- DMU weighs 175,000 lbs
- DMU consumes *only* 1/2 gallon per mile

Fuel consumed during typical round-trip commute (60 miles)



30 to 40 gallons

Note: During testing at the TTC Pueblo, Colorado, the DMU exceeded fuel efficiency expectations dramatically by achieving two miles per gallon.

The New DMU Is an Excellent Neighbor - Quiet, Attractive, Low Emissions



What Transit Consultants Say about the New DMU

"I see this DMU as a stepping stone to the future of commuter rail. It's a means of developing and testing new commuter rail service rapidly, using existing right of ways, which is the most cost prohibitive part of new commuter service."

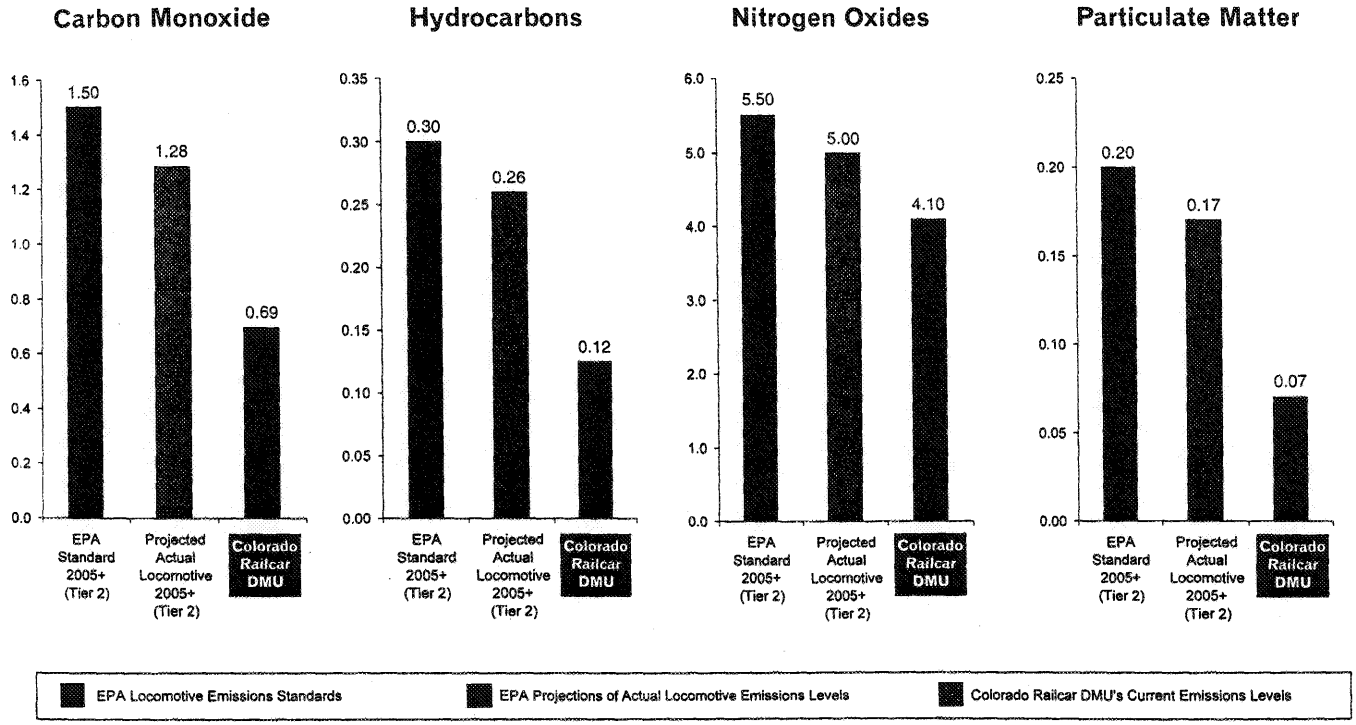
Bill Farquhar
Korve Engineering

"Colorado Railcar has really developed something special. I hope the transit planners realize that this railcar is much more than an RDC, which could barely pull itself. This new DMU has the surplus power to pull up to three coaches depending on the route characteristics."

Bruce Horowitz
Canac

The New DMU Beats the 2005 EPA Emissions Standards for Locomotives

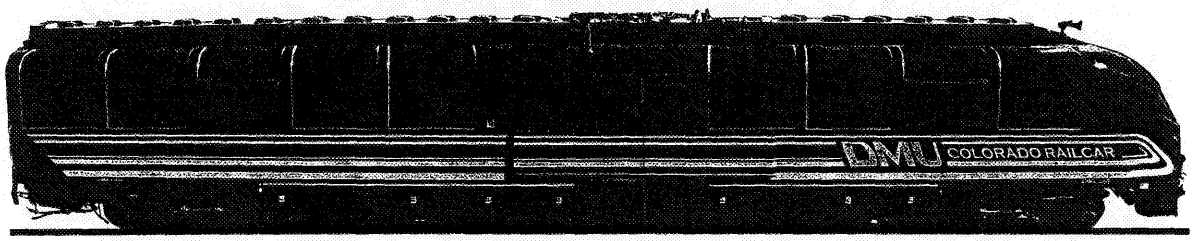
(All measurements in grams of emissions per brake-horsepower-hour of power)



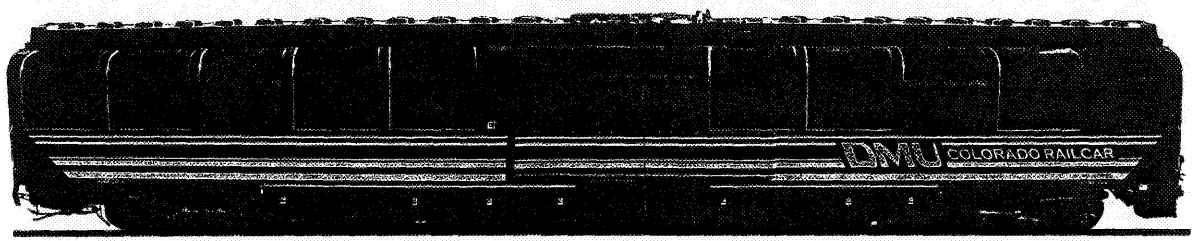
Sources: EPA Locomotive emission standards published in 40 CFR Part 92. Standards shown are for line-haul duty cycle, which are stricter than standards for switch duty cycle. Passenger locomotives built in 2002 need to meet Tier 1 standards, but passenger locomotives built 1973-2001 do not need to comply until 2007. EPA projections of actual locomotive emissions levels are the latest published EPA estimates for line-haul locomotives. Estimates come from EPA Technical Highlights document EPA420-F-97-051, "Emission Factors for Locomotives", December 1997. Colorado Railcar DMU emissions are weighted average of prime mover Detroit Diesel engine emissions and generator emissions. See Detroit Diesel Specification Sheet for Series 60 (14L) C&I engine, model 6063HK33. Generator emissions statistics are for Deutz BF6M1013FC 2003 model year engine, as supplied by Manager of Environmental Compliance of Deutz Corporation on October 17, 2002. Both engines tested on ISO 8178 C1 test cycle using fuel specified by 40 CFR 89.330. (Note: DMUs fall under nonroad regulations, defined by 40 CFR Part 89. Locomotive regulations are defined by 40 CFR Part 92.)

Railcar Pricing

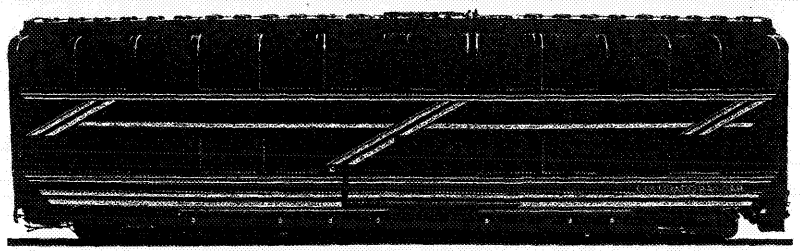
90 Seat Aero DMU - $2.9 million*



92 Seat Low-Floor Coach with Cab - $2.0 million*



185 Seat Double Deck Low-Floor Coach with Cab - $3.0 million*



*All Prices in U.S. Dollars and are subject to change

Diesel Multiple Unit Consists and Per Seat Costs

3 Car Consist with 278 Seats - $23,740* cost per seat



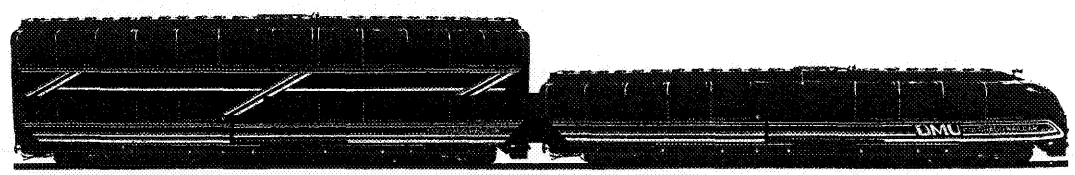
92 Seat Low-Floor Coach w/Cab | 96 Seat Low-Floor Coach | 90 Seat Aero DMU

5 Car Consist with 468 Seats - $23,931* cost per seat



90 Seat Aero DMU | 3-96 Seat Low-Floor Coaches | 90 Seat Aero DMU

2 Car Consist with 275 Seats - $21,090* cost per seat



185 Seat Bi-Level Low-Floor Coach w/Cab | 90 Seat Aero DMU

*All Prices in U.S. Dollars and are subject to change

New DMU Custom Designed to Meet the Agency's Needs



Seating Options

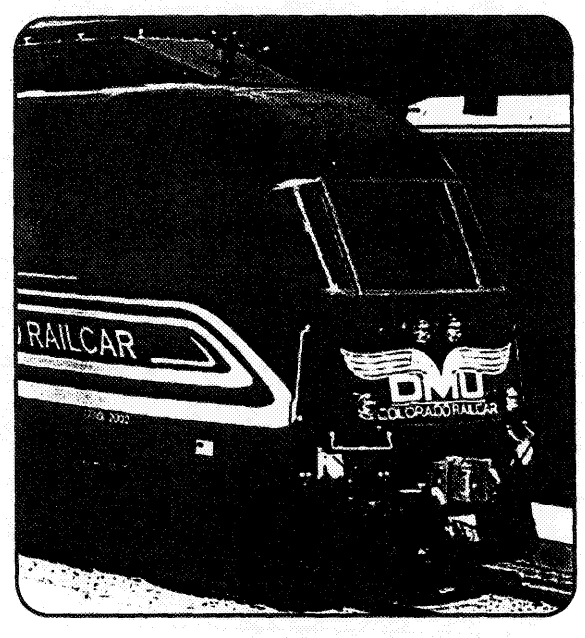
- Individual bucket seats with tray tables, audio and reclining seat backs
- Bench commuter seats
- Individual stainless steel seats
- Booth seating with table

Colorado Railcar Will Build to the Transit Agency's Specific Requirements

- Boarding Door Location – Center or End of Car
- Trucks – GSI or Atchison Casting
- Seating – Type, Layout, Coverings, Color, Seatback Trays
- Windows – Flat Side Glass or Colorado Railcar's Patented Glass Dome Windows
- ADA Compliant Boarding Options
- ADA Restroom Design
- Audio/Video at Seat
- Service Bar
- 110 Volt Power at Seat
- Exterior Paint and Graphics

AR 13362

Ordering the New DMU



At last, a self-propelled commuter car that meets current FRA 49 CFR Part 238 structural requirements without waivers

- Minimum DMU Car Order – As Few As Two Cars
- Limited Non-Recoverable Costs for Customizing
- Cost Effective Custom Options
- Production Begins Fall of 2003
- Production Delivery Time: 14 Months

For Further Information on Colorado Railcar's DMU
Contact Tom Janaky, Vice President of Sales
303-857-1066 ext 102 • cell 720-837-8749 • fax:303-857-4209
1011 14th Street • Fort Lupton, Colorado 80621
www.ColoradoRailcar.com
email: Sales@ColoradoRailcar.com

New DMU Receives Warm Florida Welcome during a Running Demo from Orlando to Winter Park, FL

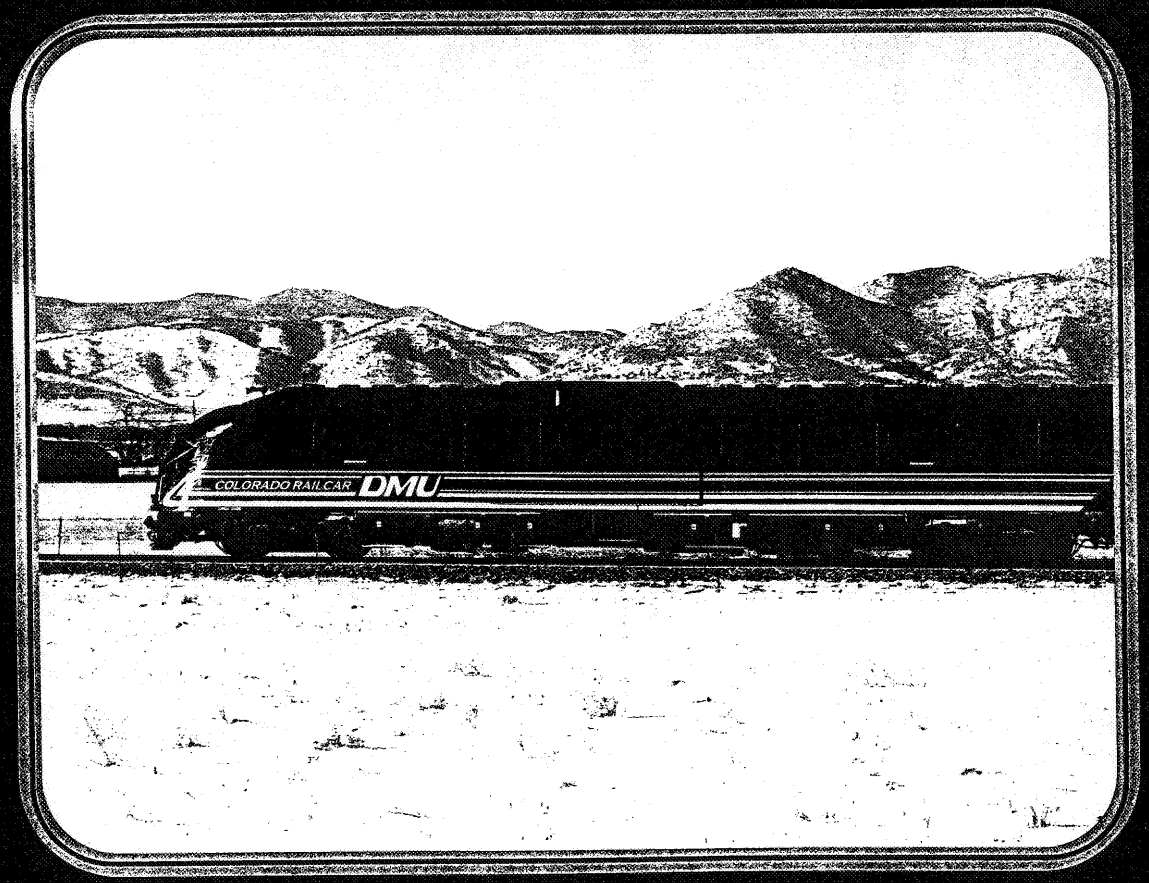


With local Congressman John Mica (fourth from right) presiding over the demonstration run, the DMU's debut in Florida was an overwhelming success due to the participation of Orlando Metro Plan and Lynx, the Florida Central Railroad, CSX, Amtrak, and Winter Park officials.

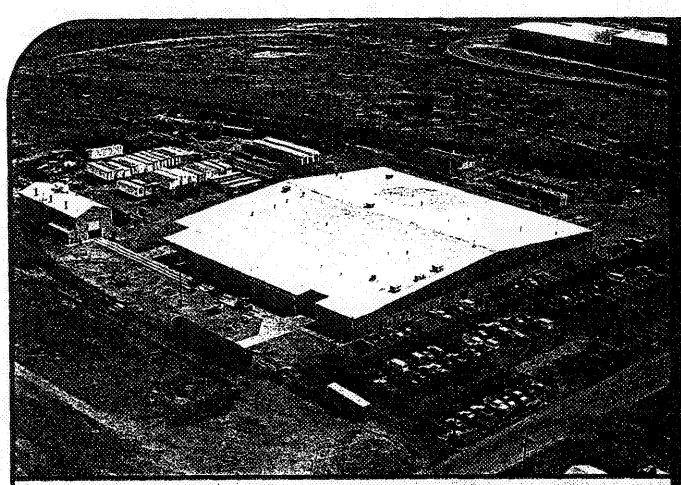
AR 13365

Colorado Railcar

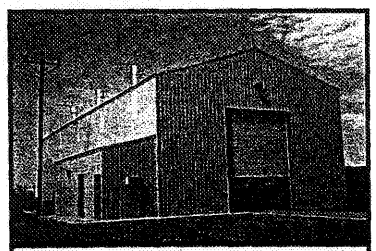
CUSTOM RAILCAR MANUFACTURING FACILITIES



Colorado Railcar's Production Capabilities



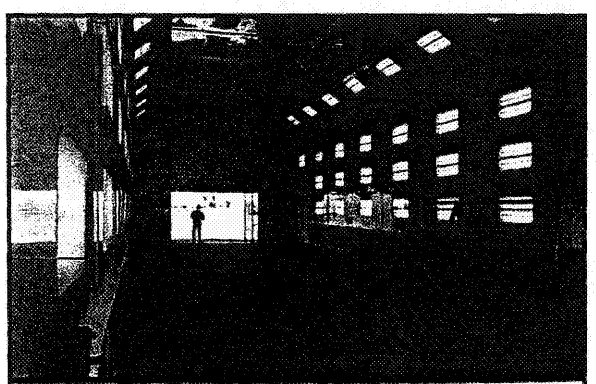
Colorado Railcar's Facility



Full Car Paint Facility

The Facility

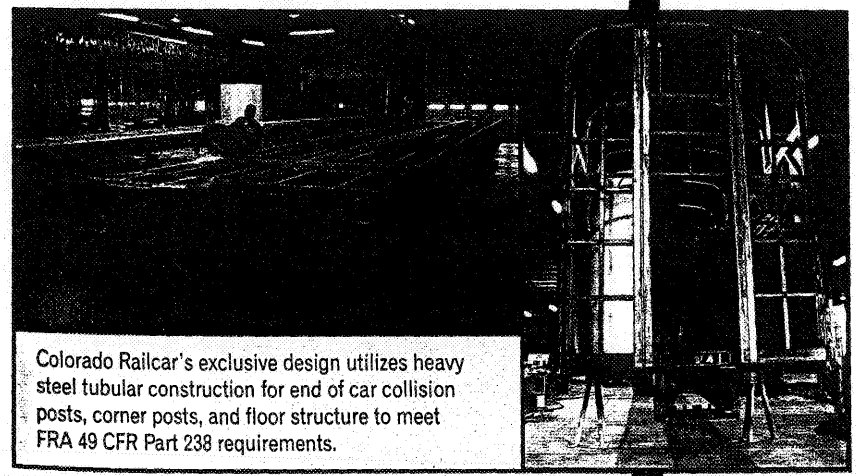
Colorado Railcar's 75,000 square foot manufacturing facility is located in Ft. Lupton, 21 miles north of Denver, Colorado. The plant is adjacent to the Union Pacific mainline and has a spur running into the facility. A new 10,000 square foot state-of-the-art full car paint facility is located on the spur.



Full Car Paint Facility Interior

Manufacturing Capabilities

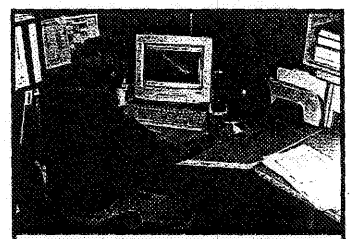
- Complete new car fabrication
- Complete frame fabrication
- Truck and brake rebuild and modification
- Head end power (HEP)
- Electrical design and fabrication
- Auxiliary diesel power generators
- Air conditioning systems
- Galley design and fabrication
- Communication systems
- Full carpentry shop
- Interior design and fabrication
- Seating fabrication
- Full car painting
- Specialists in domed glass technology and glazing
- Self-propelled DMU design build



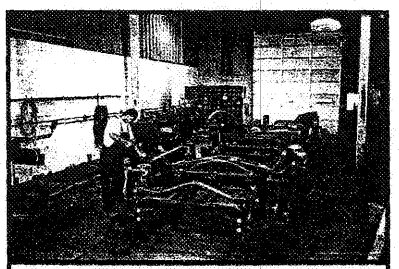
Colorado Railcar's exclusive design utilizes heavy steel tubular construction for end of car collision posts, corner posts, and floor structure to meet FRA 49 CFR Part 238 requirements.

Design and Engineering

The Colorado Railcar design and engineering department features current computer aided drafting (CAD) and design technologies and is supported by finite element analysis capabilities for structural design. These processes combine to enhance our ability to design railcars that meet the customer's requirements and to ensure compliance with regulatory agencies. We meet all current safety, fire, and federal regulatory requirements including FRA's 49 CFR Part 238 structural requirements.



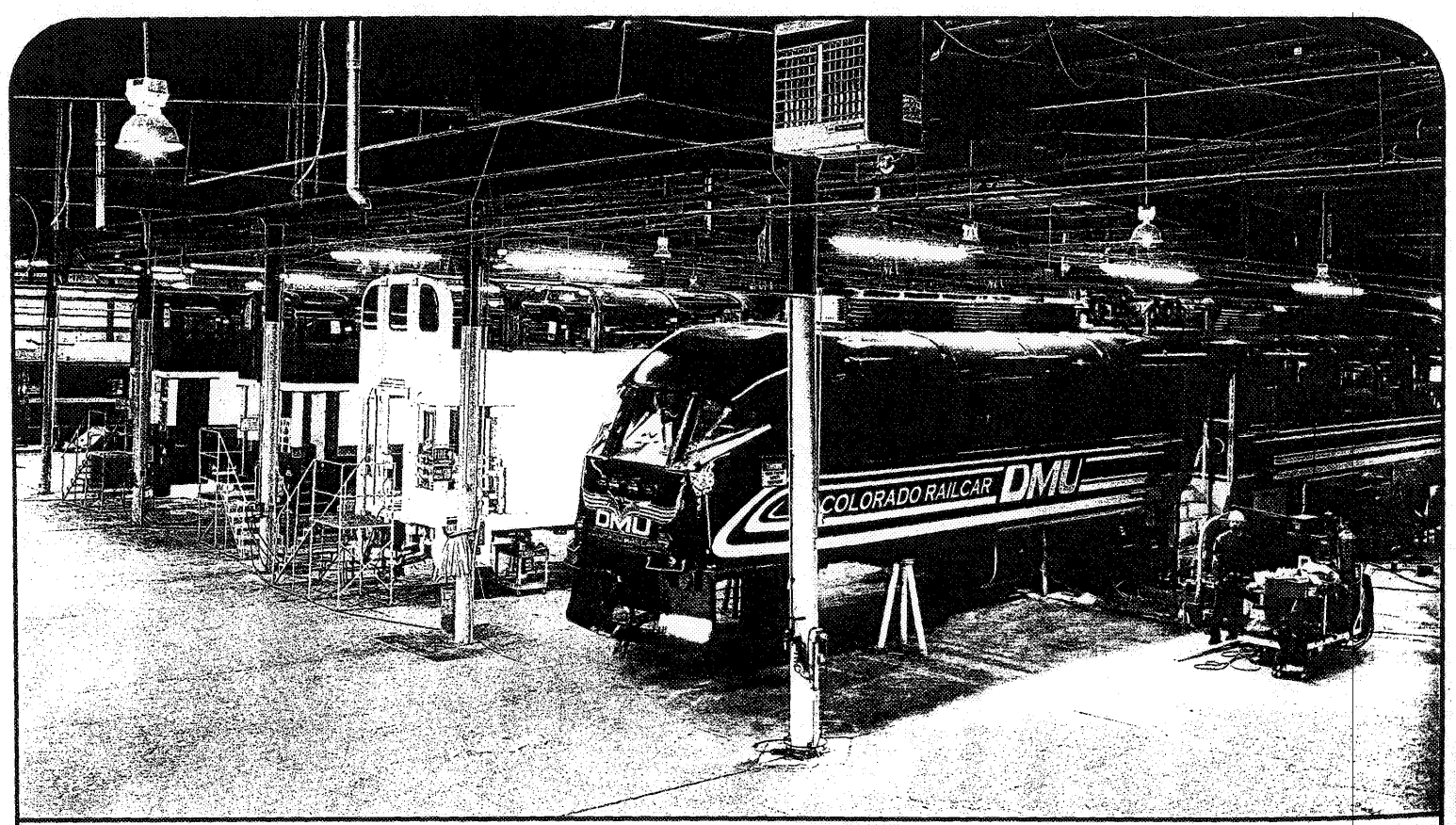
Engineerings CAD Capabilities



Truck Shop

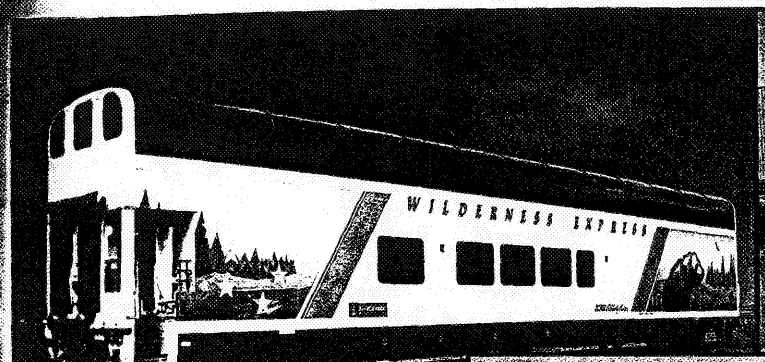
AR 13367

Colorado Railcar's Manufacturing Plant

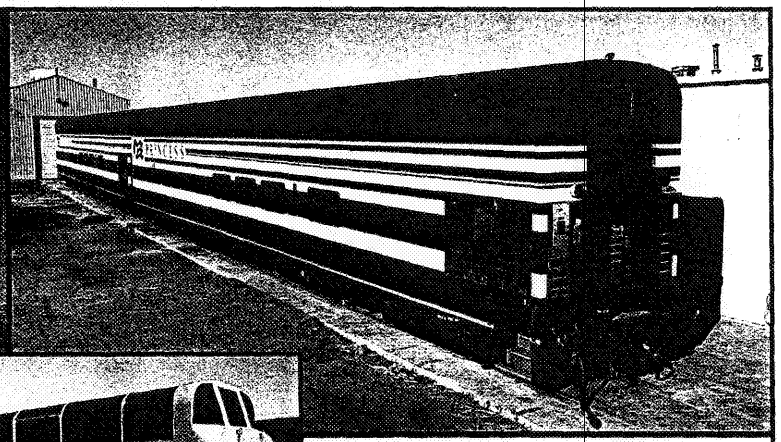


New Railcars Near Completion

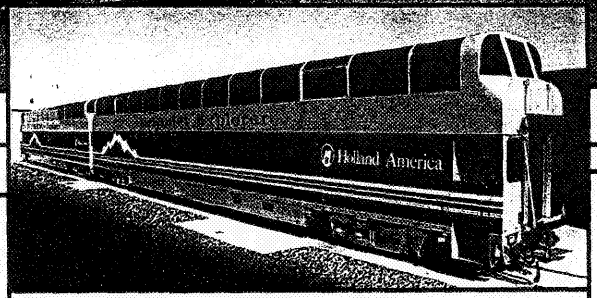
Colorado Railcar's Clientele



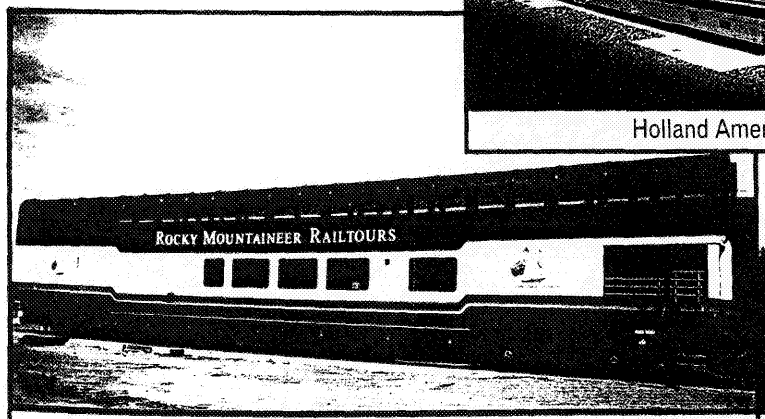
Royal Caribbean and Celebrity Cruise Lines



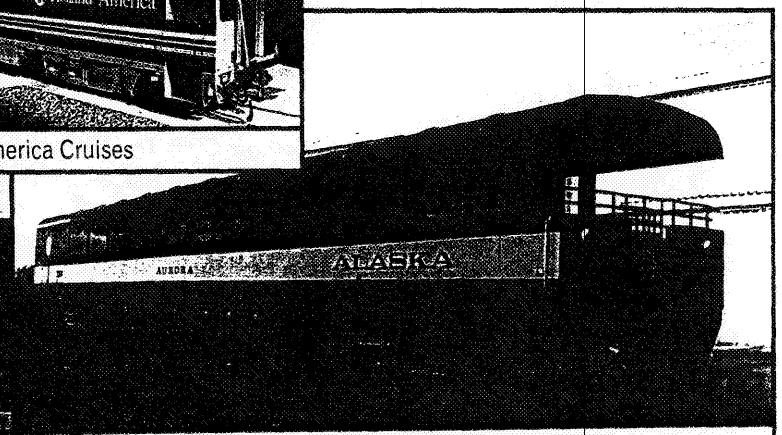
Princess Cruises and Tours



Holland America Cruises



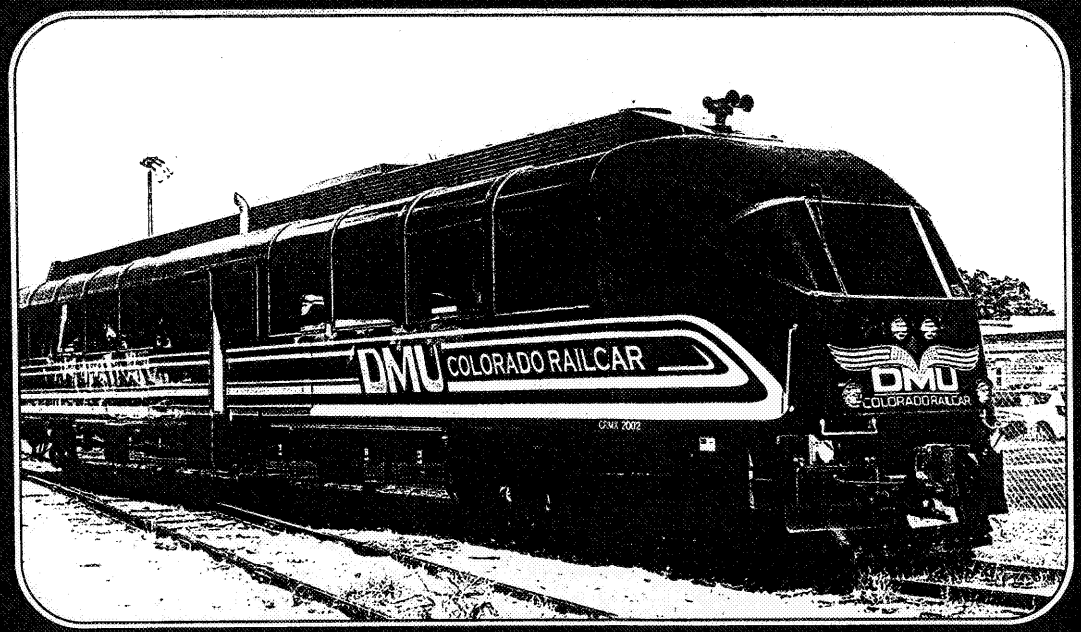
Rocky Mountaineer Railtours



Alaska Railroad

AR 13370

Colorado Railcar



For Further Information on Colorado Railcar's DMU

Contact Tom Janaky, Vice President of Sales

303-857-1066 ext 102, cell: 720-837-8749, fax: 303-857-4209

1011 14th Street • Fort Lupton, Colorado 80621

email: Sales@ColoradoRailcar.com

www.ColoradoRailcar.com

HalBear Enterprises Real Estate Consulting (916) 920-8272

2100 Northrop Ave. #500
Sacramento, CA 95825

Fax (916) 922-1471
maphalbear@speakeasy.net

03 JUL 15 AM 10:03
RECEIVED
PLANNING DEPARTMENT

July 15, 2003

El Dorado County
Planning Commission and
Board of Supervisors
C/o Ms. Heidi Tschudin
2850 Fairlane Court
Placerville, CA 95667

RE: APN #109 010 02 REQUEST FOR CONSIDERATION OF A CHANGE IN LAND USE DESIGNATION UNDER THE NEW GENERAL PLAN AND COMMETNS ON THE DRAFT GENERAL PLAN AND EIR

Dear Commissioners, Supervisors and Staff:

I represent Cambridge Square Partners ("Owners"). They own the above referenced 33.35 acre parcel located adjacent to Highway 50, Cambridge Road and Crazy Horse Road ("the Property"). They have owned the Property and sought to develop it for approximately the past 20 years. The Property is currently zoned CP-DC (Commercial Planned – Design Control). The Owners have been unable to develop the Property as a viable commercial project for a variety of reasons, not the least of which includes the fact that there is not enough demand for uses in this category at this location, as well as certain physical constraints unique to the Property.

We recognize the arduous process of revising and adopting a new General Plan for El Dorado County. To date, staff, your consultants and others have worked hard and produced a tangible result in a realistic time frame. We look forward to continued progress with the ultimate goal being adoption of a viable and defensible General Plan for the County. 274-1

We have participated in each step of the general plan process. I submitted a letter dated August 22, 2002 and gave oral testimony in connection with the Owners request that the new General Plan change the land use designation for a portion of the Property. A copy of that letter is attached hereto and incorporated herein by reference.

I have had numerous contacts with staff throughout the process. They have been attentive and quite informative. As Heidi and Peter articulated at your first hearing on the draft alternatives in June, the different versions of the plan were intended to analyze a range of alternatives and, to paraphrase their testimony, somewhat bracket the potential variations. I believe this was largely accomplished by the draft alternatives.

The "Environmentally Constrained Alternative" included the land use change we had previously requested, as it designated roughly 2/3rds of the Property as multi-family land while leaving the remainder as commercial property. This change was not analyzed in the other alternatives. I understand this reflects that bracketing process rather than any opinion or recommendation from staff concerning the land use decision. As Planning Commission moves forward and looks to make recommendations to the Board of Supervisors, I expect you will ultimately support some elements from the various alternatives as opposed to one alternative without revision or alteration. Obviously, there are some policies in the various alternatives (for example: the limitation on parcelization) that would render development economically infeasible throughout large portions of the County.

274-1

On behalf of the Cambridge Square Partners, I respectfully request that you include the change in Land Use Designation for the Property included in the "Environmentally Constrained Alternative" as a part of whichever final recommendation you make. The multi-family land in this location can partially buffer the adjacent single-family development while the remaining commercial land can take advantage of its freeway-close, freeway-visible location while the surrounding population on an appropriate scale. There will never be enough residences nearby to support 33 acres of commercial development at this location.

Thank you for your attention.

Sincerely Yours

Mark A. Perlberger

Cc: V. Mahony
D. Baesman
G. Thorne

Encl.

HalBear Enterprises Real Estate Consulting (916) 920-8272

2100 Northrop Ave. #500
Sacramento, CA 95825

Fax (916) 922-1471
maphalbear@mindspring.com

August 22, 2002

El Dorado County
Planning Commission and
Board of Supervisors
C/o Ms. Heidi Tschudin
2850 Fairlane Court
Placerville, CA 95667

RE: APN #109 010 02 REQUEST FOR CONSIDERATION OF A CHANGE IN LAND USE DESIGNATION UNDER THE NEW GENERAL PLAN

Dear Commissioners:

I have recently been retained to represent, and am writing on behalf of, Cambridge Square Partners. The partners own the above referenced 33.35 acre parcel located adjacent to Highway 50, Cambridge Road and Crazy Horse Road.

We are pleased to have this opportunity to participate in the process of revising and adopting a new General Plan for El Dorado County. As most everyone can agree, the history of this process in the County has been difficult, at best. Nonetheless, an opportunity to formulate an effective and publicly accepted plan may finally be within your grasp. Permitting opportunities for public participation such as those provided for by these workshops is a critical element in gaining acceptance from property owners and the citizens of the County for any planning document you may ultimately adopt.

The property this correspondence is primarily concerned with is currently zoned CP-DC (Commercial Planned – Design Control). The current ownership has held the property for approximately 20 years. They have been unable to develop the land as a viable commercial project for a variety of reasons, not the least of which would include the fact that there is not enough demand for such uses in this category and at this particular location, as well as certain physical constraints unique to the property.

As such, and on behalf of Cambridge Square Partners, I hereby request the County consider changing the General Plan Land Use Designation for the property to the following:

- Approximately 10.8 acres of land shall be designated for Commercial use ("C") as denoted in the approximate location of the blue crosshatching on the attached drawing.

- Approximately 20 acres of land shall be designated for Multi-Family Residential use ("MFR") in the approximate location of the green crosshatching on the attached drawing.

I believe the above pattern of uses will prove entirely appropriate for the development of the property; will be compatible with adjacent development; will be accepted by the marketplace; and will help the County meet some of its housing goals as likely to be provided for in the new General Plan.

As one might expect, at this early juncture in your consideration of such a request, the exact configuration, location and delineation of the proposed uses is subject to change. I look forward to working with staff, The Planning Commission and other interested parties as you evaluate our request in the context of your General Plan update. As always, I welcome the opportunity to provide you with any additional information you may require and look forward to meeting with you to discuss our request in the near future.

Sincerely Yours

Mark A. Perlberger

Cc: V. Mahony
G. Thorne

CAMBRIDGE SQUARE
P.O. BOX 2990
NEWPORT BEACH, CA 92658

(949) 851-0993 FAX (949) 250-8574

August 21, 2002 VIA U.S. MAIL

To Whom It May Concern:

On behalf of Cambridge Square Partners I am authorizing Mark Pearlberger of HalBear Enterprises to represent our interest in all County matters. Mr. Pearlberger has been retained by Cambridge Square Partners to process permits with El Dorado County.

Respectfully submitted,

Victor J. Mahony
Agent

/ck

cc. Victor J. Mahony
Robert J. Lucas
Peter J. Valenti

G:\CALPOUR\Cambridge\Word\L-Mark Pearlberger_Agency.doc

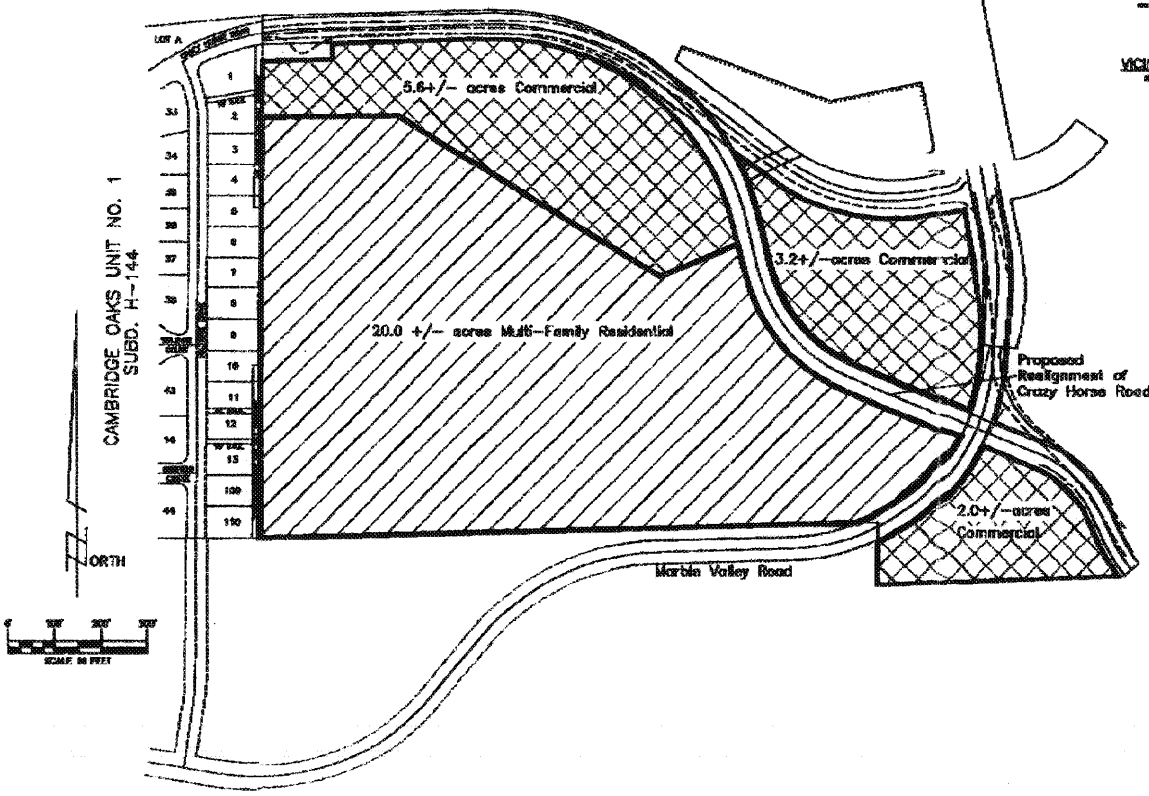
AR 13376

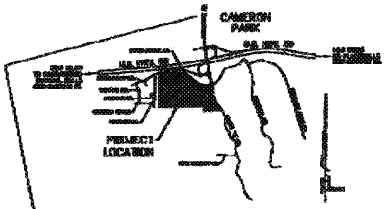
Aug. 23. 2002 6:41AM GENE THORNE & ASSOCIATES No.0188 P. 2

GENERAL PLAN INCLUSION REQUEST

CAMBRIDGE SQUARE WEST

COUNTY OF EL DORADO *** STATE OF CALIFORNIA





VICINITY MAP

OWNER OF RECORD:
CAMBRIDGE SQUARE PARTNERS
P.O. BOX 2900
NEWPORT BEACH, CA 92659
TEL: 949-851-0883 FAX: 949-250-0874

MAP PREPARED BY:
GENE E. THORNE & ASSOCIATES, INC.
3035 ALHAMBRA DRIVE, SUITE A
CAMERON PARK, CA 95682
TEL: 530-677-4747 FAX: 530-676-4206

SCALE:
1"=100'

SECTION, TOWNSHIP & RANGE:
SECTION 8, T. 9 N., R. 9 E., M.D.M.
(BEING RS 6-12)

ASSESSOR'S PARCEL NUMBER:
109-010-02

PRESENT ZONING:
CP-DC

PROPOSED ZONING:
COMMERCIAL
MULTI-FAMILY RESIDENTIAL

TOTAL AREA:
33.3± ACRES

WATER SUPPLY:
EL DORADO IRRIGATION DISTRICT

SEWAGE DISPOSAL:
EL DORADO IRRIGATION DISTRICT

PROPOSED STRUCTURAL FIRE PROTECTION:
CAMERON PARK F.P.D.

DATE:
AUGUST 22, 2002

HEFNER STARK & MAROIS LLP
LAW OFFICES
ESTABLISHED 1896

2150 RIVER PLAZA DRIVE
SUITE 450
SACRAMENTO, CA
95833-3883
TEL: (916) 925-6620
FAX (916) 925-1127

MICHAEL J. COOK
EMAIL: MCOOK@HSMLAW.COM

July 15, 2003

Via Facsimile
(530) 642-0508

Ms. Heidi Tschudin
General Plan Coordinator
County of El Dorado
330 Fair Lane
Placerville, CA 95667

RE: El Dorado Savings Bank's General Plan Comments
Assessor's Parcel No. 327-090-02± Acres located
at El Dorado Road and Highway 50

Dear Ms. Tschudin:

This firm represents El Dorado Savings Bank in connection with various matters. This letter responds to your request for comment on the proposed general plan.

El Dorado Savings Bank owns several properties at the southwest quadrant of the Highway 50/El Dorado Road interchange. Three of those parcels front on El Dorado Road. These parcels were developed over the last eight years and are home to El Dorado Savings Bank's main office. The existing office complex is comprised of approximately 26,000 square feet, with plans for an additional 16,000 square feet under development. The Bank's administration, loan processing center, computer data centers, loan servicing center, and retail banking operations are conducted at the site. There are approximately ninety (90) employees on-site, with an additional 75± employees located at 13 branches throughout the County. The Bank also owns approximately 28 acres (Assessor's Parcel No. 327-090-02) immediately west of and adjacent to the existing complex. This property, like those fronting on El Dorado Road, was purchased many years ago with the intention of accommodating future growth of the Bank and its work force. Although there are no immediate plans to develop this adjacent parcel, development is certainly possible within the life of the General Plan. 275-1

In reviewing the proposed general plan alternatives, we note that Parcel 327-090-02 is proposed for redesignation under both the Environmentally Constrained and Roadway Constrained alternatives. Under the 1996 General Plan/No Project Alternative, the 28 acres is designated for Medium Density Residential development, allowing one unit for every 1 to 5 acres. The Environmentally Constrained Alternative would redesignate the property to Low Density Residential

(1 unit per 5 acres). The Roadway Constrained Alternative proposes a redesignation to Rural Lands (RL) which would allow one unit per 10 acres with restrictions on splitting and general plan policies restricting future redesignations.

Please allow this letter to serve as El Dorado Saving Bank's objection to either a Low Density Residential or Rural Lands designation. Such designations are inconsistent with the Bank's long-term plans to remain in El Dorado County and expand at its current location and conflict with various goals and policies of the General Plan.

The General Plan alternatives define Rural Lands as follows:

> This designation allows disbursed residential development in areas of limited infrastructure and public services at a maximum of two residential units per parcel. This designation is also applied to lands that are characterized by steeptopography, high fire hazards and limited or substandard access. Although intended for applications in rural regions only, the RL designation may be applied in community regions and rural centers where RL parcels are surrounded by high density/intensity land uses (i.e., MFR, HDR, MDR, commercial, industrial, and research and development.)

The subject parcel does not meet the criteria for a Rural Lands designation. The property is not located in an area of limited infrastructure and public service. To the contrary, it is adjacent to El Dorado Road and the Highway 50 interchange and is the logical extension of El Dorado Savings Bank's fully serviced office complex. Access to the parcel is more than adequate as it is located adjacent to the interchange and can be accessed through the existing developed properties. Further, the land use map for the environmentally constrained alternative demonstrates that the parcel is completely surrounded by intense uses. To the north is Highway 50, to the east is the El Dorado Savings Bank complex, and to the south and west are high density residential and medium density residential designations. The designation makes little sense and appears to be the product of a computer program redesignating all MDR parcels above a certain size to RL without analyzing the particular parcel, its ownership, intended uses, surrounding uses, etc. For the same reasons, a Low Density Residential designation is not appropriate. 275-1

On behalf of El Dorado Savings Bank, we request that this property be redesignated to commercial/office uses. In furtherance of the request for commercial designation, we would point to the Economic Development Element of each of the alternatives. These elements are replete with references to the county's desire to promote economic development, job opportunities and the creation of additional jobs utilizing existing employers. For example, within the Roadway Constrained Alternative, at page 302, the element states:

> Over the next several years, the county will focus on building the economy from the inside out, assisting current businesses and entrepreneurs to grow and sustain success. By not utilizing the traditional business attraction methods that can create a volatile economy, the county has an opportunity to design a more attractive business environment.

A Rural Lands designation is illogical and antithetical to the economic development and job growth policies outlined above. 275-1

El Dorado Savings Bank has been an El Dorado County based institution since its inception in the 1950's. In the mid-1990's, growth forced the relocation of the Bank from its downtown Placerville headquarters. Resisting pressures to relocate to a larger, more metropolitan area, the Bank reaffirmed its commitment to the community by relocating to the El Dorado Road location with an expectation of future growth opportunities on its large property located immediately adjacent to the El Dorado Road interchange. The Bank requests a general plan designation consistent with its adjacent developed parcels, its geographic, freeway frontage location, surrounding properties, the County's Economic Development Element and El Dorado Savings' commitment to El Dorado County.

Very truly yours,

HEFNER, STARK & MAROIS, LLP

By
Michael J. Cook

MJC:js
cc: Thomas C. Meuser
George L. Cook, Sr.
k:\El Dorado Savings Bank\Security Matters (0924-001.3)\ltr tschudin 1.wpd



LAW OFFICES
ESTABLISHED 1896

MICHAEL J. COOK

2150 RIVER PLAZA DRIVE
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SACRAMENTO, CA
95833-3883
TEL (916) 925-6620
FAX (916) 925-1127

July 15, 2003

Via Facsimile
(530) 642-0508

Ms. Heidi Tschudin
General Plan Coordinator
County of El Dorado
330 Fair Lane
Placerville, CA 95667

RE: General Plan Update; Inclusion of Sierra Pacific Industries Camino Property

Dear Ms. Tschudin:

This firm has been retained by Sierra Pacific Industries in connection with your ongoing General Plan Update. Sierra Pacific Industries owns and operates a lumber milling operation within the town of Camino. Its properties straddle Carson Road from approximately the terminus of Carson Road at Highway 50 through the intersection of Carson Road and Snows Road. That portion of Sierra Pacific's property which lies between Highway 50 and Carson Road is no longer necessary to the mill operation. Sierra Pacific has been working with Carlton Engineering, Williams and Patton Architecture, this office and the community of Camino to plan for the transition of this surplus property to more productive uses. 276-1

In my letter of August 29, 2002, a copy of which is attached hereto, we requested inclusion of our proposed land uses within the general plan update. At that time, you advised us that our request may not be included within the update and would have to wait until after adoption of the general plan.

In reviewing the various general plan alternatives, it is clear that our request was not included. Though disappointing, this was consistent with the warnings you provided us last August. However, we are distressed that status-quo was not maintained as we expected. The Environmentally Constrained Alternative and the 1996 General Plan/No Project Alternatives are consistent. However, the Roadway Constrained Alternative redesignates a portion of Medium Density Residential Lands to Low Density Residential Lands and then redesignates large chunk of the property to Rural Lands (RL). The Roadway Constrained Alternative appears to designate as RL a number of parcels throughout the County that do not appear to meet the criteria set forth in the text, for reasons unclear to us. We will restrict our comments to the Sierra Pacific parcels.

A Rural Lands designation is not consistent with the historical designation of the property, our efforts over the last two years to develop a reuse plan for the property, the Camino Action Committee's expectation for the property, or the designations of the surrounding properties. We request that the Rural Lands designation be deleted and replaced with the previously existing medium density designation or the designations outlined in our August 29, 2002 inclusion request.

The property lacks all of the characteristics which the alternative identifies for rural lands. First, it is not in a rural region. It is adjacent to existing and proposed development. It is surrounded by properties designated for intense development. It enjoys excellent access both from a major roadway and from Highway 50. Services are available. The property is located immediately adjacent to Highway 50 and to Carson Road, a major two lane roadway.

276-1

Our proposed reuse of this property is consistent with numerous goals and objectives applicable to Community Regions as set forth in the various general plan alternatives, including the generation of additional housing and housing types, the provision of recreational opportunities, the provision of public spaces (e.g., parks and/or meeting rooms, community centers), the creation of employment opportunities and general economic development in Community Regions. The Rural Lands designation in this location and under the circumstances is completely inappropriate and inconsistent with a number of important policies and would eliminate any opportunity for the consensus-driven reuse plans to proceed. If the Roadway Constrained Alternative is selected, a modification to this property's designation is required.

We would be happy to provide you with additional information regarding this property if you desire. If you have any questions, please call the undersigned at (916) 925-6620.

Very truly yours,

HEFNER, STARK & MAROIS, LLP

By
Michael J. Cook

MJC:js
cc: Gary Blanc, SPI
K:\Sierra Pacific Industries\Camino Development (0781-0002)\ltr tschudin 1.wpd

EL DORADO COUNTY DRAFT GENERAL PLAN COMMENTS

Contact Info:

03 JUL 15 PM 2:28
RECEIVED
PLANNING DEPARTMENT

Howard & Mary Lou Klein
4081 Marble Mountain Road
El Dorado Hills, Ca 95762

This is a property specific comment concerning **APN 108-150-131** (Intersection of Highway 50 and Marble Valley Road)

Issue: The land use map for the Roadway Constrained Alternative shows our parcel as RL (Rural Lands).

Our parcel **APN 108-150-131** is 29+ acres and fronts on three roads, including several hundred feet of frontage on the country maintained Marble Valley Road. We have the same infrastructure as the balance of the Marble Mountain community with the exception that only our parcel fronts on a county maintained road. The topography of this parcel is gently rolling. We are surrounded by the future developments of Valley View, Bass Lake Hills, and Marble Valley, with densities ranging from several dwelling units per acre to one dwelling unit per 5 acres. The current zoning of our undivided parcel is 10 acres.

In the Land Use Map or the Draft General Plan's Roadway Constrained Alternative, this parcel has a proposed zoning of RL (Rural Lands, 10 acres). However, the proposed zoning of all but two of the other 78 parcels within the Marble Mountain community is LDR (Low Density Residential, 5 acres). The Land Use Designation Summary Table defines RL designation as 'Dispersed residential development on lands characterized by steeper topography, higher fire hazard and limited/substandard access'. 277-1

Compared to the balance of the Marble Mountain community, this parcel is the only one to front a county maintained road, is closest (1/2 mile) to the fire station, and is on gently rolling terrain. Why was subject parcel designated RL when the other community parcels were designated LDR?

Like many retirees, we find the maintenance of such a large parcel growing increasingly difficult. We wish to sell a portion of our property. Specifically, we would like provisions within the new General Plan allowing us to divide our home and 5 acres from the remainder of the parcel.

We did note that there was a discrepancy between the Roadway Constrained Land Use Map and the General Plan website parcel use APN lookup. The former designates subject property RL, and the latter designates it LDR.

Howard R Klein
Mary Lou Klein

Susan Kohler
4525 Neef Lane
Shingle Springs CA, 95683
530-677-7511

July 15, 2003

County of El Dorado
2850 Fairlane Court
Placerville, CA 95667
Fax 530-642-0508
Re: Zoning of parcel 089-110-62

Dear General Plan Team:

I own an 80-acre parcel located north of Gold Hill Road (parcel #089-110-62). My parcel is located on the Coloma Quadrangle. I have paid many thousands of dollars to the County for property tax on this parcel in the 9 years since I purchased the property. There are no homes or buildings on my parcel. The parcel currently has split zoning with 20 acres zoned for 5-acre minimum and 60 acres zoned 20-acre minimum.

I strongly object to the proposed land use under the project alternatives #2 and #3 that would zone my whole parcel as "Rural Land" (one home for 10-160 acres). I am in support of the Alternative #1 or #4 that would zone my parcel for "Low Density Residential" allowing a minimum split of 5-acre parcels. I base my objection to The "Rural Land" zoning on: 1) my parcel does not fit most of the criteria for the "Rural Land" zoning and 2) my property is surrounded on three sides by 1 to 5 acre parcels.

According to the description of "Rural Land", the zoning is appropriate for lands having limited or substandard access, limited infrastructure, limited public services, steep topography and high fire hazards. This zoning is also appropriate for lands that may have agricultural soils. 278-1

Access: My parcel has very good access. Gold Hill Road is located just 700 feet from my parcel and I have a private paved road that joins my property to Gold Hill Road. There is also a paved road on the east side of my property that comes within 200 feet of my eastern property line and a road that joins my property on the north to Thompson Hill Road. I have an unpaved road that goes through the center of my property that can easily be driven by a car when the weeds are cut down.

Public Services: My land has good public services. There is electric service on the south side of my property located about 200 feet from my property line. EID water is available on Gold Hill Road. There is also electricity about 30 feet from my eastern property line and about 150 feet from my western property line.

Fire Hazard: I do not dispute the fact that my property is located in a fire hazard area. However, all of El Dorado County's foothill area is a high fire hazard area. Subdividing my land into 5-acre parcels would greatly reduce the fire hazard risk for my land because brush, grass and dead trees would be removed during land development and home building. Also, land development will bring in more sources of water such as swimming pools and wells. My property has two wells that are about 350 feet deep that have a yield of 5 gallons per minute. Land development will also reduce the fire risk for the many home owners located adjacent to my property.

Steepness: Approximately 30 acres of my land is on very flat land having less than an 8% slope. The northern portion of my property forms a saddle in which the land is almost flat. Five acre and one acre parcels located on both sides of my property have slopes exceeding 22%.

Agriculture Land: My property is <u>not</u> considered prime agricultural land according to the U.S. Department of Agriculture.

Zoning my parcel "Rural Land" does not fit with the existing zoning of 1to 5 acres that surrounds my parcel. The west and south side of my property is currently zoned for low density residential (5-acre minimum). The east side of my property has zoning down to a one-acre minimum. I have homes on the east side of my property located less than ten feet from my property line. Because of the large volume of homes around my property I have numerous problems such as trespassing, hunting and dumping. I have even caught poachers driving off my property with a freshly killed deer. Who knows how many I have not caught. I have clearly visible no trespassing or hunting signs on the property. A large parcel of open land that is adjacent to many homes cannot be properly policed. 278-1

I strongly encourage the El Dorado County General Plan Team to consider the zoning of my parcel for Low Density Residential. If you have any questions please call me at work 916-322-2719 or home 530-677-7511. I would be happy to arrange a tour of my property to anyone on the General Plan Team. Please confirm that you have received this letter via my fax 916-445-6066 or by a separate letter to my home address.

Sincerely

Susan Kohler

Susan Kohler

MJM PROPERTIES, LLC
989 Governor Drive, Suite 101 • El Dorado Hills, CA 95762
(916) 941-1411 • (916) 941-1474 fax

03 JUL 15 PM 2:25
RECEIVED
PLANNING DEPARTMENT

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

Thank you for providing ample time to review the four General Plan Alternatives and the environmental impact report (EIR). The General Plans and the accompanying EIR is a monumental undertaking for which the General Plan Team should be commended for the preparation of these documents. 279-1

We provide our comments on behalf our projects, The Promontory, Carson Creek, and Valley View Specific Plans in El Dorado Hills. The introductions to the General Plan alternatives and the EIR acknowledge that these Specific Plans are committed land uses, adopted pursuant to the 1996 General Plan, and as such, must be processed in accordance with the 1996 General Plan.

We believe that the introductions to the General Plan alternatives and EIR need to clearly articulate that these Specific Plans will be developed pursuant to the 1996 General Plan (January 21, 1996 General Plan) and are not subject to the General Plan alternatives or EIR mitigation measures presently under consideration. 279-2

Draft Roadway Constrained Six Lane Plus Alternative

Notwithstanding that the Specific Plans are to be developed in accordance with the 1996 General Plan, it is important to note that with the respect to the County's possible adoption of this alternative, the County's would be inconsistent with the approvals of these projects. Our Specific Plans, as with the other Specific Plans and tentative maps adopted in the county, were planned and provide mitigated for an eight lane Highway 50.

Very truly yours,

The Promontory, Valley View, Carson Creek Specific Plan Developer:

MJM Properties, LLC
A California limited liability company
By: _____
Michael J. McDougall
President

LETTER 280

1487 Crooked Mile Court, Placerville, California 95667
15 July 2003

03 JUL 15 PM 12:53
RECEIVED
PLANNING DEPARTMENT

General Plan Team
El Dorado County Planning Department
2850 Fairlane Court
Placerville, California 95667

RE: Comments on proposed General Plan alternatives

Dear Team:

Thank you for the opportunity to comment upon the draft General Plans. These comments are submitted on behalf of the Maidu Group, Mother Lode Chapter, of the Sierra Club. **280-1**

INTRODUCTION

The County Planning Department has issued four "equal-weight" general plan alternatives for consideration, all with a planning horizon of 2025:

1) Alternative 1, the No Project (Writ Constrained)
2) Alternative 2, the Roadway Constrained Six-lane "Plus"
3) Alternative 3, the Environmentally Constrained
4) Alternative 4, the 1996 General Plan

Additionally, eight more alternatives, analyzed only superficially, appear in the DEIR. These are:

5) 2001 Project Description (impacts nearly the same as 1996 GP (though housing would be less dispersed—but more rural lots), and more severe than No Project). No meaningful difference in impacts from 1996 GP Alternative so dropped from "equal-weight" analysis.

6) ~~Roadway Constrained 6-Lane~~ Deemed legally infeasible (p. 6-3, volume 2, DEIR) Presumed that H-50 is expanded to 6-lanes and remains so through 2025. Would allow only 14,000-15,000 more dwelling units. Nothing beyond existing Development Agreements could be accommodated, but many legal parcels (2 DU by right). DAs might be altered, but only with agreement of the developers. **280-2**

7) Roadway Constrained 8-Lane Assumes H-50 eight lanes to Cameron Park Road, with new road between El Dorado Hills Business Park and H-50 (feasibility "unknown"), LOS standards of D for rural areas and E for Community Regions, development of all already authorized projects, and of parcels up to 1 DU. No more lot spits or new subdivisions. Preliminary modeling indicates much like No Project, so excluded from equal-weight analysis.

8) ~~Modified Development Agreements~~ Deemed legally infeasible (p. 6-3, volume 2, DEIR) Changing these Development Agreements "would remove a significant constraint on the current planning process". Authorized 11,308 units, of which 10,639 were unbuilt in 1999. (Why is more current information not available?) These were 50% of the added

development under the No Project Alternative and 33% of that under the 1996 GP Alternative.

9) Modified El Dorado Hills Development South of H-50

Assumes land-use modifications south of H-50 to increase density/intensity of land use in Business Park (nothing vested), Valley View(has a Development Agreement but is subject to traffic mitigation), Carson Creek(Development Agreement) areas. Changes in DAs depend upon agreement by developers. Envisions reorganization to a better mix that encourages walking and bicycling, includes a shuttle system.

10) New White Rock Road Connection(p. 6-23)

Improved access to primary employment center (Business Park): assumes new connection to White Rock Road S of H-50 and E of Latrobe Rd. All projected connections assume new route to H-50 and new interchange. Approval from Folsom and Sacramento County needed; in past they have been reluctant. Little effect on anything but traffic(and associated noise, air quality) in limited area of County. Would have significant visual impact in now undisturbed area. Could disperse traffic onto Folsom/Sacramento County roads and increase their congestion. May reduce traffic noise in El Dorado Hills but increase it in Sacramento/Folsom. More ground disturbance could affect biological and cultural resources.

11) Transit Emphasis

Builds on Environmentally-Constrained Alternative subject to modifications needed to bring light rail to County. Includes improved "commuter, feeder, and local bus systems; improved park-and-ride facilities; extensive nonvehicular system". Heavy rail not mentioned. Assumes development density of 7 to 15 DUs/acre over >25 square miles to make light rail economically feasible.

12) Compact Development

Based on changes in policies/land-use designations to allow more compact development with goal of walking, bicycling, transit; mixed-use; market incentives for affordable housing. Increase residential densities by decreasing minimum lot sizes. OR target specific designations to create incentives for affordable housing, e.g., increase HDR to maximum of 15 DUs/acre including a specified % of affordable housing, while restricting to no more than 200 DUs/location; at same time, reduce densities outside of CRs and RCs.

280-2

Alternatives 1 and 4 incorporate amendments made between 23 January 1996 (when the 1996 General Plan was adopted) and 19 July 1999 (when the writ was issued in response to a legal challenge to the general plan). Included in these changes were policies associated with Measure Y, the control-traffic-congestion initiative adopted by the voters in 1998; and the addition of a fifth preserve to the system of preserves to afford protection to the gabbro-soil rare plants.

Other changes reflect a planning horizon of 2025; corrections to the Land-Use maps described as "minor"; updates to Circulation maps to reflect improvements in modeling methods; a completely new Housing Element, identical in all four equal-weight alternatives; and other minor changes where text referred to dates already past.

Common to all four "equal-weight" alternatives (DEIR, p. 3-18) are the following:

- More concentration in CRs and RCs, though amount varies with the Alternative
- The roadway segments in Table 3-1 are allowed to go to LOS F but cannot exceed the V/C ratio

shown.

- Equal emphasis on nature and extent of non-car transportation. (Only (11) goes beyond this.)
- Incorporate Measure Y.
- Allow residential construction, including "granny flats", by right on vacant legal parcels.
- Planning horizon of 2025 (amount and distribution of growth projected by EPS), and for buildout
- "Existing commitments" included (i.e., DAs and other pre-writ approvals)
- Policies supporting affordable housing and enough vacant land to meet fair-share allocation through 2008
- Full development of El Dorado Hills Business Park (#9 modifies land-use policies in El Dorado Hills south of H-50)
- Assumption that casino-hotel complex will be built by 2025 and accessed by new, four-lane interchange

280-2

●●●●●●●●●●●

GENERAL COMMENTS

In 1996, baseline conditions were set forth in Volume II, Background. Though Volume II is still referred to in Alternatives 1 and 4 (e.g., p. 3 under *Custom, Culture, and Economic Stability*), it is not part of the three volumes of draft alternatives and apparently was not the focus of any updating effort. In our scoping comments (7 September 2001) we provided numerous examples of changes since this volume was compiled (ca. 1992). In our opinion, provision of accurate and current baseline information against which to compare likely effects of the various alternative general plans makes updating the document giving this information absolutely necessary.

280-3

Introductory material to each element in Alternatives 2 and 3, and, in some cases, subsections therein, may be intended to be a substitute for the needed full-scale revamping of Volume II. If so, we think it falls short of the detailed scene-setting needed for thoughtful examination of the policies and their analysis in these alternatives and the draft Environmental Impact Report.

We are pleased to see that consideration seems to have been given in some of the draft alternative plans to many suggestions we — and no doubt others — made concerning land use and community design in our 2001 scoping comments.

280-4

We are also very pleased to see that the permissive language characteristic of Alternatives 1 and 4 is almost entirely gone from Alternatives 2 and 3, and that implementation measures are present in nearly all cases. Alternatives 1 and 4, of course, continue to lack them except in the Housing and Economic Development elements.

280-5

On the other hand, standards are almost entirely lacking from Alternatives 2 and 3 and this is very troubling. *Mitigation deferred can be mitigation denied.* Please note that Planning and Zoning Law calls for standards (Government Code Sec. 65302): "The general plan shall consist of a statement of development policies and shall include a diagram or diagrams and text setting forth objectives, principles, standards, and plan proposals." There is further reference to standards in later text referring to specific elements.

The Governor's Office of Planning and Research discusses standards and gives examples in its *General Plan Guidelines* (see, e.g., p. 16):

280-6

> Standards define the abstract terms of objectives and policies with concrete specifications.

AR 13389

Examples of Standards:
·A minimally acceptable peak hour level of service for an arterial street is level of service C.
·The first floor of all new construction will be at least two feet above the base flood elevation.

Absence of standards and vague wording in the draft plans also made analysis difficult in the DEIR. For instance:

P. 5.12-92: The effectiveness of Policy 7.4.2.5 would be largely dependent upon the width of the setback, which is not stated in the policy document. The width of setbacks is also undefined by Policy 7.4.2.2 (mandatory clustering of development).

P. 5.12-105 Objective 7.4.2 also addresses protection of wetlands and riparian habitat. Policies 7.4.2. and 7.4.2.2 require the County, to the extent feasible, to identify and protect critical fish and wildlife habitat. The protection afforded sensitive habitats by these policies is not known because the County does not provide a definition of critical fish and wildlife habitat. The intent of Policy 7.4.2.5 is clear; setbacks are required from all rivers, streams, and lakes. This policy would likely protect some or all riparian and wetland habitat from direct impacts on both ministerial and discretionary development projects, but protection is not assured because the width of the minimum setbacks is not defined.

280-6

We note also that timelines associated with implementation measures are often quite long—several years, in fact. In view of the pent-up demand stemming from the writ that will be released with adoption of a new general plan, *we think it imperative that interim standards be in place until permanent ones are developed. Moreover, they should be very conservative so as not to foreclose options until the new standards are in place.* The approvals and development agreements adopted

280-7

before the writ was issued have already foreclosed many good-planning options, as demonstrated by the difficulties recounted in Chapter 6 of the DEIR, wherein two of the eight additional alternatives outlined are deemed infeasible from the start. Surely the County would not want a repetition of this condition.

280-8

Between adoption of the 1996 General Plan on January 23 and application of the writ, the Board of Supervisors approved over 14,500 more homes, forever foreclosing many options and reducing the County to the level of needing 6-8 lanes on Highway 50 to handle increasing congestion.

The graph above shows the projected population of the four "equal weight" alternatives taken from information presented in the DEIR. We think it is much more informative than the tabular form in which it is presented in the DEIR. 280-9

OVERALL PREFERENCES

The most appropriate alternative plan to pursue is not, in our opinion, found among the four "equal-weight" alternatives. According to our analysis, and the DEIR itself, not one of the four "equal-weight" alternatives will conform to state and federal air quality law and regulation. Improved air quality is expected only with Alternatives 9, 10, and 12, and acceptance of 9 and 10 by neighboring jurisdictions is iffy. 280-10

Our first choice—realizing that without elaboration of actual policies and land-use maps, this is going out on a limb--- would be basically Alternative 12 (Compact Development), already judged the environmentally superior alternative, but *with* the Important Biological Resources Corridor overlay and the Integrated Natural Resources Management Plan. We would have hoped that Alternative 12 might have been one of the four "equal-weight" alternatives. Alternative 1 would seem to be somewhat wasted effort in that when a general plan is finally adopted, the County is certain to move to lift the writ. 280-11

We anticipate that the "final" plan may pluck features from among all and, in that spirit, we here summarize our preferences relative to text of Alternatives 2 and 3, with a few comments on text from Alternatives 1 and 4, which, of course, were already commented upon in the 1996 plan's DEIR. For details, see the comment section immediately following this one. In all cases where, in comments upon the DEIR, we have indicated support for mitigation proposed therein, those measures should be presumed to be included in the features that we prefer. 280-12

AR 13391

***LAND USE**/HOUSING*

Here we prefer Alternative 12 (Compact Development) to any of the four equal-weight alternatives. It would be nice if developers with vested rights through Development Agreements would consider redesign. Only Alternative 12 appears to offer a way of turning away from past sprawling patterns of development that have led to severe problems. Only Alternative 12 offers hope of conforming with air quality law and regulations. **280-13**

Relative to Housing, we support the thrust to do more to provide affordable housing for lower income people. This element is, of course, the same in all alternatives.

TRANSPORTATION AND CIRCULATION

We oppose any road widening. With widespread agreement among transportation authorities that you can't build your way out of traffic congestion as long as a community is growing, someone has to take this radical position, realizing full well that it violates Measure Y, the fees for which go only to road improvements. We strongly feel, however, that the County *must* begin to look at other ways to solve its congestion problem and we offer some thoughts in our DEIR comments. The fact that none of the "equal-weight" alternatives offers hope of conforming to state and federal air quality law makes doing so even more urgent. **280-14**

If road widening takes place, especially of US 50, it must, in our opinion, *include measures to facilitate safe wildlife movement across it.* In fact, the barrier presented by US 50 at its present width needs this sort of attention. We discuss this at some length in our DEIR comments. The Federal Highway Administration has issued a very informative brochure on this subject, included among the references to that chapter in our comments.

Relative to Policy TC-1d, which sets standards for "worsened" traffic from residential development projects of 5 or more dwelling units, we prefer the stricter standards of Alternative 2 to the more lenient standards of Alternative 3. **280-15**

PUBLIC SERVICES AND UTILITIES

For *General Public Service*, the alternatives are identical, but there is a problem with IM PS-B, for which see more detailed discussion below. **280-16**

For *Water Supply*, there are some wording issues that leave us unable to select a preference at this time. See following discussion. **280-17**

For *Wastewater Collection and Treatment*, policies in both alternatives have serious flaws re authority to make the indicated approvals. The overriding authority of the Regional Water Quality Control Board and the Basin Plan isn't recognized. Policy directed at proper use and maintenance of septic systems would also be appropriate to forestall failure. Policy PS-4c in Alternative 2 seems very unrealistic for both financial and practical reasons (see expanded comments below) and may require adjustments to the Land-Use Map. **280-18**

For *Solid Waste Processing and Disposal Services*, the alternatives are identical, but we don't think anything offered is going to increase recycling by the average resident. We offer ideas toward that end in comments on the DEIR. **280-19**

For *Emergency and Law Enforcement Service*, the alternatives are identical. **280-20**

For *Libraries and Cultural Facilities*, the alternatives are identical. Adequate funding should be added to the concerns of the implementation measure. **280-21**

For *Schools*, the alternatives are identical. We'd like a couple of things added to policies re utilization of Development Agreements in procuring new sites and re safety of the site itself. **280-22**

AR 13392

The timeline of 5 years is too long considering the pressure for new schools associated with rapid building in the westernmost parts of the county. 280-22

For *Utilities*, the alternatives are identical. 280-23

HEALTH, SAFETY, AND NOISE:

For *Emergency Preparedness*, neither alternative conforms to statutory requirements (nor did the 1996 General Plan). 280-24

For *Fire Safety*, it's a mixed bag. We don't think Alternative 3's prohibition on building in high and very high fire hazard areas is realistic and suggest another approach (see further comments in this section). We prefer Alternative 3's prohibition on gated communities for social as well as fire-safety reasons. But we also think there are other measures that need to be taken sooner than the 3-year timeline. 280-25

For *Geologic Hazards*, we are amazed that naturally-occurring asbestos is completely absent here. Therefore, neither alternative is satisfactory (and, of course, this topic is lacking in Alternatives 1 and 4, as well). 280-26

For *Flood Hazards*, the alternatives are identical and therefore share identified shortcomings. 280-27

For *Hazardous Materials*, the alternatives again are identical and lack implementation for *managing* contaminated sites. The approach toward transport of such materials also seems deficient. But these comments apply to both alternatives. 280-28

For *Air Quality*, according to information presented in the DEIR, all four of the equal-weight alternatives would violate the Sacramento Area Regional Ozone Attainment Plan (SAROP), which the County has adopted. This could lead to sanctions and a Federal Implementation Plan targeting just the County. Moreover, even with all mitigation proposed in the DEIR relative to carbon monoxide, all of the equal-weight alternatives would also violate federal and state law. SACOG already must change its vehicle mix for use in modeling from the outdated one it has been using. The year 2005 is a crucial one, whereas all implementation measures are much further out (three to ten years post-adoption). This won't work. 280-29

For *Noise*, we prefer Alternative 3 with certain reservations. Please see our comments re including cemeteries in Public Facilities; the standard for PF allows for the noise of, say, sewage treatment plants, and that seems inappropriate for a cemetery. Also, the policy addressing Mather Field noise should include an intent not to worsen the situation for residents in one place in order to improve it for residents in another place. 280-30

CONSERVATION AND OPEN SPACE:

On the whole, we prefer Alternative 3 because of its Important Biological Resources Overlay and associated policies, and the Integrated Natural Resources Management Plan. Both alternatives, however, have some important omissions. In addition, we prefer Policy CO-2b in Alternative 2 because it disallows mineral extraction in Agricultural Lands. 280-31

AGRICULTURE AND FORESTRY:

We support Agriculture as an important part of the County's economic base and thus support the most effective protective measures to ensure its continuance. The base land-use designation "A" of Alternative 3 is, we are told, more protective than the overlay district ("-A") of Alternative 2, so we would support Alternative 3, which is also more protective of grazing lands. 280-32

Relative to Forestry, we would urge the County to consider adopting its own regulations addressing private forestry (as discussed in our DEIR comments, p. 5.2-5). This could solve the 280-33

existing problem that timber harvesting activities can be carried on in all land-use designations. 280-33

PARKS AND RECREATION:

Prefer Alternative 3, which includes the County's trail system while Alternative 2 does not. However, neither includes the old Southern Pacific Railroad Corridor, and both should. A requirement for top- and side-shielded lighting for sportsfields should be added. Several policies are also in need of implementation. Wording in one policy causes us concern over the possibility of too much public access to water features. We also suggest an added policy here or elsewhere re use of Development Agreements to obtain public benefits from developers (in this case, connections to the trail system and park lands). 280-34

ECONOMIC DEVELOPMENT:

We support the thrust to get away from offering subsidies to attract business to relocate in the County and instead focus on supporting local business. We think there may be an error in wording, for which see below, where we also offer a suggestion for improvement. 280-35

COMMENTS ON POLICIES IN SPECIFIC ELEMENTS

Our comments will focus on Alternatives 2 and 3, although there are a few comments on Alternatives 1 and 4. Except for changes, provisions of these were, of course, covered during evolution of the 1996 General Plan.

Land Use Element

We approve the emphasis on mixed use in both primarily residential and primarily commercial districts. This also strengthens provision for affordable housing. And we like the provision for strengthening measures to reduce light and glare (LU-A). 280-36

We especially support the Important Biological Corridor Overlay and the Integrated Natural Resources Management Plan of Alternative 3, as well as the more protective land-use designation "A" found therein. 280-37

Relative to the important concept of separation of communities, Alternative 3 seems superior to Alternative 2 for El Dorado/Diamond Springs, but inferior to Alternative 2 for Cameron Park/El Dorado Hills. 280-38

We think the unlikelihood of a public sewer system to serve Georgetown and Camino/Pollock Pines (see our DEIR comments, as well as below under Public Services) may necessitate rethinking designation as Community Regions. 280-39

We very much support GOAL LU-3 and its policies, identical in both alternatives, though "consider" is not a strong word and standards are lacking. However, relative to LU-3b(A), open space and recreation are not necessarily identical in function. We'd oppose allowing a golf course to qualify as open space; it has little habitat value. Does "clustered" in LU-3b(B) apply also to lots? Bicycling seems to have been omitted from LU-3e. 280-40

AR 13394

There are inherent conflicts in the way the Open Space and Natural Resource land-use designations are defined. We discuss this more in DEIR comments under Biological Resources, where we suggest a way of resolving the conflict by a subsidiary designation that separates the actual purposes. Attempting to provide development standards that both "facilitate resource-based activities and conserve important natural resources" (p. 27 in Alternative 2 and 29 in Alternative 3) is one place where this conflict surfaces. E.g., surface mining activity and habitat value are not compatible activities. 280-41

Re Policy 2.1.4.4 in Alternatives 1 and 4, as we said in commenting upon this at the time, "low intensity" continues a misconception originating with a planning commissioner who confused *direction* with *intensity* of illumination. To protect from stray light, proper *shielding* is needed. Intensity of illumination can be anything desired, but more intensity than is needed is wasteful of energy. 280-42

Cemeteries were entirely omitted from any land-use designation in Alternatives 1 and 4. In Alternatives 2 and 3, they are included under Public Facilities. However, because of the provisions under Noise, they would be exposed to the same allowable noise levels as, for instance, a sewage treatment plant, which we think inappropriate. The provisions in Noise could be changed, cemeteries could be treated as something other than Public Facility, or sewage treatment plants could receive some other designation. As it stands, this appears to be an incompatibility 280-43

We support eliminating inconsistencies between TRPA's regulations for the Tahoe Basin and any on the County's part and thus simplifying the regulatory environment. This pertains to Goal LU-5 and its policies. 280-44

Goal LU-6 and its policies address Scenic Corridors in the County. We endorse this concept, especially the proposed protection of ridgelines and restrictions on signs, and, of course, the thrust to address light pollution. Policy LU-6d differs in wording between Alternatives 2 and 3 ("should" v. "shall") and we wonder whether that was intentional. We'll go with "shall". <u>There is nothing here that says how a Scenic Corridor is designated.</u> 280-45

Goal LU-7 addresses provision of standards in reviewing proposals for zone change or general plan amendment yielding a higher density, but fails actually to provide any. Interim standards should be provided, in accordance with prior comments. 280-46

Under Implementation Measure <u>LU-A</u> (note that the wording doesn't say actually to follow through on revising the ordinance), <u>we prefer the amplified wording in Alternative 3 for bullet 6. Measure LU-J and LU-K need some provision for acting, as needed, upon the information collected by monitoring activities.</u> 280-47

Transportation and Circulation

All four equal-weight alternatives according to the DEIR result in violation of state and federal air quality law even with all proposed mitigation. The "significant and unavoidable impacts" found cannot be negated by findings of overriding considerations and have serious consequences for the entire metropolitan region. 280-48

The draft general plan alternatives propose expansion of US 50 from the present four lanes as follows (each also proposes road improvements elsewhere throughout the county): 280-49

AR 13395

Alternative 1: to eight lanes and unlimited future expansion
Alternative 2: to six lanes east to Ponderosa Road(one additional HOV lane in each direction)
Alternative 3: to eight lanes west of Cameron Park Drive and six lanes east to Ponderosa Road(one additional HOV lane in each direction)
Alternative 4: to eight lanes and unlimited future expansion

Additionally, Alternatives 2 and 3 differ as follows from the others and between themselves:
Both Alternatives 2 and 3 require that new roadway capacity be provided *concurrently* with development.
Alternative 2 defines *cumulative demand* as existing plus project plus ministerial development
Alternative 3 defines *cumulative demand* as only existing demand plus the project. (Note that using this definition to assess cumulative impact violates CEQA.)
Here we prefer Alternative 2.

280-49

Transportation authorities have been questioning the tack of building one's way out of traffic congestion since at least the 1960s. The 1993 California Transportation Plan recognized that "We can no longer build our way out of gridlock." Further, it said, "Environmental and societal considerations such as meeting air quality, energy efficiency and accessibility goals, are helping to direct the transportation program of the future. Protecting wildlife habitat, wetlands, and ensuring water
quality standards must be part of any future transportation system."

Caltrans admits that its projected improvements through Placerville will alleviate conditions for only a short time at a cost of several millions of dollars.

Mindful of all this, we do *not* support widening roads in the County to alleviate traffic congestion. Funding to do so appears very dubious at best (Matt Boyer's analysis of 9 April 2003 for the Supervisors); the County certainly can't afford the cost by itself. If the County is simultaneously out of compliance with the Clean Air Act, the dubiousness will be heightened.

280-50

Currently under development with extensive public involvement (54 focus groups, 3,200 telephone surveys, 24 workshops, comment cards, a brochure and questionnaire distributed in four languages, and a website) is a revised California Transportation Plan for 2025. A Policy Advisory Committee comprising academia, regional transportation planning agencies, cities, counties, state agencies, and advocacy groups provided guidance. The working draft resulting from all this work was issued in June 2003. This draft:

· continues to recognize the importance of tourism (p. 16), the state's third largest industry — and the driving economic engine of El Dorado County. Worsening congestion has negative implications for the County.

· continues to recognize the interplay between land use and transportation(p. 17), saying, "The way communities are planned and designed has a profound impact on our travel behavior." Specifically mentioned are "single-use zoning ordinances isolating employment, shopping and services, and housing locations", and "low-density growth planning resulting in considerable land consumption and sprawl-type urban form, requiring higher infrastructure investments due to distances served."

Some of the negatives mentioned (p. 17) are increased traffic congestion and commute times,

air pollution, dependence on fossil fuels, loss of habitat and open spaces, loss of sense of community, usual omission of provision for safe bicycle and pedestrian travel, difficulty in provision of transit services, location of destinations remote from residences.

Other negative influences operating include the "fiscalization of land use", lack of affordable housing (related in party t o cost to serve v. property tax revenues generated), and competition for "big box" mall development (especially for high-priced merchandise like cars and major appliances).

Typical environmental impacts associated with transportation (p. 19) are degraded air and water quality; destruction of vegetation (directly and indirectly—through weed control); degraded, fragmented, and destroyed wildlife habitat; lost open space, wetlands, and agricultural land; noise; degraded visual quality; use of fossil fuels; and emissions that contribute to global warming and the potential adverse impacts thereof. "Solutions must be found to avoid sensitive habitat, reconnect fragmented habitat, and to provide passage for wildlife to help ensure the state's biodiversity" (p. 20).

In view of all the negatives associated with expanding highways, we *oppose* any further widening of US 50. Rather than continuing to throw good money after bad, we should begin to turn the tide by investing in measures that counter the bad development practices of the past. 280-50

Policy 3.2.1.5 in Alternatives 1 and 4 is completely new; "this initiative" referred to therein should be identified. 280-51

Goal TC-0 in Alternative 2 is a closer approach to no widening than otherwise. It is absent from Alternative 3. 280-52

Standards for "worsened" traffic from residential development projects of 5 or more units are more stringent in Alternative 2 (Policy TC-1i) than in Alternative 3; we prefer the former here. 280-53

Policy TC-1i differs in that in Alternative 3, compliance is based on existing traffic plus project-generated traffic, while in Alternative 2 it is based on existing traffic, project-generated traffic, and latent demand from all approved projects and all ministerial projects. We prefer Alternative 2 here. (Alternative 3 simply isn't realistic.) We also support **Policy TC-1j**, unique to Alternative 2, requiring that the facilities in Policy TC-1i be complete and open to traffic before issuance of use and occupancy permits. 280-54

We are especially glad to see policies TC-1q (in Alternative 2) and TC-1p (in Alternative 3), if followed by appropriate standards: "The County shall encourage street designs for interior streets within new subdivisions that minimize the intrusion of through traffic on pedestrians and residential uses while providing efficient connections between neighborhoods and communities." 280-55

Policies TC-1r (Alternative 2) and TC-1q (Alternative 3), again with appropriate follow-through, are also very meritorious. 280-56

Goal TC-3, the same in both alternatives, because of three "piled up nouns" is a bit unclear at to meaning. Is it to reduce the amount of investment in new/expanded facilities related to travel demand? The associated policy, TC-3a, should mention federal and state standards and regulations, not just those of the Air Quality Management District. 280-57

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Policy TC-5c, the same in both alternatives, doesn't specify whether this applies generally or just in new development. We'd favor a provision calling for progressive retrofitting. 280-58

Concerning Rail Transportation (pp. 62 and 64, respectively, for Alternatives 2 and 3), we'd like to see inclusion of a policy that supports preservation of the SPRR corridor in the hope that it might halt some of the degradation in which County departments have played a role. 280-59

A number of policies in both alternatives lack implementation. Some policies are directional in nature and merely need to be incorporated into the review process, but some would seem to require implementation of some sort. For example, Policy TC-1q ("encourage" street design to minimize traffic intrusion), TC-1u (identify needed future road rights of way), TC-3c ("encourage" inclusion of facilities encouraging alternative modes of transportation). Such features might fit into the proposal we made in scoping comments to consider the system of points for desirable features in development proposals, with a minimum number of points needed for any consideration at all (scoping comments, p. 4). 280-60

Measures TC-D, TC-K , and TC-N, the same in both alternatives, are of concern. Case law says that you can't just identify a problem and than ask other agencies for the money to cure it. That is uncertain mitigation. 280-61

Measure TC-F, also the same in both alternatives, should go beyond monitoring to specifying some course of action if LOS is found to be unacceptable. 280-62

Measure TC-G needs a definition of "urban". 280-63

There is an opportunity in this element for recommendations for transportation routes and design requirements relative to human safety and fire protection, such as turn-outs, safety zones, helispots, but none of the alternatives include these. 280-64

Housing

We appreciate the attention in both alternative to provision of affordable housing. 280-65

Public Services and Utilities

GENERAL PUBLIC SERVICE POLICIES

This series of policies (PS-1) is identical in both alternatives. Implementation Measure PS-B has problems. It calls only for reviewing, not revising, County code. ("Revising" is relegated to implementation; we think it should be policy). Again, a 5-year timeline is too long to cope with pent-up demand. Conservative interim standards are needed (e.g., under "C"). 280-66

WATER SUPPLY

Except for Policy PS-3b, policies are the same in both alternatives. Wording in Measure PS-C differs in that Alternative 2 starts with "Work with Water Agency and water service providers to develop..." and continues identically. Other IMs, PS-D, -E, -F, and -G are identical. We suspect omission of this wording in Alternative 3 is an error as the County lacks authority to impose some 280-67

AR 13398

of the listed features.

Provision for an annual evaluation of water supply, added to County code after passage by the voters, is nowhere mentioned. We think it should be.

Re Policy PS-2a, we disagree that reclaimed water is correctly termed "new surface water supply". Reclaimed water is not usable for all the same purposes that potable water is usable for. Also, the amount of reclaimed water that is available depends upon the amount of potable water that is used and available for treatment. It would be a mistake in drought conditions to forget that.

We don't see how Policies PS-2d and -2e can be carried out in the absence of a new well ordinance that, among other things, systematically collects data. Please see our comments on this topic in our DEIR comments. The County has all the data accumulated by required reporting to the State Department of Water Resources, as well as the data it has been accumulating since 1990 (both per the DEIR for the 1996 general plan). These sources are augmented by the "experience" cited in that same volume. Thus, why put off any longer (as do the proposed policy and implementation) making use of those data and that experience, which could quantify changes in groundwater supply with development pressures, its general areal availability in quantity and quality?

Wording of Policy PS-3b is troubling. In Alternative 2 it starts, "The County shall encourage the reclamation and reuse of wastewater." In Alternative 3 it starts, "The County shall identify the types of projects that must utilize reclaimed water." Although we think golf courses should be *required* to use reclaimed water (and their siting be subject to availability thereof), we think "must" is less appropriate than something like "for which use of reclaimed water is appropriate". IM PS-D reflects this same situation. Perhaps it would help to know the thinking behind this provision.

The second sentence in both alternatives is confusing and seems to say something we hope wasn't intended, namely that cross-connections are wanted but must be protected. The problem may be piled-up nouns. As an engineer with the Drinking Water Division of the state Department of Health Services confirmed for us, state code allows *no* cross-connections, protected or not, between potable and nonpotable systems. The second sentence probably isn't needed at all; if kept, it should be much more clearly worded.

WASTEWATER COLLECTION AND TREATMENT

Of concern relative to both alternatives is the failure to acknowledge the overriding authority of the Regional Water Quality Control Board. The County does not always have the delegated authority to make the approvals implicit in the PS-4 series of policies. Nor is it apparent, relative to Policy PS-4e (in Alternative 2) and -4d (Alternative 3) how a community system would function if "the geology is not conducive to constructing individual sewage disposal systems...".

Policy PS-4b in Alternative 2 is omitted from Alternative 3, but has found its way into Alternatives 1 and 4 as Policy 5.3.1.1 (and seems to go beyond the changes mentioned in the beginning of the volume dealing with Alternatives 1 and 4). It deals with provision of sewage collection services in Georgetown, and in Camino and Pollock Pines. Georgetown Divide Public Utilities District and El Dorado Irrigation District would be the respective candidate providers of such services. GDPUD has no sewage treatment plant (although it has oversight responsibility for the onsite collective septic system at Auburn Lake Trails; by Regional Water Quality Control Board rules, such systems

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AR 13399

must have a qualifying public oversight body because of the number of connections served). EID now operates a small treatment plant at Camino Heights that serves about 100 connections in a subdivision dating from the 1970s and disposes of treated effluent in spray fields. EID's present primary collection and treatment system (the Deer Creek and El Dorado Hills WWTPs) was built with the help of federal money many years ago.

This proposed policy is quite unrealistic. Treatment plants are quite expensive. It is unlikely that development in either area (Georgetown Divide or Camino/Pollock Pines) would supply enough money to make this proposal possible. Moreover, disposal of effluent would be a problem because discharges of treated effluent into the American River or a tributary thereto is forbidden. If land use proposals in any way depend upon this proposal, they should be rethought, as well. 280-73

Implementation (PS-H in both alternatives) implements flawed Policies PS-4a and -4d. We'll need to reserve judgment pending rewording.

New policy directed at proper use and maintenance of on-site septic systems would be appropriate in view of the severe geologic conditions in the county, past failures of such systems (the impetus for building the sewage treatment plants), and the presence of numerous substandard systems. Better to forestall failure than to cope with inadequate funds to address a problem once it surfaces. 280-74

SOLID WASTE PROCESSING AND DISPOSAL POLICIES

Policies and implementation (part of PS-B(B) in both; PS-J in Alternative 2 and PS-I in Alternative 3, relative to construction waste with a timeline of 5 years) are the same. See above for problems with wording of PS-B. We are very glad to see Policy PS-6c addressing recycling of construction waste, but with the very active construction industry, "time's a'wasting" and 5 years is a long time to wait. How long does the County have to achieve the mandatory level of 50% recycling by 2000? The proposed policies unfortunately do nothing to increase recycling by the average homeowner. We'd like to see some retrograde application of Policy PS-6b, as well as intent to extend the area of mandatory garbage collection and to tighten contracts with franchisees to facilitate more recycling. 280-75

EMERGENCY AND LAW ENFORCEMENT SERVICE

Policies and implementation (PS-K and PS-L in Alternative 2, and PS-J and PS-K in Alternative 3) are identical. Policy PS-7c is implemented by PS-B(C). The timeline for PS-K and PS-J is 3 to 7 years—far too long. For PS-B(C) it is five years. Both are too long in view of pent-up demand that will be unleashed upon adoption of a general plan. Wording of PS-B is faulty in other respects (see above). 280-76

Policy 5.7.3.1 in the 1996 plan, which required review of new development by the Sheriff to assess ability to serve, has been dropped, leaving Objective 5.7.3 without any policy. Surely this is in error? 280-77

In accordance with our DEIR comments relative to the influence of project design upon the occurrence of crime, we'd like to see some incorporation of this approach in PS-L in Alternative 2 and PS-K in Alternative 3. Please note, however, that Policy PS-7b already sets a staffing standard for law enforcement (and we note with approval that it is an improvement over the 0.89 sworn officers per 1000 residents of the 1996 plan), while IM PS-J/K includes developing 280-78

standards for staffing ratios (though applicability of the latter is broader than in the policy). Re Policy PS-7c, it is unclear how a will-serve letter would answer questions of water storage, access for emergency vehicles, and the like. 280-78

LIBRARY AND CULTURAL FACILITIES

Policies and implementation (PS-M in Alternative 2 and PS-L in Alternative 3) are identical. In view of present inadequacy of library space, we'd like to see adequate funding added to the concerns of the implementation measure. Policy PS-8b in both alternatives lacks implementation so it is unclear how the County shall support the El Dorado Arts Council. Also, with the several other entities providing cultural and arts activities, should expression of support for cultural activities be limited exclusively to the Arts Council? 280-79

SCHOOL FACILITIES

Policies and implementation (PS-N in Alternative 2 and PS-M in Alternative 3) are identical and, per the introductory material, cover public schools, County Office of Education, child care, private schooling and home schooling, and post-high school education. The 5-year timeline for implementation is too long, especially for the following two aspects of siting schools. Building in the El Dorado Hills area, in particular, is proceeding at such a pace as to be now increasing pressure for new schools. 280-80

We would like to see a policy directed at more aggressive use by the County of Development Agreements to extract land set-asides for school purposes. Land values inflate as a result of County approval of development projects and we see no reason why school districts should pay inflated prices for school sites in consequence. 280-81

We'd also like to see safety of the site itself added to Policy PS-9c in view of asbestos-contamination of the Oak Ridge High School campus and rumors of the same at a new site under development in the Rescue School District. 280-82

UTILITY SERVICES

Policies and implementation are identical in both Alternative 2 and Alternative 3. Electricity, natural gas, and communication "facilities" are covered, according to introductory material. Neither policy nor implementation (PS-N) offers a clue as to whether communication towers are included, but, if not, they should be. We had a number of suggestions relative to them in comments on the DEIR, which please see. 280-83

Health, Safety, and Noise Element:

EMERGENCY PREPAREDNESS AND PLANNING POLICIES

The goal and policies under this heading are identical in Alternatives 2 and 3. As was the case with the 1996 General Plan, we must fault reliance on the existing Multi-Hazard Functional Emergency Operations Plan (MHFP) to provide the guidance listed in the last paragraph of the introductory material. It is entirely a who-does-what plan that fails, e.g., to establish evacuation routes during an emergency, or to provide other information required in Planning and Zoning 280-84

AR 13401

Law Sec. 65302(g). Implementation Measure HS-A does nothing to remedy this deficiency. 280-84

FIRE SAFETY

The two alternatives have some policy differences. In Alternative 2, Policy HS-2c "discourages" development in areas of high and very high fire hazard, while Alternative 3's Policy HS-2c "precludes" it. While we might prefer the latter, nearly the entire west slope lies in one or the other hazard classification, leading us to conclude that "preclusion" is unrealistic. Moreover, in densely settled areas such as El Dorado Hills, served by piped water and with fire hydrants and a well-staffed and equipped fire department, the actual hazard is probably not as high as indicated by fuel rankings. We would suggest as an alternative that consideration be given to some of the issues we discussed in comments on the DEIR for the more rural areas designated high or very high hazard — special building requirements and materials, assurance through monitoring building permits that stored water is on-site, and the like. 280-85

Another policy difference is that Alternative 2 calls for the County to "discourage" new gated subdivisions (Policy HS-2e), while Alternative 3 "prohibits" them. Here we support Alternative 3 for social reasons as much as for fire safety reasons. 280-86

There is no mention here in policy of the use of Open Space designation for reduction of fire hazard (Policy CO-11b(D) does mention that purpose). This seems to be an internal inconsistency. The closest approach is Policy HS-3b, which pertains only to fuel-management activities. Might also serve to protect deer herds, but that analysis wasn't done in the DEIR. 280-87

IM HS-B arguably could include enforcement of stored water provision and development of standards for using fire-resistant building techniques and materials, but HS-B has timeline of 3 years. It also
could include zoning key ridges for fuel breaks under "opportunities for fire fuel reduction". 280-88

GEOLOGIC HAZARDS

Policies and implementation are identical in both alternatives. It is absolutely amazing that naturally-occurring asbestos isn't mentioned here or anywhere else in either alternative! And of course it doesn't appear in either Alternatives 1 or 4. This is a serious oversight that we trust will be remedied with suggestions for mitigation from the DEIR, as well as our comments thereon. 280-89

Hazards seem to be addressed through Implementation Measure HS-C, which calls for developing a program to develop information but has a 5-year timeline. Nothing is said about use of the Open-Space program to set aside hazardous areas with OS zoning. Because of the lack of standards, effectiveness of review of development applications in mitigating hazardous conditions is unknown. Again, interim standards are needed because of the length of the implementation timeline. 280-90

Moreover, wording in Policy HS-4b is such that hazards presented by abandoned mines aren't addressed at all, despite our calling attention to them in scoping comments and despite the recent collapse of an old shaft under a building in Placerville. 280-91

Policies in Alternatives 1 and 4 were found wanting in certain respects by the court, so they, too, are unsatisfactory. 280-92

FLOOD HAZARDS (INCLUDING DAM FAILURE)

Policies and implementation are identical in both Alternatives 2 and 3. Both continue to depend upon the outdated "100-year floodplain" as "the basic planning criterion", as well as outdated FEMA maps. (This was true also of Alternatives 1 and 4, but it is now six years later and we should move forward. 280-93

Relative to dam failure, both alternatives continue to omit Finnon Lake Dam and Silver Lake Dam, despite the fact that the latter's considerable waters, in event of dam failure, would course mostly through El Dorado County. (They also continue to identify PG&E as the owner of Echo Lake Dam and Caples Lake Dam, whereas it has been EID for some time now.) Appendix A, Dam Failure Inundation Zone maps, also fails to include Silver Lake Dam. These omissions were pointed out in1994-1995 comments on the 1996 general plan DEIR. Presumably, as the same errors are found here, all the intervening years Planning has not been considering this hazard in reviewing development projects? 280-94

Neither alternative mentions state non-jurisdictional dams—or federal dams, also non-jurisdictional. In at least one instance, a county-jurisdictional dam came close enough to overflowing to bring out fire department crews. These dams apparently are overseen by DOT. We'd like to see acknowledgment of this in policy setting forth what oversight policy consists of. 280-95

Neither is there anything here relative to Flooding that would alleviate conditions contributing to flooding, such as measures to reduce urban runoff, as discussed in the DEIR and in our comments thereon. 280-96

HAZARDOUS MATERIALS

Policies and implementation are the same in Alternatives 2 and 3. Policy HS-7a provides for identifying *and managing* contaminated sites to protect public health and environmental quality, but Measure HS-G, which supposedly implements it, concerns itself solely with information collection. Thus the *management* aspect lacks implementation, even as to whether it is the owner's or the County's responsibility to do that management. It also lacks standards and provision for their development, together with, should the owner be held responsible for cleanup of the site, some timeline for doing so. Measure HS-F implies that the County has no general authority over transport of hazardous materials other than with respect to County-operated facilities. (This is the only IM where transport is mentioned.) Surely that isn't the case? 280-97

AIR QUALITY

Policies and implementation are identical in both alternatives. All equal-weight alternatives fail to demonstrate compliance with state and federal law. Not even here, re fugitive dust, is there mention of naturally-occurring asbestos. The County badly needs to get ahead of the air-quality issue. There should at least be mention of the County's adoption of the State Implementation Plan for ozone and intent to fulfill its obligations thereunder. Policy HS-8d, to "identify and reserve the necessary right-of-way" for light rail to El Dorado Hills, lacks any implementation. Although there are critical conformity deadlines to be met, what implementation programs there are have timelines ranging from three to ten years, far beyond the critical deadlines. 280-98 280-99

AR 13403

AIRPORT SAFETY

Text and policies are identical in the two alternatives. 280-100

NOISE

Policies and implementation are identical in the two alternatives. There are some differences in Tables HS-1, -2, -3, and -4, relative to both land-use designations and maximum allowable noise exposure figures. Alternative 3 is more protective in its standards, and we thus prefer it to Alternative 2. However, as we've said in DEIR comments, we don't think cemeteries should be lumped in Public Facilities if it means being subjected to the same noise levels as, say, sewage treatment plants. We are pleased to see that, overall, the standards are slightly more protective than those in Alternatives 1 and 4, though the threshold of significance for a change in measured decibels appears to have been increased from 3 to 5, a change that should be justified. 280-101

The noise contours along major highways are for the supposed maximum 60 dBA line, whereas we presented authoritative sources in DEIR comments for a lower allowable level, which would move theses lines farther away. It is unclear whether the lines shown are for the present configuration of lanes or the anticipated future configuration. 280-102

We think there should be a proviso relative to Policy HS-14e that in no case should the County agree to any change that would worsen the existing situation for residents anywhere in the county (i.e., don't "fix" it for El Dorado Hills by moving the flight paths south of US 50 to bother fewer people). 280-103

Conservation and Open Space

SOIL RESOURCES

We prefer Policy CO-1c in Alternative 3, where grading activities are "precluded" during the rainy season "unless impacts are adequately mitigated, to avoid sedimentation...." In Alternative 2 they are merely discouraged and there is no reference to adequate mitigation. (However, we think the latter would violate law.) 280-104

Absent from either alternative is a volume threshold for needing a grading permit. If this is to await implementation, there needs to be an interim standard. It should at least be small enough to include ministerial projects such as the single residence. Please see our comments in the DEIR on this subject. We feel strongly that the present threshold (in the Grading, Erosion, and Sediment Control ordinance) of 250 cu yds is too high, especially for areas where naturally-occurring asbestos may be present—and even more so where the asbestos is tremolite. 280-105

Applicant-funded monitoring of erosion-control measures was in the July 2002 draft policies but now appears in Implementation Measure CO-A in both alternatives. We would support this in the hope that it would improve the County's record of enforcement (see our comments on the DEIR). There is a problem with CO-A, however. Although it says to review "County code to identify revisions....", it fails to say actually to make changes in County code. 280-106

AR 13404

Policy CO-1d in Alternative 3 conditionally allows disturbance of slopes of 30% or more. We would prefer that such disturbance be prohibited, either within or without the -IBC. The apparent loosening of allowable standards for development on slopes of 30% or more is of great concern. Doing so should affect buildability of numerous parcels. Has this been taken into consideration in calculating anticipated ministerial building in the several plans? 280-107

Whether or not this view is accepted, there is problem with the wording here and in Policy CO-1e. The reference to a "California registered civil engineer or an engineering geologist" is ambiguous as to whether the engineering geologist should also be "registered". Actually, California "registers" civil engineers and "certifies" engineering geologists. Further, "acceptable level" is undefined. We like to see a biologist involved in the process, too. 280-108

Also, Policy CO-1d is a bit unclear as to intent. Is the qualification of being within the -IBC overlay supposed to be understood in the second sentence, "The County may consider and allow development..."? We might presume it is because the policy is absent from Alternative 2, but if so, it would be clearer if it were overtly expressed.

We remain concerned at the big loopholes to allow disturbance and development under such qualifications. One is not "entitled" to a "higher" use of land than exists at the time of its acquisition. Part of the rationale for the levels of development called for in the 1996 general plan (Alternatives 1 and 4) was the concept of "achievable density", which presumed that a portion of existing parcels would never be built upon because of topographical or other constraints. Policy CO-1d, in particular, removes such a constraint. How would fire safety be affected? 280-109

MINERAL RESOURCES

It seems incongruous that Policy CO-2b in Alternative 3, supposedly the "environmentally constrained alternative", allows for extraction of mineral resources in Agricultural Lands and Alternative 2 does not. Here we prefer Alternative 2 to protect agriculture. 280-110

It is entirely unclear how Policies CO-2c, d, e, f, and g in either alternative would conform with Measure A. 280-111

Elsewhere (DEIR comments on Biological Resources, and here under Conservation and Open Space), we suggest an alternative hierarchy for designating Open Space lands that would acknowledge the different purposes they serve as set forth in Planning and Zoning Law. We think it might help resolve the incompatibilities present, as in allowing mining on Agricultural Lands. 280-112

Both Alternatives 2 and 3 lack provision for sources of construction aggregate and crushed rock (as did the 1996 General Plan). OPR's general plan Guidelines call for including this and Sec. 65302(d)(6) of the Government Code suggests it would be appropriate in the Conservation and Open Space Element. We think it should be included. 280-113

Implementation Measure CO-A in both alternatives is another instance where review of County code is required but wording is lacking that says actually to make any changes. Without the standards proposed for development here, there is nothing to prevent anarchy during the three years allowed before adoption. There must be very conservative interim standards. Government Code calls for standards in the general plan itself, not in something far beyond the general plan. 280-114

WATER RESOURCES

We support Policies CO-3a, b, c, d, and e, appearing in both Alternatives 2 and 3, but with qualifications. Again, we have no standards for setbacks or for how "no net loss" will be achieved, nor do we get them for five years, in the case of discretionary approvals (see Implementation Measure CO-B) or three years, but only for riparian setbacks (Implementation Measure CO-C). There must be very conservative interim standards for both setbacks and for proximity to the area of loss, and these should apply to all kinds of wetlands and to both discretionary and ministerial situations. We would also be a lot more comfortable if "appropriate" mitigation had some performance standard in Policy CO-3d. Additionally, draft policies in July 2002 specified wetland delineation using Corps of Engineers' criteria. This concept is now covert in Implementation Measure CO-B, which calls for developing criteria, buffers, and mitigation. We have commented previously on problems associated with the absence of standards and the long timelines to develop them (here, 5 years), and will be commenting on this point also in what follows. In addition, we repeat our concern at the intent from July 2002 to use Corps of Engineers' standards rather than Fish and Wildlife Service standards. The latter are used by Fish and Game, as they have said in their earlier comments (letter of 27 August 2002, incorporated herein by reference), and for very good reason. We think the resource agencies should be the final arbiter on this point. The Corps may have some responsibility in this arena, but it is not a resource agency. **280-115**

We like the concept of integrating surface water features into new development but are dubious about "full mitigation" when there are no standards in either policy (CO-3e) or implementation measure (CO-B). Proper utilization of such features can also help reduce urban runoff, transport of pollutants to receiving waters, and facilitate groundwater recharge. It should be difficult to get exceptions to this policy. **280-116**

We think Policy CO-3f has some missing wording: "...avoidance and minimization *of disturbance* of wetland..."? Also, a definition of "USGS hydrologic unit" is needed. Depending upon what that is, we must reserve further comment relative to how close the compensation would be to the lost habitat.

The difference in wording of Policy CO-3f between Alternatives 2 and 3 is puzzling: in Alternative 2, both Policies CO-3e and 3f list "rivers, streams, lakes, ponds, springs, and wetlands", while in Alternative 3, Policy CO-3e follows that wording, but Policy CO-3f reads, "...wetland, stream, lake, pond, spring and/or wetland...." We suspect this is a typographical error and the first "wetland" in this last list should be "river". Is there a distinction between "river" and "stream"? **280-117**

In all situations where some sort of compensation is at issue, the question arises as to whether equivalent habitat is to be *preserved* somewhere or *created* somewhere or *restored* somewhere. If it is a matter of preservation elsewhere (of existing habitat), then one still has a net loss. If it is a matter of creation of habitat, equivalent function must be demonstrated; that is true for restoration, as well (and, again, there is still a net loss). We'd prefer the 3:1 restoration of Alternative 3 to the 2:1 of Alternative 2 (because generally so much habitat has already been lost), but there must also be provision for long-term monitoring. **280-118**

The policies under Goal CO-4, "To protect ground and surface water quality", are the same in both alternatives. *Any* discharges would violate state and federal law. Hence, Policy CO-4a should strike "reduce". We support all these policies (the same in both alternatives) but there should be some incorporation of *ministerial* projects into this goal. Implementation is through **280-119**

AR 13406

Measure CO-D, to develop and implement Stormwater Management Plans consistent with requirements of federal law, with a timeline of 3 years. We think "state" should be added to "federal", and we don't think law gives the County three years to comply. The authority of the Regional Water Quality Control Boards also should be acknowledged here. We have been struck by repeated references in the DEIR in this regard to the County's strong regulations relative to this topic. If so, why is three years needed? Rather, we think the problem is one of *enforcement*.

280-119

BIOLOGICAL RESOURCES

We strongly support the concept of the Important Biological Corridor overlay (-IBC) found in Alternative 3 but not in Alternative 2. We would prefer that this be expressed as a policy and not left to implementation. Because of the permissive wording ("may") and the absence of standards, it is difficult to know how effective Measure CO-K (found only in Alternative 3) would be in conserving important habitat. Measure CO-K has a two-year timeline, so again provision must be made for the interim by adopting very conservative interim standards.

280-120

Policy CO-5a, expressing intent to protect special status species and their habitats, is implemented through Measures CO-E, -G, and -H. These, respectively, are to identify the species and their habitats in the county — *timeline 5 years*; to work with Fish and Game and Fish and Wildlife to implement the gabbro-soils rare plant preserve and recovery plan and to develop a long-term management strategy — starting immediately at adoption of the General Plan but standards are postponed to the Zoning Ordinance update (*1 year, we think*) and the "design standards program", for which *we can't find a timeline*; and (in this context) to develop guidelines for biological studies — *timeline five-years*. We can't help thinking that the apparent decision not to put standards into the General Plan (in violation of Planning and Zoning Law) creates more problems than it must have been felt to solve. At any rate, once again, conservative interim standards will be needed.

280-121

Policy CO-5d (the same in both alternatives) should include provision for consultation with Fish and Game and U.S. Fish and Wildlife Service. We support Policy CO-5e in these two alternatives.

280-122

Alternatives 1 and 4 had formation of a Plant and Wildlife Technical Advisory Committee called for in Policy 7.4.2.7. In Alternatives 2 and 3, mention of this TAC is relegated to Implementation Measure CO-F and no policy actually says to form one. Here we prefer the positive mention of its formation in the 1996 General Plan.

280-123

Lacking entirely in policy now, in both alternatives, is provision for something like a county-wide HCP. This concept, formerly in draft Policy CO-10b, July 2002) has been relegated to Implementation Measure CO-I (in both alternatives), which calls for development of an integrated Natural Resources Management Plan, with a timeline of 5 years. We support this, but think it should be elevated to the policy level. Again, the long timeline presents problems that need to be addressed in the interim to prevent irreversible losses. We discussed this concept at some length in comments on the DEIR. The purposes of the federal HCP and the state's Natural Communities Conservation Plan (NCCP) are not identical but experience developed with both could help the County in its endeavors. The object should be not only to protect existing special-status species and habitat, but to prevent deterioration in status that could lead to future listing under either state or federal Endangered Species Acts.

280-124

Policies CO-6a and -6c, which we support, are identical in both alternatives. We prefer Policy

280-125

AR 13407

CO-6b from Alternative 3 because of its provision for an "independent" biological resources study report and incorporation of measures "to avoid, minimize, and mitigate project effects...so that there is no net loss in the acreage of affected habitat". Policy CO-6d (only in Alternative 3) follows from the -IBC overlay concept and we support it. 280-125

Goal CO-7 and Policy CO-7a (the same in both alternatives) concern protection of individual "landmark" and "heritage" trees. We support these. Implementation is through Measure CO-J with a 5 year timeline. Again, that is a problem calling for very conservative interim standards. Further, it is conceivable that a landmark/heritage tree might not be an oak; hence we think implementation for this goal and policy needs to be separated out from an implementation measure that starts, "Develop and adopt an Oak Woodland Management Plan." 280-126

Lacking from Biological Resources in both alternatives (and also absent from Alternatives 1 and 4) is anything that addresses control of invasive weeds despite growing concern about, in particular the rapid spread of yellow star-thistle. Allowing this problem to increase without any policy directive to control it will only increase the difficulty of ever addressing it.. We believe something is needed and discuss this in our comments on the DEIR. 280-127

CULTURAL RESOURCES

Goals 8 and 9, dealing with cultural and historic resources, and the policies thereunder are the same in both alternatives. We support them. Again, however, there is an absence of standards in both policy and implementation and their development is put off for 5 years (Measure CO-L and -O). And again, there must be strong interim standards. 280-128

Of concern is the absence of anything like a Cultural Resources Preservation Commission. We are aware that the one created under the 1996 General Plan was disbanded not long ago. It appears that having such a commission had merit, judging by public statements from some of its members that the Planning Department was lax in attending to the concerns under the purview of the Commission. 280-129

Policies under Goal CO-10 dealing with cemeteries are identical in both alternatives and we support them. However, no policy really addresses the goal of *identifying* these cemeteries and *preserving and protecting* them is only partially addressed by Policy CO-10b. Something is lacking here, and that includes an implementation measure. Though we are pleased to see that cemeteries are at least recognized in a land-use category (Public Facility)—they weren't in the 1996 General Plan, we are very dubious about their being lumped with things like sewage treatment plants. One consequence of doing so is the high level of allowable noise in a cemetery—entirely inappropriate, in our view. 280-130

OPEN SPACE

A basic problem exists relative to this important part of the General Plan in the disparate and conflicting uses of lands designated as Open Space and lands subsumed into that function but designated differently. (Alternative 2 specifically includes Rural Lands and Natural Resource lands; Alternative 3 specifically includes Rural Lands, Agricultural Lands, and Natural Resource lands. Arguably, because both alternatives include Williamson Act lands (Policy CO-11a(C) in both), both also include agricultural lands, however.) Elsewhere we have advocated designating Open Space into categories distinguished by a subscript and paralleling Planning 280-131

AR 13408

and Zoning Law Sec. 65560(b) so that true Open Space would be distinguishable from so-called open space that is subject to disruption, such as by mining and logging, where incompatibility exists with some of the values expressed in Goal CO-11 and the various types of lands described in Policy CO-11b. Such a practice would also assist in tracking conversion of one land use to another relative to overall habitat preservation. (E.g., woodland to vineyards.)

No implementation is associated with either of the policies under Goal CO-11 even though CO-11b(C) refers to "acquisition". But Planning and Zoning Law, Sec. 65564, reads:

> Implementation. Every local open-space plan shall contain an action program consisting of specific programs which the legislative body intends to pursue in implementing its open-space plan.

Please note that OPR has a white paper that discusses non-regulatory approaches to preservation of open space. It may be of help here.

280-131

Although we support Policy CO-12a (in both alternatives) of retention of native vegetation, it is unclear how it relates to that part of Goal CO-12 that pertains to maintaining characteristic natural topographic features. Though we also support using native plants—preferably native *to the area*—in landscaping, it is unclear how implementation Measure CO-O (in Alternative 2) and CO-P (in Alternative 3) relate to either policy or goal here. "Landscaping" is an activity that disturbs natural vegetation. Revision of guidelines for design review, an alternative option, needs a timeline. And again some interim standards are needed.

280-132

Agriculture and Forestry Element

Alternative 2 features an Agricultural District overlay designation (-A) to be applied to lands s "in which agriculture is the principal activity". Alternative 3 directly designates as land as Agricultural (A), where "maintenance and expansion of agricultural production will be encouraged".

Criteria for identifying the lands to be so identified are found in Policy AF-1a, which has subtle differences between the two alternatives that we think are somewhat more inclusive in Alternative 3. Thus we prefer Policy AF-1a as found in Alternative 3.

280-133

We find the distinction between "A" and "-A" somewhat obscure but are told by planning staff that designation as "A" is more protective than as "-A". Thus on the whole we favor the greater level of protection, Policy AF-1a as it appears in Alternative 3. In August 2002, the Sierra Club urged protection of grazing lands as well as crop lands, as did the Agricultural Commissioner, and the wording in Alternative 3 does that.

Policy AF-1b is very similar in both alternatives. It appears to reflect only the difference in approach to designation of lands—within an overall district ("-A") or parcel-by-parcel ("A"). Thus we would again prefer Alternative 3's wording. Policies AF-1d, e, and f are identical in both alternatives. Policy AF-1g in both concerns grazing lands and again seems to derive from treatment as "A" or "-A". Again, we prefer the wording in Alternative 3.

280-134

Policy AF-2a, dealing with agricultural water supply, is identical in both alternatives. We support present wording and the dropping of earlier wording that caused us discomfort about causing pressure to develop. We also support Policy AF-3a, again identical in both, concerning housing

280-135

for agricultural workers.

An entire series of policies assigning review authority to the Agr. Comm. has been dropped, leaving reviewing authority to the Agricultural Department. The Commission was formed in 1967 per the Agr. Dpt. website to serve as advisory body to Supervisors and Planning Commission. We don't understand the change so can't make a judgment on this issue. Also, is it consistent with Measure AF-E?

Measure AF-A doesn't say actually to revise the Zoning Ordinance.

PARKS AND RECREATION ELEMENT

Alternative 3 recognizes trails as part of recreation in referring to "capital and maintenance costs for the expansion of County park and trail systems", while Alternative 2 drops reference to the trail system. Surely it can't be intentional that an existing system with existing master plans was overlooked, especially with massive public investment in the old Southern Pacific Railroad Corridor?!

The SPRR, indeed, isn't mentioned at all in either alternative, despite the recently adopted master plan for its multipurpose trail use. Its protection should be a *paramount* policy; the many ways in which the County has allowed and even fostered its degradation (especially by DOT) should be halted.

Policies and implementation measures are identical in both Alternatives. In both, the description of recreational facilities operated by the El Dorado Irrigation District should be updated to include those acquired from PG&E in connection with Project 184.

Policy PR-1b sets a standard of County-owned parkland "at a minimum of five acres per thousand residents". Presumably the County will be adding to its inventory of parkland at a rate commensurate with growth projected through 2025. Has county-owned parkland been augmented as El Dorado Hills has grown?

We have concern re Policy PR-2a. While we support the protection of existing public access points, we think encouraging "new points of public access to lakes, rivers, and streams" should have some qualifications so as not to adversely affects setbacks from waterbodies to protect natural vegetation, fish and wildlife use, and erosion control. Somehow, what comes to mind is an image of totally trampled margins of waterbodies. Perhaps wording like "in consultation with the Department of Fish and Game" would serve the purpose.

With respect to Policies PR-3b and 3-c, there should be some mention of aggressive use of Development Agreements to assure their carrying out. A number of the concerns expressed by the public about this element could be solved by the County's taking a more aggressive stance toward negotiating Development Agreements with developers. Examples are, under PR-1g, acceptance of lands for local parks that are "nearly unusable"(does this mean that old Policy 9.1.1.5 and similar constraints weren't being applied all along—a giveaway to developers, if not); under PR-3, separating bike/pedestrian/equestrian trails from traffic to make them safer; and in the Georgetown Divide area, allowing development to cut off old trails dating from the gold rush. Policy specifically requiring this could be incorporated into the wording of several draft policies, such as PR-3g, 3h, and 3j.

280-135
280-136
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280-142
280-143

AR 13410

Such policy should be coupled with policy specifying that land so acquired from developers for park purposes be useable as such.

280-143

Although strengthening the present County ordinance addressing light pollution is commendably suggested in the DEIR, the Parks and Recreation Element is a place where new policy could improve the present situation by calling for top- and side-shielded lighting systems for sport fields. These systems are now commercially available. Their use should be called for by policy to reduce light pollution and save both energy and money. There should be no recurrence of the offensively glaring banks of bright lights used even as recently as at Lotus Henningsen Park.

280-144

No standards for acreage per capita of parklands appear here , nor is there mention of developer fees toward their funding. We think there should be policies addressing these topics.

280-145

Policies PR-1b, -3b, 3c, -4c, -4d, -5a, and -6c have no implementation. While some of these don't need implementation measures, some of them do need them.

280-146

As with other elements, timelines for the Parks and Recreation implementation measures are often very long: one is 3 years, three and 5 years, two are 8 years, and two are 10 years. While we recognize the reality that Planning can't do everything at once, some interim approach is needed so as not to lose ground. Some of the problems addressed by implementation measures could be alleviated by more aggressive use of Development Agreements. It is regrettable that they weren't so used in the past.

280-147

ECONOMIC DEVELOPMENT ELEMENT

We support this thrust in Alternatives 2 and 3: "Over the next several years, the County will focus on building the economy from the inside out, assisting current businesses and entrepreneurs to grow and sustain success. By not utilizing the traditional business attraction methods that can create a volatile economy, the County has an opportunity to design a more attractive business environment." Please refer to Quality Growth's comments on Economic Development submitted in 1995 as part of comments on the Supplementary DEIR on the 1996 General Plan.

280-148

Policies for this Element are identical in both Alternatives 2 and 3. Implementation measures also are identical, with one exception: "Measure ED-E, Identify and pursue funding to sustain existing and to promote new arts and tourism-related industries (Policy ED-5a)." In Alternative 3, the responsible entity is the Office of Economic Development, and the Time Frame is "Ongoing". In Alternative 3, the responsible entity is both the Office of Economic Development *and* the Planning Department. The Time Frame is, "Complete methodology within five years of General Plan adoption. Thereafter, review of General Plan amendments will be as needed for the life of the General Plan." We suspect this is an error and the wording in Alternative 2 should be the same as in Alternative 3. In Alternative 2, the wording is the same as in ED-D, which may have been transposed in error.

280-149

Policy ED-1a: Establishes an economic advisory body, but doesn't say how its members will be chosen either in policy or in implementation. In August 2002, the Sierra Club noted that "It would be well to consider the makeup of the economic advisory body. Non-business representatives would be the only ones not to have conflicts of interest."

280-150

AR 13411

The Sierra Club said in August 2002:

> "There is much informed opinion that these (incentives and tax credits) are not wise, including an editorial in the Bee of 8/22/2002. The cost per job is often outlandishly high, and the business may not stay around. Were any incentives given the "jewel-case" plant in Cameron Park that now is closing after only a few years?"

Thus we approve of dropping the provisions in former draft policy ED-1c calling for incentives and tax credits. However, its ghost appears as an aspect of the Economic Policy Framework to be developed in Implementation Measure ED-A. Here is found under "C", "Incentives and tax credits to local businesses." But "local business" isn't defined. Is Wal-Mart, now on Missouri Flat Road, now a "local business" even though the profits go to its out-of-state owners? A better standard might be that of being locally owned so that the money generated remains in the community. Yet local business should not uniformly be eligible for incentives and tax credits, thus becoming a tax burden rather than a benefit to the community at large. The economic advisory body will have some difficult questions to tackle. **280-151**

Implementation Measure ED-A (implementing Policies ED-1a and -1b) focuses exclusively upon developing an Economic Policy Framework. In September 2001, the Sierra Club posed these questions for consideration in defining a healthy economy, believing them to be important factors in developing an Economic Policy Framework. We still do:

> 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? **280-152**

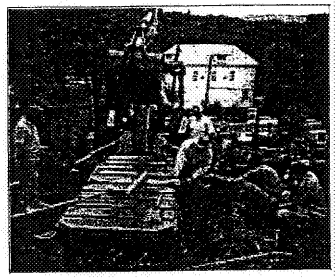
Lacking in both Alternatives, however, is recognition that tourism directed at visiting cultural/historic resources is part of the economy and could be fostered with informational brochures directed at genealogists, those interested in local history, and photographers (locations of historic buildings, of pioneer cemeteries, etc.) How many such sites have been lost to neglect or deliberate destruction? Amador County appears to be successful with such an approach. **280-153**

U.S. Environmental Protection Agency

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 or contact Nikos Singelis, of the Office of Wastewater Management, at singelis.nikos@epa.gov.

This page originally created: Tuesday, March 4, 2003

AR 13413

"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

AR 13414

(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 the 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.

AR 13415

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?

AR 13416

FIGURE 1

OPPORTUNITIES FOR FIRE AND RESOURCE PROTECTION IN GENERAL PLAN ELEMENTS

ELEMENTS	OPPORTUNITIES
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.

AR 13417

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, timer production, wildlife habitat, etc.) included in the data sand analysis section? Do policies include management options of prescribed fire and fuelbreaks to enhance protection?

AR 13418

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.)

AR 13419

LETTER 281

COMMENTS ON

DRAFT ENVIRONMENTAL IMPACT REPORT

DRAFT GENERAL PLAN ALTERNATIVES

VOLUME 1

Contents - 5.8

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PLANNING DEPARTMENT

15 July 2003

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.

We have used throughout two symbols: 281-4

- • 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.**

AR 13422

5.1 Land Use and Housing

LAND USE

> *"[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 set within barren seas of 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."*
> —*Andres Duany, Elizabeth Plater-Zyberk, and Jeff Speck,* Suburban Nation, *2000*

Does any of the above seem to apply to El Dorado County? Here is where we have a chance to undo the mistakes of the past.

The DEIR begins with a physical description of the County and the major highways (US 50 going east-west, and SR 49 and 193 going north-south. The Eldorado National Forest occupies the eastern two-thirds of the County. The regulatory/planning environment is described beginning on p. 5.1-3. The east slope—the Tahoe Basin—is primarily under the jurisdiction of the interstate Tahoe Regional Planning Agency (TRPA).

Over the past 20 years, the County has experienced rapid growth, beginning in the 1980s, with a slowdown in the early 1990s related to the economy, the growth rate averaging 3 % annually over that period. Growth has been concentrated along the US 50 corridor from the Sacramento-El Dorado County line east. Only two incorporated towns exist, Placerville and South Lake Tahoe. Ca. 54% of the County is privately owned, and 46% publicly owned. Development is primarily residential. Existing development projects, with Development Agreements, approved between the 1996 adoption of the General Plan and the 1999 issuance of the writ invalidating it, will add 14,565 more dwelling units, primarily in the El Dorado Hills area of the westernmost part of the County. 281-6

In-county employment opportunities are primarily in El Dorado Hills, except for government (Placerville) and schools.

As of 1997, ca. 13% of the County (153,472 acres) was agricultural (farmland and grazing), of which 41, 852 acres (27%) was under the Williamson Act.

• How have these figures changed since 1997? Surely more recent ones are available and would reflect subtraction of the acreages involved in Valley View, Carson Creek, Promontory, Bass Lake Hills, and Marble Valley from the agricultural base. In view of the devotion of these large tracts to residential development, the figures presented here badly need revision.

The largest nonjurisdictional landowners are the United States and the State of California (state parks and the University of California). (Exhibit 5.1-1 really can't be read in black and white on the hard copy and doesn't appear to be on the CD-ROM.) 281-7

Beginning on p. 5.1-7, the various market areas into which the jurisdictional part of the County has been subdivided are described, as follows:

1. El Dorado Hills: upscale, high-end housing. Residents primarily commute to metropolitan Sacramento. El Dorado Hills Business Park a major employment center for the County. This area is the most rapidly developing part of the County. 281-8
2. Cameron Park/Shingle Springs/Rescue. Cameron Park is high-density and multifamily

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residential, with an airport and a large retail center on both sides of US 50. Shingle Springs is medium and low density residential with a small commercial district. Rescue is low density and rural residential. Together, these communities have the highest concentration of multifamily development.

3. Diamond Springs/El Dorado: high to low density residential centered around the two historic townsites. Broad mix of land use: commercial, industrial, multifamily; large rural home sites and ranchlands in southern portion of the area.
4. Placerville/Camino: includes the agricultural area of Apple Hill, the city of Placerville, and the town of Camino. Full range of residential densities, commercial, industrial (Sierra Pacific lumber mill).
5. Coloma/Gold Hill: primarily rural: Coloma (historic town and state park) and agricultural area of Gold Hill. Low-density residential development and large agricultural tracts. Coloma and Lotus are centers for river rafting industry.
6. Pollock Pines: diverse range including high density, mobile home parks, retail and service-oriented commercial (along Pony Express Trail—historic US 50), recreational. Newer residences are south of US50 & west of Sly Park.
7. Pleasant Valley: low density to rural residential with vineyards, ranch lands, some timberlands along North Fork Cosumnes River.
8. Latrobe: large-lot rural residential, ranchlands. Suburban development is slowly spreading south from El Dorado Hills and Cameron Park.
9. Somerset: low density and rural residential amongst vineyards and ranchlands. Fairplay viticultural area is in the center.
10. Cool/Pilot Hill: low density and rural residential with large acreage ranchlands. Pockets of medium density residential and commercial near the historic town sites. Auburn State Recreation Area along the North Fork American River.
11. Georgetown/Garden Valley: historic Georgetown, Garden Valley, Greenwood, Kelsey. Commercial, limited industrial in Georgetown and Garden Valley. Medium to low density residential surrounds them with rural residential elsewhere trending toward private timberland and national forest to the east.
12. Tahoe: South Lake Tahoe & surrounding suburban development. Tourism and tourist serving commercial centered on Stateline gambling industry, skiing, summer recreation. TRPA governs.
13. American River: National forest and private timberlands of the uplands. Scattered communities along US 50 and Wentworth Springs Road. Tourism and timber production.
14. Mosquito: Mosquito and Swansboro; isolated and difficult to access. Swansboro ranges from high density to rural residential.

Planning concepts are described beginning at p. 5.1-11. All alternatives use Community Regions and Rural Centers to apply to existing communities, and Rural Regions for everywhere else. Community Regions have concentrations of residential and commercial development with, generally, a well-developed infrastructure. Rural Centers are smaller with more limited commercial development. *The alternatives differ in the extent to which these communities can expand and the extent to which growth is directed toward them.*

281-8

• Important to the idea of directing growth to Community Regions/Rural Centers in some of the alternatives may be the notion that development of wastewater infrastructure is practical and can be achieved in the Georgetown and Camino/Pollock Pines areas (Policy PS-4b in Alternative 2). We think that severe constraints to this proposal may prove to exist that will require rethinking the planning process. (We comment on this in comments on the various alternatives.) Wastewater treatment plants and collection systems are very costly to build. (EID's present system was built

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when federal money was available to help and that no longer is true.) They are now funded by so-called Facility Capacity Charges—connection fees. It is unlikely that the amount of development in these two areas would be sufficient to construct new plants. Moreover, treated effluent must be disposed of somewhere and the State Water Resources Control Board has enjoined doing so into the American River. Please analyze this in the FEIR.

281-8

The history of the planning process surrounding development of the General Plan is recounted beginning on p. 5.1-11, including the adoption in 1996 of the predecessor plan, its successful challenge and issuance of a writ of mandate, and the need to again go before the court when a new general plan is adopted.

The Zoning Ordinance is said (p. 5.1-11) to be the "primary regulatory tool for implementing the General Plan". It identifies uses allowed by right, uses that require permits (special-use, temporary-use, or other permit or approval). It also identifies standards for development, including sign standards, off-street parking requirements, height, and setback requirements. Development standards vary for each zoning district and may specify limitations on the dimensions of buildings, parcel sizes, setback dimensions, and uses. The County Subdivision ordinance & state Real Estate Act and Subdivision Map Act "provide standards governing the design, improvement, survey, and official map approval processes *for major land divisions.*"

281-9

• Please reconcile this statement with the requirement in the Planning and Zoning Act that the general plan include standards (Sec. 65302).

As the DEIR points out on p. 5.1-12, it is critical to distinguish between by-right (ministerial) and discretionary development. By-right uses are defined by General Plan and/or Zoning Ordinance as exempt from discretionary action. Review by Planning of *by-right applications* consists of ensuring use is 1) permitted by right, satisfies standards and requirements in the Zoning Ordinance (possibly including site plan review to ensure setbacks met, architectural design, landscaping, signage all met) or a variance request has been filed, and no existing violation of the Zoning Ordinance, the Subdivision Map Act, the Subdivision Ordinance, or any other land use entitlement. *Discretionary* projects undergo a lengthier review process.

For both, other possible permits/approvals needed might be: 1) approval by other appropriate County agencies re public utilities and roadways; 2) grading permit under the Grading, Erosion, and Sediment Control Ordinance "if the project would disturb more than 300 [sic] [cubic] yards"; 3) pad certification (soil engineer confirms site adequately compacted, surveyor/engineer verifies that elevated above floodplain; 4) building permit, site plan review, presentation of other permits re traffic, public services, and safety.

281-10

• The figure of 300 cubic yards is in error; the Ordinance specifies 250 cubic yards. We believe this figure should be much lower (in the Tahoe Basin it is 3 cubic yards) to prevent erosion and sedimentation in ministerial projects, which generally entirely avoid the need for such a permit. Moreover, the same threshold seems inappropriate for areas that might contain naturally-occurring asbestos as for areas that don't. See comments elsewhere herein.

On p. 5.1-13, the DEIR lists the Specific Plans/Development Agreements that exist, totaling 11,308 dwelling units that can go ahead despite the writ (Carson Creek, Promontory, Valley View, Bass Lake Hills, El Dorado Hills, Marble Valley). Other plans, including ones for air quality; recreation (River Management Plan, Bikeway Master Plan, Hiking and Equestrian Trails Master Plan); transportation (Caltrans concept plans for US 50 and State Routes 49, 193, and 89; SACOG's Metropolitan Transportation Plan and Improvement Program, Southern Pacific Railroad Corridor

281-11

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master plan, the County's Long-Range Transit Plan, TRPA's Regional Transportation Plan); the Comprehensive Land-Use Plans for the four airports (Cameron Park, Placerville, Georgetown, and Lake Tahoe); Community Action Plans prepared by the Sierra Economic Development District for Camino, Cool/Pilot Hill, Coloma/Lotus, Garden Valley, Georgetown, and Mosquite/Swansboro; and several nonjurisdictional plans (Sierra Nevada Forest, Eldorado National Forest, Placerville, South Lake Tahoe, TRPA, US Fish and Wildlife Service recovery plan for the gabbro-soil rare plants and the California Red-Legged Frog, and general plans for neighboring counties and the City of Folsom).

•We asked in scoping comments, incorporated by reference herein and which please see, that the DEIR 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, but do not find this analysis anywhere. Please provide. Discuss how the proposed scenarios under the various alternatives will continue or halt the trend. Explain how the scenarios operate to concentrate growth to maximize energy efficiency (see CEQA, App. F) and minimize impacts to the environment and to the free services it affords us, as well as effects on air quality and traffic congestion.

281-11

• Please provide the analyses otherwise requested in our scoping comments.

281-12

• Please provide an assessment of the public benefits that have been obtained through development agreements in the case of those listed on p. 5.1-13, such as parks, trail connections, school sites, etc.

281-13

Impact 5.1-1: Inconsistency with Applicable Plans and Policies of Other Agencies (p. 5.1-21).

Of the four equal-weight alternatives, Alternatives 1 and 4 are deemed generally consistent with the plans of other jurisdictions, while Alternatives 2 and 3 are said not to directly address this matter. The proposed mitigation is (Measure 5.1-1) is to pursue such coordination. It seems rather late to be considering that! Notable examples would be the lack of meeting regional air quality attainment plans and the abutment of an expanded White Rock Road in El Dorado County against a two-lane rural road in Sacramento County. Table 5.1-5, in discussing consistency with Eldorado National Forest plans, says that private inholdings are all designated Natural Resource based on frequent trading of lands between the National Forest and the County. But the County doesn't own these inholdings!

The Land-Use Element correlates all land use issues into a set of coherent development policies (OPR Guidelines, p 38). As Alternatives 2 and 3 largely lack standards that would determine many of the features proposed therein, it is difficult to see how their Land-Use maps could be determined at this time. For example, Table 5.1-5 in discussing consistency of Alternative 3 with the national forest plan says that a particular area will have an Important Biological Resources overlay and thus is consistent. But the boundaries of the IBC overlay are, in Alternative 3, undecided for several years following adoption of the plan (assuming that the IBC concept will survive through adoption).

281-14

As Taxpayers for Quality Growth said in 1994, "The primary question that needs to be answered in the EIR is: Can the projected growth be acccommodated without exceeding the carrying capacity of the natural environment, substantially lessening the quality of life for county residents, or overloading public services such as roads, sewer, water, and criminal justice, education and public health facilities?"

Another very pertinent question is, Will there be enough revenue from development to fund the costs of infrastructure needed to serve it. In 1994, EPS said not ($1.4 billion). "New development

will have to be carefully planned from an infrastructure standpoint; development will have to proceed in a logical fashion that maximizes the use of existing infrastructure and avoids 'leap-frogging' that results in an inefficient provision of infrastructure."

281-14

• A comparable analysis for the current plans seems not to have been provided. Please do so.

Table 5.1-6 (p. 5.1-31) compares the four equal-weight alternatives relative to number of new dwelling units and new jobs, and acreages in Community Regions, Rural Centers, and Rural Regions. Alternative 3, the "environmentally constrained" one, has only ca. 2% more land in Rural Regions than do Alternatives 1 and 4. For acreage in Rural Centers, Alternatives 1, 2, and 4 are nearly the same, while in Alternative 3 it is about 28% less. For Community Regions, Alternatives 2 and 3 have about 29% less acreage than Alternatives 1 and 4.

281-15

Proposed mitigation for Alternatives 2 and 3 is to add a specific policy calling for pursuing consistency with plans of surrounding jurisdictions. This isn't needed in Alternatives 1 and 4 because such a policy is already present. We support this mitigation measure.

281-16

Impact 5.1-2: Substantial Alteration or Degradation of Land Use Character in the County or Subareas (p. 5.1-35).

This appears to be a way of saying that separation of communities is in jeopardy in all alternatives at buildout and for all but Alternative 1 at 2025. The proposed mitigation (Measure 5.1-2) is to create community separators. Transfer of development rights and consolidation of parcels are mentioned as possible means toward this end but their effectiveness is difficult to judge (p. 5.1-48).

281-17

Impact 5.1-3: Creation of Substantial Land Use Incompatibility (p. 5.1-49).

Sources of incompatibility include 1) delayed implementation of standards in Alternatives 2 and 3, about which we have previously mentioned concern; 2) defining Low-Density Residential as compatible with agriculture; 3) lack of a compatibility review in the County's approval process; 4) a potential for government buildings in Rural Regions; and 5) the range of uses permitted in Rural Regions (ranch marketing, agriculture, residential, timber production, mining).

Proposed mitigation is four-fold, as needed by the particular alternative under consideration:

281-18

Measure 5.1-3(a), p. 5.1-62, is to establish a general plan conformity review process for all development projects.

• We have concern at the proposed alternative (p. 5.1-63) and its proposed implementation (p. 5.1-64) because of reliance upon the applicant to provide information, including biological and geological, in accordance with standards to be developed. In our experience, the small builder or owner does not have dependable knowledge on these points. (See discussion elsewhere in our comments.) How would this possibility be overcome?

Measure 5.1-3(b), p. 5.1-64, would require development projects to be located and designed in a manner that avoids adjacent incompatible land uses.

281-19

• It is unclear to us, from the proposed implementation measure, whether this would apply only to discretionary projects or also to ministerial ones. Please clarify.

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Measure 5.1-3(c), p. 5.1-66, is to establish an interim conformity review process to be applied until such time as all general plan implementation programs are in place. This recognizes the problem of delayed implementation for policies in Alternatives 2 and 3 about which we have previously commented. 281-20

Measure 5.1-3(d), p. 5.1-67, is to establish compatibility criteria for siting of public facilities.

• In the proposed revision of Policy LU-3n/-3o(C) in Alternatives 2 and 3, p. 5.1-67, it should be remembered that sewage treatment plants and cemeteries are both "public facilities" and their siting in "all land use designations except Natural Resources and Open Space" may not be appropriate. 281-21

• In all four equal-weight alternatives, the land-use maps show that certain nonjurisdictional lands have been designated Open Space. This is inappropriate and could inflate the overall amount of so-called OS lands. 281-22

• We are glad to see recognition of cemeteries in Alternatives 2 and 3 as a land use. Calling them "Public Facility" also would seem to recognize County jurisdiction over many of them, which we think has been a bone of some contention. However, in land-use planning, their uniqueness in some characteristics should be kept in mind. One potential incompatibility has been mentioned. Another arises relative to applicability of noise standards (see our comments on noise elsewhere herein), where the same standards as would be applied to sewage treatment plants seem inappropriate for cemeteries. Another problem lies in the fact that it is not uncommon for burials to have been made outside the perimeter fencing, if any, so that cemeteries need setback provisions. Policies and land-use maps should be revised to reflect these considerations. 281-23

• According to the Sierra Nevada Ecosystem Project (V. II, #11, p. 294), the County had zoned (this refers to the 1996 planning process) some Bureau of Land Management parcels for non-public purposes, including potential development. Is this also the case in the present alternatives? If so, they should be changed to nonjurisdictional. 281-24

HOUSING

Discussion of this aspect begins on p. 5.1-68 of the DEIR with a review of the housing stock in the County. Stock ranges from current construction to residences over a century old, and from year-round homes to vacation cabins. Placerville and South Lake Tahoe, the two incorporated cities, have relatively older homes and approach being built out. The Tahoe Regional Planning Agency has jurisdiction in the Tahoe Basin and substantial growth restrictions exist to protect the lake. It is in the western regions of the County that rapid development has been occurring, especially in the El Dorado Hills/Cameron Park/Shingle Springs area. Recent construction has concentrated on large, upscale homes and per-square-foot prices tend to be higher than in Sacramento County. Affordable housing is being left behind. 281-25

A survey of housing condition conducted in late 1995 indicated that 30% of the housing stock "in the portion of" the County surveyed was substandard and in need of repair. Higher concentrations in this category were found (Table 5.1-7, p. 5.1-70) in Meyers (Tahoe Basin) (36%), along US 50 east of Placerville (38%), and along SR 49 south of US 50 (40%). Statewide, that figure in only 13%.

Regulatory environment (p. 5.1-71) consists mainly of attaining state-mandated housing goals relative to income level, and balancing housing supply with jobs. Various funding sources are

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available to assist with provision of affordable housing and are described on pp. 5.1-72 to -73.

The Housing Element in all four "equal-weight" alternatives argues that inattention to affordable housing resulted, in part, from market demand for the large houses that have characterized building activity in El Dorado Hills.

281-25

• **Aren't the lengthy lists of low-income families waiting for some sort of subsidized housing an equally potent manifestation of "market demand"? (E.g., 1000 applicants for Section 8 housing assistance as of November 2002, p. 5.1-72.) Isn't the real reason that McMansions make more money for developers and the County has gone along with their desires?**

<u>Impact 5.1-4: Need for Replacement Housing</u> **(p. 5.1-74).**

The Housing Element is identical for all alternative general plans. The major consideration identified is one of driving up housing prices by limiting availability of housing stock and a possible consequence of demolishing existing housing to allow replacement with more costly homes. Because of policies directed at conserving the stock of affordable housing, this effect is deemed Less Than Significant, however.

281-26

AR 13430

5.10 Noise

"Polluting the commons is not a right. Our effort to reduce noise pollution is similar to other efforts to reduce pollution and reassert our collective stewardship over the commons. Whether the issue is second-hand smoke, elevated mercury levels, or ground level ozone, the strategy is to protect the environment and our health and well-being by creating an ethic of the commons."
—*"Protecting the Commons"*, Noise Pollution Clearinghouse (www.nonoise.org) 2003

281-427

• Please see our scoping comments on noise, p. 46, incorporated here by reference, and respond to the unanswered questions therein.

THRESHOLD OF SIGNIFICANCE (p. 5.10-13):

This discussion defers setting a baseline standard ("in excess of standards established in the General Plan, or applicable standards of other agencies"), thereby setting unacceptably vague conditions. The criterion set forth for an increase in noise is 5 dBA.

281-428

• At least an interim standard is needed. See following discussion.

On p. 5.10-9, the DEIR states, "Most federal and state regulations and policies establish the maximum acceptable limit for noise exposure at residential and other noise-sensitive land uses as 65 dBA CNEL, within urbanized areas. For quieter, suburban settings, a maximum acceptable noise level of 55 dBA CNEL is typically considered more appropriate (California Airport Land Use Planning Handbook, 2002)." (The CALUPH reference doesn't appear in the References for this chapter.)

If a standard of 55 dBA is accepted, this would be an improvement over the 1996 GP, which accepted 60 to 65 decibels as an acceptable goal for noise-sensitive receptors. Alternatives 2 and 3 aren't directly comparable to the 1996 plan, however, because the non-transportation noise standards have been broken down into more categories, and thus more, and more complicated, tables. However, as much as 70 decibels is permitted in Alternative 3 during the daytime in Community Regions for C, R&D, and PF land uses. (Note that cemeteries are considered PF in Alternative 2 and 3—they weren't considered at all in 1996. Seventy decibels in daytime in a cemetery seems very high!) In our scoping comments, we said this:

> [T]he 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.

281-429

The following is taken from the City of Sacramento's Code relative to noise:

> 8.68.060 Exterior noise standards.
> A. The following noise standards unless otherwise specifically indicated in this article shall apply to all agricultural and residential properties.
> 1. From seven a.m. to ten p.m. the exterior noise standard shall be fifty-five (55) dBA.
> 2. From ten p.m. to seven a.m. the exterior noise standard shall be fifty (50) dBA.

On the other hand, in the discussion under Roadway Traffic (p. 5.10-12), "The 60-dBA CNEL/L_{dn} contour is *typically* considered the maximum *'normally acceptable'* noise level for the

largest majority of noise-sensitive land uses located within the county (i.e., residential dwellings)." "Other noise-sensitive land uses, such as schools, hotels, convalescent care facilities, and hospitals," the DEIR goes on to say, "are *typically* considered '*normally acceptable*' at levels below 65 to 70 dBA CNEL/L_{dn}, depending on land-use designation." [Emphasis added in both quotes.]

281-429

• **"Typically" by whom? "Normally acceptable" to whom? We would disagree that these limits are acceptable in view of the reports from WHO and the EPA, even though the Federal Highway Administration is known to allow higher noise levels than those referred to above.**

Table 5.10-4 gives "Land Use Noise Compatibility Guidelines" promulgated by the Governor's Office of Planning and Research. These seem more lax than some of the sources already mentioned. And they do not discriminate between urban and rural localities. Thus we do not regard them as acceptable.

281-430

On p. 5.10-1, the DEIR notes that doubling the strength of the noise source increases the sound pressure by 3 dB. "Laboratory measurements correlate a 10-dB increase in amplitude with a perceived doubling of loudness and establish a 3-dB change in amplitude as the minimum audible difference for the average person."

281-431

• **As we requested in scoping comments, the DEIR should select and justify an appropriate standard for the County, as well as for the change in threshold of significance for increased noise from the 3 dBA of the 1996 DEIR to 5 dBA in the present DEIR.**

Impact 5.10-1: Exposure of Noise-Sensitive Land Uses to Short-Term (Construction) Noise (p. 5.10-14).

Policy 6.5.1.10 in Alternatives 1 and 4 requires noise mitigation in the project review process if an acoustical analysis so indicates and calls for including standards in the Zoning Ordinance in accordance with values in Table 6-1, values that we consider inappropriately high.

Alternatives 2 and 3 have a series of pertinent policies beginning with HS-12a that , referring to Tables HS-1, -2, and -3, set standards for daytime and nighttime nontransportation noise in CRs, RCs, and RRs.

281-432

We prefer the somewhat more restrictive levels of Alternative 3 for reasons already discussed. We do, however, question the appropriateness of allowing the noise levels indicated in cemeteries, which in these two alternatives are designated as PF, a land-use designation that, encompassing such facilities as sewage treatment plants, is allowed to have considerably higher noise levels. We are, however, pleased to see cemeteries recognized as a land use, where they weren't before.

‡ **We can only offer the thought that the land-use designation of cemeteries be changed, though just what would be more appropriate, we don't know. Certainly they aren't akin to sewage treatment plants, however!**

281-433

Impact 5.10-2: Exposure to Ground Transportation Noise Sources (p. 5.10-20).

The noise contours presented in Alternatives 2 and 3 along major highways are for the supposed maximum 60 dBA line; if a different standard is selected, as we think it should be, these contour lines will have to be moved. Moreover, Alternative 2 has Highway 50 at 6 lanes, while Alternatives 1, 3, and 4 have it at 8 lanes. (We oppose such widening; see Transportation and Circulation herein.) It is difficult to tell at the scale of the noise contour maps included in these plans,

281-434

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but the contour lines appear identically placed in the alternatives, whereas the lines should be farther removed from the highway as the number of lanes increases (especially as trucks will likely be in the slow lane when going uphill). 281-434

• How many existing houses along the Highway 50 corridor are within a 60 dBA contour line in the present 4-lane configuration? A 55 dBA contour line? A 50 dBA contour line? 281-435

• How will these numbers change if Highway 50 is changed to 6 lanes? To 8 lanes? 281-436

• Are these facts reflected in the land-use maps so as to protect occupants of these houses? 281-437

Anecdotal accounts indicate that noise originating at Highway 50 has become increasingly audible to persons living a few miles from the highway. Engines in heavy trucks are a significant component of such noise. Tire tread is also a significant factor in generation of noise and SUVs generally have larger tires with deeper treads. 281-438

• What information is available relative to changes in vehicle mix traveling on Highway 50 over time that might relate to increased noise? To what extent, if any, has heavy-truck traffic increased over time? What about SUVs? If there has been any effort to measure noise levels over time to establish correlation with changes in vehicle mix, please present the results. 281-439

• If there are trends, how would noise contour lines be affected in projections into the future? 281-440

Policies in Alternatives 2 and 3 refer to standards in Table HS-4 (pp. 244 and 246, respectively) for transportation-related noise. HS-12b and HS-12e seem somewhat contradictory in that one says new houses may be constructed on legal lots where noise levels exceed the standards and the other says that siting and design should be such that occupants don't experience noise levels exceeding the standards.

Proposed mitigation is to implement a policy (MM 5.10-2(a), p. 5.10-27) intended to Protect Noise-Sensitive Land uses from Unacceptable Noise Levels Caused by New Transportation Noise Sources. The policy purports to do so by setting a series of criteria for significant change in noise level from 5 dBA to 1.5 dBA depending upon the level of existing and projected noise level and applying these standards to the need for appropriate mitigation for new development projects. 281-441

We think it would be difficult to justify a threshold as low as 1.5 dBA but would support, indeed, feel it more appropriate, a threshold of 3 dBA (see earlier comments). Also, this mitigation addresses only the recipient of the noise. We believe there are ways to address the generator of the noise, as well, and that this may be a useful, and possibly cost-saving approach relative to County roads. See References:

‡ Increase use of noise-dampening road surfacing materials like rubberized asphalt on County roads and request that Caltrans do the same. Reported benefits include reduced reflecting cracking, improved skid resistance, reduced maintenance costs, increased pavement life, and beneficial use of scrap tires. 281-442

Impact 5.10-2: Exposure of Noise-Sensitive Land Uses to Fixed or Nontransportation Noise Sources (p. 5.10-28).

Mitigation Measure 5.10-3: Protect Noise-Sensitive Land Uses from Unacceptable Noise 281-443

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Levels Caused by Stationary Noise Sources (p. 5.10-34) again would set criteria for a significant change in noise level that would invoke appropriate mitigation. Additionally, a County noise ordinance would be adopted—no standards are mentioned. And the County would work with other relevant agencies involved in noise abatement to reduce non-jurisdictional noise.

A problem here is what, if anything, to do about leaf blowers, string trimmers, lawn tractors, chain saws, chippers, and similar noisy equipment commonly used in various parts of the County by homeowners and maintenance workers. Of course, these aren't exactly stationary sources of noise. And they are transitory. But they do disturb peace and quiet! Moreover, they pollute when gasoline powered. Many places have banned gasoline leaf blowers for this reason and that they typically blow leaves and a lot more from one property to someone else's.

281-443

‡ Please see our prior discussion of standards.

281-444

‡ The land-use maps should consider siting of possible future water and wastewater treatment plants for water purveyors so as to provide proper setbacks to protect surrounding land uses from associated noise.

281-445

Impact 5.10-4: Exposure to Aircraft Noise (p. 5.10-35).

The DEIR appropriately notes (p. 5.10-11) that Mather Field is the source of many complaints about aircraft noise. As they have grown, El Dorado Hills and Folsom in particular have become sources of such complaints. Aircraft operations involving Mather Field are projected to increase from the current ca. 277 per day–ca. 101,000 per year– to 125,400 per year in 2010, an increase of 24 percent. No figure is given for 2025, but the operational capacity of the field is estimated at 295,000, which would be an increase over the present of 192 percent.

Those residing in El Dorado Hills and Folsom have suggested that flight routes be changed to be south of Highway 50, while those living in the relative peace and quiet of south of Highway 50 strongly oppose any such re-routing, saying that purchasers of properties north of Highway 50 should have known what they were getting into and the fact that there are more of them and fewer of those south of the highway should not rationalize moving the problem to others.

281-446

The DEIR notes (p. 5.10-36) that all of the County's airport land-use plans are dated and thus could allow development of noise-sensitive land uses in area that could be affected by airport noise. All alternatives have policies proposing to remedy this situation and we support them. Alternatives 2 and 3 contain a policy directing working with Sacramento County to resolve issues associated with Mather Field.

‡ While we agree (and would include the FAA in it), we would urge that the policy also affirm the County's intention that the problem not be solved by moving it to another part of the County.

REFERENCES

1. *Pavement Effects and Options.* Colorado Department of Transportation.
2. www.rubberpavements.org : various studies of rubberized asphalt
3. Local use of rubberized asphalt: County of Yolo

Internet download

From the Colorado Department of Transportation:

3.2 Pavement Effects and Options

There are two basic pavement types: asphalt-based materials and concrete mixtures. The acoustical impacts of these pavement materials, as well as several variations to the standard usage of these road surfaces, have been the subjects of several research programs. For this project, the acoustical properties of porous asphalt pavement, rubberized pavement, and concrete tining options are reviewed.

Porous asphalt pavements

Porous asphalt pavements (PAP), also known as drainage asphalt, were originally designed to provide better wet-weather travel conditions. However, studies quickly discovered that the open-graded design also provided an attenuation of roadway noise of approximately 3 to 5 dBA [6-10] compared to non-porous pavements such as concrete. Several research programs [7, 8] have been dedicated to the determination of the ideal aggregate size and void content to optimize road noise attenuation. Experiments conducted by Meiarashi et al. found that road bases created with 13-mm diameter aggregate (Type C) provided 1 to 7 dB of road noise reduction for cars, and up to 6 dB attenuation for heavy trucks. Type B porous asphalt, constructed with 10-mm diameter aggregate, produced an attenuation effect of almost 9 dB for cars and trucks.

The acoustical performance of porous asphalt pavements over time has been an issue of debate. Several studies [11-14] concluded that the acoustical performance of PAP was greatly affected by time, dirt accumulation and wear. On average, most applications of porous asphalt pavements exhibited an acoustical age of approximately 5 to 6 years. Not all experiences with PAP, however, have resulted in reduced attenuation with time. Wassilieff [11] found that the acoustical performance of Open Friction Course, as it is referred to in New Zealand, actually improved by 2.3 dB over a nine-year period. However, the majority of the research findings agree that overlayment of the PAP will be necessary within 7 years to retain some acoustical performance. Results from Kragh [13] showed a 3 to 4 dB reduction during the first year following construction, a 3-dB reduction after 6 years, and only 1 dB reduction after 7 years.

The mechanisms of acoustical degradation for porous asphalt pavement have also been investigated. Konishi et al. [14] found that tire/road noise increased each year on a section of automotive test-track. The sound levels detected by their team increased somewhat consistently from fall through spring, but jumped more dramatically during the summer season. Laboratory tests using core samples from the test track revealed that the age influence was due to deterioration of the asphalt binder. Water, oxygen and ultraviolet rays initiate the deterioration of the asphalt binder. The deteriorated binder is then allowed to exfoliate from the surface of the aggregate, and at high temperatures in the summer sun, the exfoliated asphalt melts and evenly fills the original road base cavities. The largest deviation in acoustical performance was found to occur when the surface temperature of the asphalt reached 65° C (149° F), resulting in a decrease in absorption coefficient of 2 percent.

Acoustical performance of porous asphalt pavement is also affected by precipitation. Shima et al. [15] found that moisture on the surface of porous asphalt pavement provided additional attenuation over conventional wet pavement due to the absence of splashing. However, when moisture is allowed to build on the pavement, in quantities as little as 1-mm deep, the attenuation is reduced. In some geographical regions, a much as 24-hours may be required to regain full acoustical performance.

Rubberized Asphalt

Rubberized asphalt, also termed asphalt-rubber (A-R), is a blend of asphalt cement, reclaimed tire

rubber, and certain additives in which the rubber component is at least 15 percent by weight of the total blend (the wet process) [16]. Documented use of rubberized asphalt in the United States includes 45 states, with the majority of the usage in California, Arizona, Texas and Oregon. Routine usage of A-R has been adopted in about 10 foreign countries. The use of asphalt-rubber includes cold climates; A-R has been successfully applied in Flagstaff, Arizona as well as portions of the Sierra Nevada Mountains.

The acoustical benefit of rubberized asphalt are documented in both industry and non-industry sponsored studies. An independent study sponsored by Sacramento County officials sought an alternative to noise barriers when the traffic attenuation goal was less than 5dB [17]. The use of rubberized asphalt met their needs with attenuation estimates of 4 to 6 dB. It should be noted, however, that the attenuation effect was found to decrease with increasing distance from the source. Bollard [17] found that attenuation effects ranged from 5.6 to 6.3 dB at measurement locations within 50 to 70 feet of the roadway, but that sound attenuation dropped to 2.4 to 5.0 dB at measurement locations within 80 to 150 feet of the roadway. The lower noise level reduction farther from the roadway is believed to be due primarily to the frequency content of the traffic noise. Most of the traffic noise reduction resulting from the asphalt-rubber occurred in the higher frequency bands, specifically 500 to 4,000 Hertz. Because low frequency sound decays slower than high frequency sound with increasing distance from the noise source, the benefit of rubberized pavement (high frequency noise reduction) is reduced with increasing distance from the source.

Concrete Tining Patterns

Tines are formed on concrete roadway surfaces to enhance traction. Tines, which are small ridges, can be placed straight across a road (transverse), with the flow of traffic (longitudinal), or at an angle (skewed). The addition of tines increases the noise generated by tire-roadway interaction. While noise levels vary considerably even among similarly paved roads, research has shown that transverse tining is approximately 5 dB louder than standard asphalt pavement and longitudinal tining is approximately 3 dB louder than asphalt pavement.

In addition to generating louder noise levels, certain tining patterns can also result in tire whine (noise at distinct frequencies). Studies have found that uniform tining patterns exhibit discrete frequencies that can be audibly dominant. Meiarashi et al. [18] found that a pattern consisting of transverse grooves spaced 1-in. apart results is twice the road noise as a pattern consisting of transverse grooves spaced 2-in. apart. It has also been determined that deeper tining grooves results in greater noise regardless of pattern layout. Experiments using random and skewed tining patterns have been successfully conducted to minimize discrete frequency impacts.

Therefore, longitudinal tining represents the best approach to tining of concrete roadways (i.e., lowest acoustical impacts with acceptable wet weather performance).

Internet download

From the Colorado Department of Transportation:

3.2 Pavement Effects and Options

There are two basic pavement types: asphalt-based materials and concrete mixtures. The acoustical impacts of these pavement materials, as well as several variations to the standard usage of these road surfaces, have been the subjects of several research programs. For this project, the acoustical properties of porous asphalt pavement, rubberized pavement, and concrete tining options are reviewed.

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Therefore, longitudinal tining represents the best approach to tining of concrete roadways (i.e., lowest acoustical impacts with acceptable wet weather performance).

From www.rubberpavements.org:

Rubberized Asphalt Studies in Other California Counties

Rubberized asphalt has been studied in other California counties outside of Sacramento. Orange County studied the effectiveness of rubberized asphalt as a noise mitigation measure in a report entitled Mixed Roadway Surface Noise, prepared by Mestre Greve Associates in February of 1992. The City of Thousand Oaks also conducted a study in 1992 entitled Asphalt Rubber Overlay Noise Study, prepared by Acoustical Analysis Associated, Inc. Both studies determined that rubberized asphalt successfully mitigated traffic noise.

The study conducted for the County of Orange looked at the difference in noise levels between four different pavement types: dense grade asphalt, rubber asphalt (gap graded), rubber asphalt (open graded), and open grade (with latex). The goal of this analysis was to eliminate the effect due to different traffic conditions at each segment of roadway thus resulting in a different noise level due specifically to the asphalt type. The study concluded that rubber asphalt-open graded was 3.9 dBA quieter than new dense grade asphalt.

The noise study conducted for the City of Thousand Oaks measured the reduction in traffic noise levels experienced due to resurfacing. The street conditions before resurfacing were poor and therefore, noise reduction due to the new paving was striking. Noise reduction on the six sites tested ranged from 3-7 dBA, depending on traffic and speed. When compared with the new standard asphalt, rubberized asphalt was found to be 2-5 dBA quieter.

National Rubberized Asphalt Studies

On a national scale, rubberized asphalt has been studied by many states as well as the federal government. Arizona has been the leader in the production and use of rubberized asphalt. In March 1990, Western Technologies Inc. performed a sound level survey to determine the noise levels produced during peak traffic flow on different types of pavement, including rubberized asphalt. In November of 1995 the Texas Department of Transportation conducted a study on the crumb rubber modifier used in rubberized asphalt as a successful method to reduce tire noise. Finally, the National Research Council conducted a study in 1997 entitled the Relationship between Pavement Surface Texture and Highway Traffic Noise.

Two studies were conducted in Arizona. One was prepared for the City of Phoenix and the other was prepared for the City of Tucson. The study in the City of Phoenix was compared standard chip seal asphalt laid in 1984, and rubberized asphalt that was laid in 1989. The study concluded that there was an approximate 10 dBA reduction in noise with the rubberized asphalt compared with the chip seal asphalt.

The study prepared for the City of Tucson compared asphalt rubber concrete pavement and standard concrete pavement. The study showed that the asphalt rubber concrete was 6.7 dBA quieter than the concrete pavement.

In 1995, the Texas Transportation Institute conducted a study to identify potential problems with the current rubberized asphalt mix design, develop recommendations on those problems, develop recycling guidelines, and evaluate alternatives. Researchers monitored CRM mixtures paved in 1992 and 1993 in San Antonio, Texas. The results of the these tests concluded that rubberized asphalt performed well in construction practices, and that the rubberized asphalt mixes gives a higher durability with better stability than dense-grade mixes.

The National Research Council conducted a study showing the effect of different surface types on noise levels. The Council studied many types of roadway surfaces and determined that open graded asphalt showed the greatest potential for noise reduction when compared to dense graded asphalt. The study examined research done by Kansas, that studied the effects of rubberized asphalt. The results in Kansas showed that the open graded asphalt always showed a decrease in noise level. In contrast, when the asphalt rubber pavement was compared to the asphalt surface, there were both reductions and increases in noise level. Thus, the results of this Kansas study did not show a clear noise reduction trend with rubberized asphalt. However, the study done by the National Research Council did not examine any other research than the Kansas study.

Global Studies

Rubberized asphalt is a process that is not only of interest in the United States but also globally. In 1995, the Canadian Technical Asphalt Association performed a study for British Columbia on rubberized asphalt. Their study entitled, The Full Scale Evaluation of Rubberized Asphalt Concrete in British Columbia, was a response to the need for improvement of binders in the road building industry. In a paper done by Netherlands researchers, entitled Open Grade Rubberized Asphalt for Traffic Noise Reduction in Urban Areas, research was conducted to analyze the development of rubberized asphalt as a mitigation measure. Other studies have been done in Great Britain, West Germany, Belgium, and other European Countries.

The study conducted in British Colombia compared conventional pavement binders to Rubberized Asphalt (Rub-Arb [TM]) in various locations throughout British Columbia over a period of five years. This study concluded that within the laboratory, the asphalt rubber binder showed improved properties at extreme temperatures compared to convention asphalt. This study also concluded, that modified asphalt rubber binders can be manufactured for a wide range of climate conditions and requirement, it is more flexible at low and sub-zero temperatures, and that the thickness of the asphalt rubber concrete overlay can be reduced from the traditional 50mm overlay down to 38mm of modified asphalt rubber concrete.

In Dordrecht, Belgium a test was conducted using open graded rubberized asphalt in order to study the effectiveness of rubberized asphalt on noise. In this study the researchers concluded that it is possible to design an asphalt mix to reduce traffic noise in urban situations where the traffic noise is dominant. The study found, that a noise reduction can be achieved of between 2.1 and 3.2 dBA at the speeds of around 50 km/h.

Additional studies have been conducted in other European countries. The Societe des Autoroutes du Nord et de l'Est de la France, Paris conducted a study that showed a noise reduction level of 2-3 dBA with rubberized asphalt along the Seine River. In a paper presented at the 1988 Asphalt-Rubber Conference in Graz, Austria, Helmut Prager, Engineer of Austrian Highways and Bridges showed how the rubber overlay provides better noise reduction. Finally, in Bonn, Germany a study showed that using rubberized asphalt as a sound mitigation measure is more cost effective than using sound barriers. Most of these studies concluded that rubberized asphalt could reduce noise by 2-3 dBA with few technical problems.

Finally, The European Commission Green Paper, published in the June 1997 edition of Noise/News International, cites the following on Page 87:

"Low-noise porous road surfaces have been the subject of much research. These porous road surfaces reduce both the generation and propagation of noise by several mechanisms - which can be related to the open structure of the surface layer. Results have shown that the emission noise levels can be reduced from levels generated on equivalent non-porous road surfaces by between 3-5 dB(A) on average; by optimizing the surface design, larger noise reductions are feasible. At present, the cost of porous asphalt surfacing is higher than conventional surfaces (for resurfacing, but for new roads, the

cost is minimal), but may drop as contractors gain experience with porous surfaces. The material is also less durable. However, improvements are being made to durability and, in many countries, these materials are already being used as part of normal road construction in noise-sensitive areas."

County of Yolo

PLANNING AND PUBLIC WORKS DEPARTMENT
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www.yolocounty.org

JOHN BENCOMO
DIRECTOR

TO: **THE HONORABLE TOM STALLARD**, Chair,
and Members of the Board of Supervisors

FROM: **JOHN BENCOMO**, Director,
Darlene G. Comingore, Senior Civil Engineer,
Planning and Public Works Department

DATE: October 2, 2001

SUBJECT: Award of Contract to Teichert Construction for the Rehabilitation, including Rubberized Asphalt Concrete Overlay, of County Road 102 Between East Beamer Street and County Road 18C.

RECOMMENDED ACTION:

IT IS RECOMMENDED that the Board of Supervisors:

1. Award the contract for Road Rehabilitation of County Road (CR) 102 from East Beamer Street (County Road 21) to County Road 18C to Teichert Construction.

2. Authorize the Chair of your Board to sign the Contract Agreement, subject to receipt of the executed contract, bidder's bond and insurance submittals required by the terms of the specifications.

REASON FOR RECOMMENDED ACTION:

This project will rehabilitate 1.8 miles of CR 102 from East Beamer Street to CR 18C. Teichert Construction is the low bidder on this project. Their proposal met all the requirements of the bid.

BACKGROUND:

On August 28, 2001, the Board of Supervisors approved the project and authorized construction for the Rehabilitation of County Road 102. Three bids were received on September 19, 2001 from the following

firms:

Teichert Construction	$565,067.00
Vintage Paving Company, Inc.	$598,309.00
Granite Construction Company	$654,017.40
Engineer's Estimate	$623,236.

On May 14, 2001, Planning and Public Works released an RFP for the design of CR 102 rehabilitation. Consultants were asked to submit proposals that would include consideration of rubberized asphalt. Nichols Consulting Engineers was selected for this project. Various road surface treatments were considered by the consultant including the rubberized asphalt concrete. Staff also attended workshop in rubberized tires to gain knowledge and become familiar with the construction methods. Rubberized asphalt concrete (RAC) was selected because of cost savings of approximately $450,000. In addition, other advantages of RAC include reduced thickness of the pavement section, long lasting durability, high skid resistance, reduced traffic noise, and reuse of discarded tires. It's estimated that as a result of this construction project about 10,625 tires will be used.

BUDGET IMPACT:

Sufficient funds have been included in the FY 2001/02 Road Fund Budget for this project. All of the funds budgeted for this project are State Transportation Investment Funds. No local match is required.

OTHER AGENCY INVOLVEMENT:

The Rubberized Asphalt Concrete Technology Center and the Northern California Chapter of this organization provided training to staff on the use of and construction with rubberized asphalt concrete.

ATTACHMENTS:

Tabulation of Bids

5.11 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, University of North Carolina.

The more we continue to accommodate the automobile and make automobile use convenient, the more we will continue to see the kind of low-density growth development at the periphery of our urban area that compounds our air quality problem, and over the long-term, our congestion problem.
—Earl Withycombe, engineer, quoted in *Sacramento News and Review*, 20 Apr 2000.

• Please refer to our scoping comments, incorporated by reference herein, on Air Quality, p. 42, under the Public Health and Safety Element. 281-447

Beginning on p. 5.11-1, the DEIR describes the physical environment in the two pertinent air basins—the Mountain Counties and the Lake Tahoe basins (mapped on Exhibit 5.11-1, p. 5.11-71), and discusses the meteorological conditions therein and how they affect air quality. Discussion of criteria air pollutants commences on p. 5.11-3. See References for a recent evaluation of the County's air quality rating. 281-448

See also in References herein, several reports on health effects, especially for children.

• The discussion of ozone health effects (p. 5.11-4) should include the findings of EPA with respect to exposures greater than one hour in duration. The effects from these longer term exposures served as the basis for adoption of the 8-hour ozone standard of 0.08 ppm. 281-449

• The statement on p. 5.11-6, second paragraph under Particulate Matter, that "adverse health effects associated with PM_{10} depend on the specific composition of the particulate matter" is incorrect. The mechanisms of physiological response to exposures of PM_{10} are not yet fully understood. Some evidence suggests that it is the numbers of particles being deposited into alveoli and airway passages that are important in imputing systemic response. 281-450

• The discussion of toxic air contaminants (p. 5.11-8) fails to distinguish the relative impacts of the pollutants and sources listed. Of significance is the fact that Sacramento regional monitoring data and studies conducted elsewhere throughout the state reveal that Diesel particulate matter emitted by on-road and off-road Diesel vehicles contribute approximately 70% of the cancer risk from airborne pollutants to which the general population is exposed in outdoor settings. Please correct. 281-451

• Under Asbestos, p. 5.11-9, "ultramatic" should be "ultramafic". This discussion should distinguish between the two kinds of "naturally-occurring asbestos" found in El Dorado County—chrysotile and tremolite. The known occurrences of tremolite are not in areas mapped by the 1974 Soil Survey as serpentine in origin. (See also our discussion herein under Section 5.9, Geology, Soils and Minerals.) The statement that "risk of disease is dependent upon the intensity and duration of exposure" goes beyond knowledge, especially relative to tremolite. Please correct. 281-452

• Judging by recent events relative to presence of tremolite at Oak Ridge High School, the County has yet to recognize that monitoring for tremolite requires special techniques. Asbestos is of special concern in El Dorado County because of the considerable amount of construction of both 281-453

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homes and schools that has been allowed on it with only recent concern and that directed primarily at fugitive dust associated with construction activities, omitting post-construction exposures. These matters should be thoroughly explored in the FEIR.

281-453

The DEIR next delves into the regulatory and planning environment, starting on p. 5.11-9.

281-454

• **The original date by which the 1970 federal Clean Air Act required attainment of ambient air quality standards was July 1975, not December 1987 as the text (p. 5.11-10) indicates.**

Air Quality Attainment Plans are discussed beginning on p. 5.11-13. A regional update to the 1994 State Implementation Plan (SIP) for attainment of ozone standards was "recently agreed upon by local air districts in an effort to avoid the lapse in the region's transportation conformity". Local planners must ensure that their transportation plans stay within their motor vehicle emissions budget as tied to the SIP. See References.

281-455

As the DEIR notes (p. 5.11-14), the motor vehicle mix used in the current SIP is outdated and does not reflect the increase in popularity of SUVs and other light trucks and their exemptions from the emission standards imposed upon cars. Ability to use these outdated data expired 31 Dec 2002. SACOG expects that applying an updated vehicle mix to current models would result in a conformity lapse. This has implications for the General Plan. See References: "The Sacramento Metropolitan Air District estimates that emissions from motor vehicles are at least 20 percent greater than expected."

281-456

On p. 5.11-15, the DEIR next discusses El Dorado County Air Quality Management District's *Guide to Air Quality Assessment: Determining Significance of Air Quality Impacts Under the California Environmental Quality Act.* It then discusses local mandatory rules that apply to fugitive dust, coatings of various kinds, and other possible sources of contaminants.

The DEIR discusses EPA standards for ambient air quality for several pollutants (p. 5.11-16; standards presented in Table 5.11-1, p. 5.11-56). The location of monitoring stations in the County are mapped on Exhibit 5.11-1, and are notable for their paucity. Parameters monitored are given in Table 5.11-2, p. 5.11-57. Next is given an overview of air quality data for 1992-2001 (data presented in Table 5.11-3, p. 5.11-58 ff.). Both state and federal ozone standards are exceeded not infrequently; the state standard for particulate matter is also exceeded not infrequently (p. 5.11-17).

281-457

El Dorado County is currently classified as a nonattainment area for the state 1-hour ozone and PM10 standards. It is classified as a severe nonattainment area for the 1-hour federal ozone standard and nonattainment for the 8-hour ozone standard. Ozone, PM_{10}, CO, and NO_2 are the substances of concern in the County relative to air quality.

• **The statement (p. 5.11-18, line 8) that "CARB does not yet have a measuring method with enough accuracy or precision to designate areas in the state as either 'attainment' or 'non attainment'") is incorrect. CARB's web site (http://www.arb.ca.gov/aaqm/aaqm.htm) and related documents give monitoring methods for sulfates, lead, and hydrogen sulfide, among other pollutants, capable of determining the attainment or nonattainment of ambient air quality with respect to standards for these pollutants. Please correct. Also in this paragraph, is NOx meant rather than NO_2?**

281-458

Sources of the emissions in the County's inventory are set forth in Table 5.11-5 (p. 5.11-63). "Mobile sources (both on-road and other) are the primary contributors to NOx, ROG [reactive organic gases], and CO in the county." Trends and forecasts , derived from CARB, are presented in Table

281-459

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5.11-6 (p. 5.11-64). NOx, ROG, and CO are expected to trend downward, primarily because of regulation of motor vehicles, and PM_{10} upward because of construction activities and wood-burning fireplaces.

281-459

Impact 5.11-1: Construction Emissions of ROG, NOx, and PM_{10} (p. 5.11-19).

We agree that this impact would be significant under all alternatives with or without the proposed mitigation. Nevertheless, we support proposed Mitigation Measure 5.11-1 to use updated recommendations to analyze and mitigate potential air quality impacts.

281-460

• The presentations of emissions impacts for various source categories in terms of relative significance (i.e., S_1 through S_4) (p. 5.11-19) fail to provide useful information with respect to comparisons between project alternatives or between source categories. The significance tables contained in Section 5.11.2 should be revised to contain numerical values for emissions so that readers are informed of the relative differences between alternatives and the contributions to overall impacts by individual source categories.

281-461

• The statement (pp. 5.11-21, line 5; 5.11-22, line 12 in the second paragraph) that "Construction emissions associated with development under the General Plan cannot be quantified because of the variability of construction projects, their location, timing, etc." is incorrect. Methodologies for computing construction emissions are presented in EPA's Compilation of Air Pollutant Emission Factors (http://www.epa.gov/ttn/chief/ap42 /index.html), CARB's area source emission methodologies (http://www.arb.ca.gov/ emisinv/areasrc/index0.htm), and in CARB's URBEMIS 2001 (http://www.arb.ca.gov/ planning/urbemis/urbemis.htm) web documents. Reasonable assumptions can be made regarding the average lot size of residential development, the acreage of ancillary development needed to support the numbers of residences projected, and the timing of this development. Emissions from construction will not vary significantly with location.

281-462

‡ The County needs to address construction-related dust emanating from activities on ministerial parcels. The "trigger" of 250 cu yds to require a permit is too large. Small contractors—as we have commented elsewhere—seem to ignore measures to control dust, especially in areas that may contain asbestos, which they may not even recognize, whereas large contractors dealing with subdivisions generally have geotechnical studies that alert them to such factors.

281-463

‡ The County should also come to grips with the fact that special measures are needed to address the possible presence of tremolite where construction occurs.

281-464

Impact 5.11-2: Long-Term Operational (Regional) Emissions of ROG, NOx, and PM_{10} (p. 5.11-26).

• The discussions of regional emission impacts for each of the four project alternatives (p. 5.1-29 through –35) include conclusions that implementation of each of the alternatives would conflict with the adopted Sacramento Area Regional Ozone Attainment Plan (SAROAP). Failure to comply with this plan would lead to federal sanctions for the entire region. The only way in which the General Plan can be found to be consistent with the SAROAP, which the County has adopted, is for the DEIR to demonstrate that the sum of the emissions that will occur in the General Plan area (during any year after 2005) and those emissions forecast to occur in the other counties covered by the SAROAP for the same year are equal to or less than the carrying capacity for the region (i.e., 136 tons per day of ROG and 98 tons per day of NOx) as stated in the SAROAP. If the DEIR does not make this showing, the only conclusion that can be reached is that El Dorado

281-465

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County does not intend to comply with the SAROAP. This would of course have serious ramifications for the County and could lead to a Federal Implementation Plan targeted solely at El Dorado County. The DEIR does not make this showing.

281-465

• In addition to the above, the DEIR should present current estimates of emissions in El Dorado County and show that 2025 and buildout emission levels are lower than current emission levels. If this cannot be demonstrated, the DEIR must show the emission reductions that the County has commited to achieve in the SAROAP will be achieved. Clearly, the General Plan cannot lead to development that increases emissions above the levels allowed for El Dorado County in the SAROAP.

281-466

‡ We support all the proposed mitigation but would prefer stronger measures (e.g., why prohibit just "open-masonry" woodburning fireplaces" in new development?). In our scoping comments we proposed exploration of several measures including banning burning of trash in conjunction with pick up and composting of organic wastes by garbage-collection franchisees; encouragement of home composting; restricting installation of wood-burning fireplaces (wood stoves we believe already have to meet EPA standards for efficient burning) [we noted that this is already occurring in the Bay Area and that a model ordinance was available] and retrofitting those in older homes (inserts are available); it has also been accepted voluntarily by some developers in San Joaquin County]; encouraging chipping woody waste (non pressure-treated) for use as mulch.

281-467

Even the Mountain Democrat had this to say in an editorial on 5 August 2002:

> "We are likewise amazed that the El Dorado County Board of Supervisors completely ignores wood stoves and fireplaces. It would seem a simple matter to adopt pollution standards on wood stoves. Most wood stoves sold now are highly efficient and are low pollution emitters. Adopting modern standards for wood stoves would show the county is acting to reduce its role in pollution. The next step after that would be extending these standards to require retrofitting when a house is sold."

281-468

See References for information about woodburning stoves and fireplaces, including information on localities where ordinances have been adopted, the likelihood of future regulation by CARB, a model woodsmoke ordinance, and information (which could be useful in a public information campaign) of the comparative costs of heating with wood and with gas or electricity and how a certified stove will get more heat from the same amount of wood.

‡ The County should recognize the relation between high temperatures and ozone production and adopt policies that help mitigate high temperatures such as retention of trees as much as possible, reduction in paving (especially black asphalt) [e.g., narrower streets than those that commonly characterize subdivisions and that contribute to accidents through encouragement of speeding], encouragement of light-colored roofs (that would also reduce energy consumption by air conditioning through reducing temperature of trapped air in attics). See References for additional information.

281-469

‡ The County should also recognize the connection between land-use policies and air quality, as exemplified in the second introductory quote, and act accordingly. This would include strategies like the following (also see References):

A transportation system that supports walking and biking.
An expanded, convenient regional transit service that is clean fueled.
Land use that is transportation and energy efficient.
Trees and light-colored surfaces that reduce urban temperatures.
Open space that defines the region and stops sprawl.

281-470

281-470

Funding that supports these policies.

‡ The County could itself encourage its subcontractors into cleaner engines by using language similar to the following in its procurement process (especially DOT's)[see SECAT in References]:

"It is our intent to seek a vendor who will use lower-emission heavy-duty vehicles."
"It is our intent to seek a vendor who will commit to reduce the emissions from their heavy-duty fleet operating in El Dorado County..."
"All other considerations being equal, we will award this contract to the vendor who has the lowest-emission heavy-duty fleet operating in the Sacramento region."

281-471

The Legislative Analyst's Office in 2001 (see References) made several recommendations to the State legislature concerning improving functioning of local air districts in which she identified a number of weak points in two main areas: 1) Ensuring consistent and effective local district enforcement of stationary source rules and permits, and 2) Evaluation of local programs to ensure that the districts are operating effectively to attain the state's air quality standards. The LAO found inconsistent enforcement that compromised effectiveness (and recommended that the CARB set minimum penalties where they were not already established). Major findings from a 1997 federal audit of California Air Compliance and Enforcement Program found the following:

In every case reviewed involving a *repeat* violation, districts had not escalated the enforcement response over the previous action taken.
Some districts took as long as four years to ensure a return to compliance after a notice of violation was first issued.
Districts in general sought penalties that were too low, when measured against U.S. EPA's penalty policy.
Significant variation among districts existed in amounts proposed for penalties.

281-472

‡ In view of these results, we would recommend that the functioning of the local Air Quality Management District be reviewed along the same lines to see whether its effectiveness could be improved.

Impact 5.11-3: Toxic Air Emissions (p. 5.11-39).

We agree with the expressed concern, and in particular with newly instituted regulation of diesel exhaust, and support the proposed mitigation.

281-473

Impact 5.11-4: Local Mobile-Source Emissions of Carbon Monoxide (CO) p. 5.11-43.

Vehicular-based emissions are, of course, the great bugaboo. See the second introductory quote, and references 4, 5, and 6 below. See also the discussion herein under Traffic and Circulation.

281-474

• The DEIR (p. 5.11-43 through –50) indicates that development under the General Plan, even with the implementation of all proposed mitigation measures, will cause violations of federal and state CO standards. This is unacceptable as it would represent a violation of both federal and state laws. Further, in contrast to the situation under CEQA, these laws will not allow the County to adopt the General Plan based on a finding of overriding considerations.

281-475

Impact 5.11-5: Odorous Emissions p. 5.11-50.

AR 13448

Avoidance of locating sensitive receptors in the vicinity of emitters seems appropriate mitigation. 281-476

CUMULATIVE IMPACTS: These impacts are discussed at p. 7-15 ff. with reference to the 1991 Air Quality Attainment Plan, with a conclusion, "Although all feasible policies and mitigation measures are included...this cumulative impact is considered significant and unavoidable. This is unacceptable. As previously stated, violation of law cannot be addressed by a finding of overriding considerations. 281-477

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El Dorado County's air quality rating plummets

By NOEL STACK
Staff writer 5/2/2003

El Dorado County's air quality rating has plummeted, according to the latest report issued by the American Lung Association. The "State of the Air" report, released earlier this week, placed El Dorado County eighth on the national list of the top 25 counties with the worst ozone pollution, climbing 10 spots from two years ago.

"Last year there were some really bad episodes," said Marcella McTaggart, air pollution control officer for the Environmental Management Department.

The bad air days, when the air quality fails to meet federal standards, said McTaggart, are associated with very hot temperatures and stagnant air. Using the ALA weighted rating system, El Dorado County experienced 37 bad days over the two-year measurement period, 10 more than Sacramento County. Still Sacramento County climbed in the ranks as well.

"The fact that Sacramento received a higher ranking even though its air quality improved can be attributed to several factors, including climate," states a press release issued by the ALA out of Sacramento. "The summers used for the testing were milder for other smoggy regions than in Sacramento. During hot temperatures, smog is usually worse."

Because of the region's topography and climate, most of the pollution afflicting El Dorado County is transported into the area and not created here, McTaggart added. Right now, El Dorado County is working with Sacramento to determine how much pollution actually comes into the county from other places.

The surrounding counties, including Placer, Sacramento and El Dorado, she added, are also combining forces to come up with solutions to the air quality problems.

"All of our districts are working together to update control measures ... to come into compliance," said McTaggart. "There are tons of measures being considered by the districts."

One creative solution Placer County is considering, she said, is a restriction on construction equipment used on "Spare the Air" days or asking companies only to operate more fuel efficient equipment on these days. So far, she added, it's just one of many suggestions to improve the counties' grades.

El Dorado, Nevada, Sacramento, Placer and Amador all received an "F" for the number of poor air quality days in the region but, according to the press release, things are looking up at least for Sacramento County. Its number of days dropped by a little over three.

"We are on our way to attaining the cleaner levels mandated by the federal government," states the release.

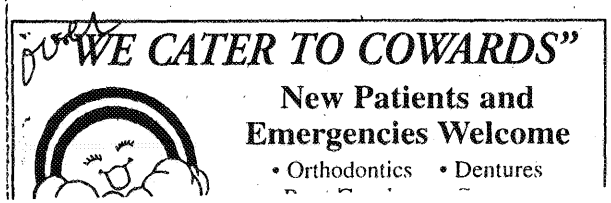
If the region, including El Dorado County, doesn't meet the 2005 deadline set by the federal government it could lose as much as $680 million in funding, states the release. This loss would impact the entire area, especially transportation.

"That progress is literally where the rubber meets the road because if the 2005 deadline isn't met," states the release, "Washington, D.C., will cut transportation funding for the region in a move that will affect anyone who drives throughout the greater Sacramento region."

This loss of money could result in many transportation projects getting deferred in El Dorado County, according to Matt Boyer, director of transportation. Some projects such as road maintenance and federally funded bike trails would not suffer, Boyer added, but other projects such as widening Highway 50 may lose approval.

"A regional significant road widening project using federal money would not be exempt," said Boyer. "It's a very significant issue. At this point it's more of a procedural issue. The air quality plans need to be revised."

Boyer said the county DOT will work with the Sacramento Area Council of Governments and air quality board to make sure adequate changes are made to the plans so that DOT won't lose the ability to complete projects.





Rules would put damper on fireplaces

11/23/2002
By Carrie Peyton Dahlberg
BEE STAFF WRITER

It seems like a comforting winter ritual. Arrange kindling and rough-cut logs in a fireplace, light a match, and settle back to gaze into the flames.

The trouble is, there's smoke.

It curls up the chimney, swirling with it a cloud of microscopic specks of soot, creosote and ash that can lodge in the lungs of anyone who breathes it.

The dirty reality of wood fires on windless winter nights was spelled out anew this week in the cities and farm towns south of Sacramento, where San Joaquin Valley air regulators unveiled tough proposed rules to put a damper on unhealthy smoke.

On days when the air is most clogged, all wood fires would be banned. There would be a tip line to report offending

▶ SMOKE, back page, A22

▶ CONTINUED FROM A1

neighbors, infrared inspections f their chimneys and still-unpecified fines for violators. New houses could not have woodburning fireplaces unless they vere well separated from other iomes – no more than two per acre.

The measures, which would go nto effect next year, are part of a teadily growing understanding in California and around the nation of the Pandora's box of emissions released when a log is hrown onto the flames.

Among the worst are particulates – flecks less than one-seventh the width of a human hair – hat can elude the respiratory system's natural defenses after being sent airborne by cars, trucks, factories, power plants – and fires.

"There's more and more mortality linked with high particulate levels," said Joe Fish, an air pollution control specialist with the Northern Sierra Air Quality Management District. "This is replacing ozone as the pollutant of concern. The more they study it, the worse it looks."

Industry and vehicles release more particulates, in smaller, more dangerous sizes, than fireplaces or wood stoves, but in regions with unlucky combinations of geography, weather and heating sources, smoke can be a serious problem.

It is the primary cause of pollution in some mountain communities in Northern California, said Jerry Martin, spokesman for the California Air Resources Board.

"They don't have a lot of motor vehicle traffic, they don't have a lot of industry, and in a lot of those places, everybody burns wood," he said. "In deeper valleys, the smoke has no place to go and it can build up for days."

When that happens, it means tougher breathing for children, the elderly and anyone with piratory problems.

Death rates for those whose breathing is already impaired tick up on days with high particulate pollution, air officials say. Over time, particles embedded in the lungs can cause structural damage.

For many who treasure the way fires can light up a holiday, a rainy afternoon or a romantic evening, that reality has not sunk in.

When the San Joaquin Valley Air Pollution Control District, under pressure from federal regulators, released its draft fire rules Tuesday, it was deluged with angry calls, said public education officer Josette Merced Bellow.

Callers demanded to know why the air district thought it could tell them what to do in their own homes. "This is my right, this is my freedom," Bellow said she was told again and again.

The San Joaquin air district, which stretches from Lodi to Bakersfield, has little choice. The U.S. Environmental Protection Agency has already warned that the region could lose federal highway funds if it does not impose an aggressive plan to improve its air.

The Valley often struggles with high particulate levels and this week would have imposed no-burn rules five of seven days because of stagnant air and thick fog.

While better wind patterns make Sacramento's particulate problems less dire than San Joaquin's, the topic touches deep chords here.

Reactions to the issue range from snorts of derision to staunch defenses of wood heat as economic and renewable and to anguished pleas to stop burning.

Ronalee Wilkerson of Fair Oaks bristles when she's out in her garden and passersby try to commiserate with her about the plume of smoke from a neighbor's home.

ple have huddled around fires for warmth for millennia, and the human race has thrived. No study will convince her that there's a problem now.

"You give those researchers another $300,000 and three years from now they'll tell you 'Oh ... it's not so bad after all,' " Wilkerson said.

She treasures the memories of sipping tea with her son beside the fire before he left for college, and now she and her husband plan to put in a wood stove, "to help with the state's energy problems."

Jan Austin of Roseville doesn't care much about study results, either.

She just has to take a breath – or try to – to know the effects of fires on her lungs.

Austin, whose asthma causes her to react to everything from perfume to wood smoke, has learned the routines of her neighbors.

In winter, she times her evening walk to end before 8 p.m., because that's about the time they start lighting up in the two- and three-fireplace homes around her.

If she tries to walk later when the smoke is pouring out, the headaches start, and the coughing.

"It feels like you're gasping for air and there isn't any," she said.

Austin tries to raise her friends' awareness, but she has never asked her neighbors to burn less. She's not that kind of person, she said.

Others are more direct.

A few Sacramento residents have passed out leaflets in their neighborhoods, asking for fewer fires.

One north state woman has made the cause her passion, running an informational Web site called "Burning Issues" that has aided campaigns against everything from fireplaces to wood-

Smoke: Tiny flecks raise health concerns

"To have a civil society, we will need to stop the wood burning," said Web site founder Mary Rozenberg.

The debate could escalate as federal regulators carry out their plan to limit exposure to even smaller particles, 2.5 microns in diameter or 1/28th the width of a strand of hair.

While Sacramento meets today's federal standards for the larger, 10-micron particulates, initial studies indicate it could be slightly over the limit for the smaller particles, according to the Sacramento Metropolitan Air Quality Management District.

"It's too early to know what the capital region may have to do to meet the newer standard, particularly because emissions seem to be declining, but limiting fires on some nights may be one of the options, said Aleta Kennard, the district's supervisor of technical services.

The industries that help keep hearths warm and bright are do-

AR 13451

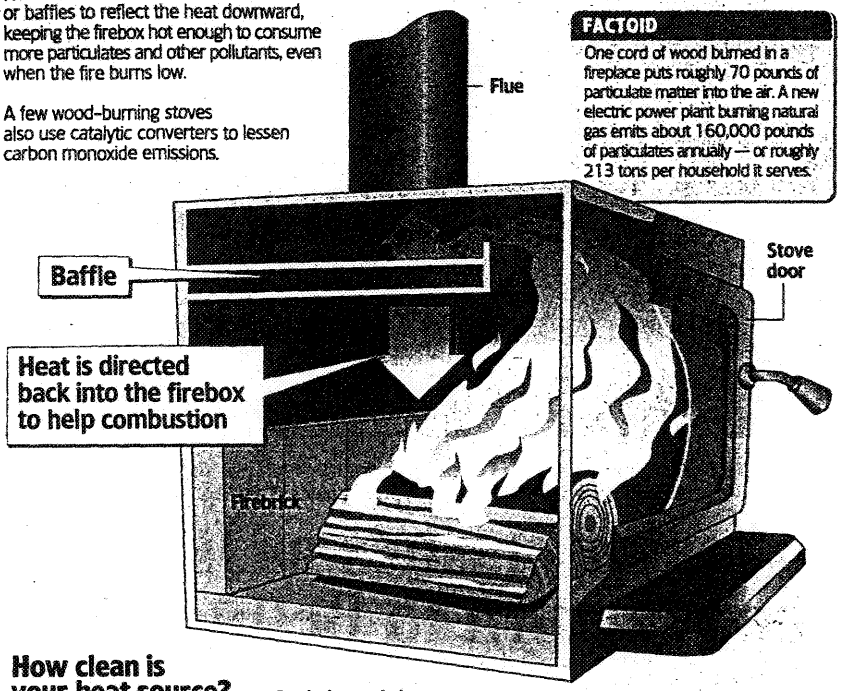
How a wood-burning stove burns cleaner

Newer wood stoves use interior barricades or baffles to reflect the heat downward, keeping the firebox hot enough to consume more particulates and other pollutants, even when the fire burns low.

A few wood-burning stoves also use catalytic converters to lessen carbon monoxide emissions.

FACTOID

One cord of wood burned in a fireplace puts roughly 70 pounds of particulate matter into the air. A new electric power plant burning natural gas emits about 160,000 pounds of particulates annually — or roughly 213 tons per household it serves.



How clean is your heat source?

	Particulate emissions per hour
Fireplace	40–60 grams
Older, uncertified wood stove	15.5 grams
EPA-certified wood stove	4.1 grams
Pellet stove	2.1 grams
Gas insert	.07 grams
Electrical resistance heater	.006 grams*
Electric heat pump	.002 grams*
Gas furnace	.001 grams

*Assumes California's typical mix of different types of electric generation

Sources: California Energy Commission; Sacramento Metropolitan Air Quality Management District; San Joaquin Valley Air Pollution Control District; California Air Resources Board; Hearth, Patio and Barbecue Association

Tips for cleaner-burning fires

- Use dry, seasoned wood
- Never burn glossy paper or other garbage
- Build small, hot fires, not large, smoldering ones
- Use smaller logs to help the fire burn hotter
- Let the fire die overnight
- Have your fireplace or wood stove and chimney regularly inspected and cleaned

Sacramento Bee/Sheldon Carpenter

ing the best they can with all this.

Fire-log makers have commissioned studies that show their pressed wood products burn cleaner than wood in a fireplace.

Wood-stove vendors support regulations that encourage replacing pre-1992 stoves with newer, EPA-certified ones that are at least four times cleaner than the old models.

Pellet-stove backers point out that EPA tests show their products are about twice as clean as the certified wood stoves.

And for emissions, no one questions that the best of the lot are heating devices that look like gas or propane. EPA data shows natural gas fireplace inserts are about 30 times cleaner than pellet stoves.

The dirtiest option of all is burning unseasoned wood in a standard fireplace.

"There's no question, wood smoke is not health food," said John Crouch of Citrus Heights, who handles public affairs for a national hearth, patio and barbecue trade group. "We all need to do what we can to reduce wood smoke."

Peter Ross, who has sold wood stoves for more than two decades from his Solar Syndicate store in table that some parts of California will gradually place new or added restrictions on fireplaces, wood stoves and inserts.

Still, he is sure that in most of the state, most of the time, the home fires will keep burning.

"Biomass fuels like wood are renewable and we can create our own. We're not dependent on the Middle East," Ross said. "Wood has got a very viable spot in the mix."

□ □ □

The Bee's Carrie Peyton Dahlberg can be reached at (916) 321-1086 or cpeytondahl...

AR 13452

Bay Area Air Quality Management District

Model Woodsmoke Ordinance

| Ambient Standards | Press Releases | Air Currents | Air Incident Reports | Public Records |

In 1998, the Air District developed a model woodsmoke ordinance for fireplaces and woodstoves as a guidance document for cities and counties that wish to regulate sources of particulate matter (PM) in their communities. As epidemiological studies continue to demonstrate a link between particulate pollution and health risks, including increased mortality, the model ordinance seeks to regulate the largest single stationary source of PM in the Bay Area, woodsmoke. On an average winter day, at some Bay Area locations, as much as 40 percent of the PM pollution comes from woodsmoke. In addition, woodburning generates carbon monoxide and toxic air pollutants such as dioxin.

If adopted by a Bay Area city or county, the ordinance would limit the installation of woodburning appliances in new homes, or renovations of existing homes that involve a fireplace, to pellet stoves, EPA-certified woodstoves or fireplace inserts, or natural-gas fireplaces. These cleaner burning alternatives reduce woodsmoke by 75 to 99 percent over a traditional fireplace. **The ordinance does not ban woodburning in fireplaces,** but seeks to take advantage of new, cleaner technologies that have been developed to effectively reduce woodsmoke pollution.

The ordinance also includes a provision for mandatory restrictions on woodburning whenever the Air District calls a *Spare the Air Tonight* alert.

As of January 1, 2001, the ordinance has been adopted in the cities of Los Gatos, Petaluma, Palo Alto, San Jose, and Morgan Hill, and in Contra Costa and San Mateo counties. Other cities and counties are actively considering adopting it.

For more information on the model ordinance, contact the Air District's Public Information Office at (415) 749-4900.

To view the ordinance, click below:

Model Woodsmoke Ordinance

(*last updated 12/22/2000*)

| Home | BAAQMD | Information | Business Assistance | Permits | Regulations | Index |

A MODEL ORDINANCE PERTAINING
TO THE REDUCTION OF AIR POLLUTION BY REGULATING THE
NEW CONSTRUCTION OR REPLACEMENT OF WOODBURNING APPLIANCES

BE IT ORDAINED BY the City or County of
[ ]:

WHEREAS, the State Air Resources Board (ARB) adopted a particulate matter (PM10) Ambient Air Quality Standard (AAQS) in December, 1982, and levels for the PM10 AAQS were selected pursuant to California Code of Regulations Title 17 Section 70200 to protect the health of people who are sensitive to exposure to fine particles; and

WHEREAS, research indicates that woodsmoke is a significant contributor to PM10 levels that pose significant health risks; and

WHEREAS, the [ ] desires to lessen the risk to life and property from air pollution from woodburning appliances; and

WHEREAS, the [ ] finds that the proposed regulation will significantly reduce the increase in particulate emissions from future installation and construction activities; and,

WHEREAS, the [ ] finds a need exists to adopt regulations which apply to woodburning combustion emissions; and

The [ ] Code shall be amended by adding the following:

AR 13454

APPLICABILITY: This ordinance shall apply within the limits of the [city, county] of [ ] as specified herein.

All wood burning appliances installed in new residential units or woodburning appliances being added to or replacing woodburning appliances in existing residential units shall comply with this ordinance.

All woodburning appliances installed in new commercial buildings or woodburning appliances being added to or replacing woodburning appliance in existing commercial buildings shall comply with this ordinance. Commercial buildings shall include, but not be limited to, hotels and restaurants.

Gas fireplaces shall be exempt from this ordinance. However, the conversion of a gas fireplace to burn wood shall constitute the installation of a woodburning appliance and shall be subject to the requirements of this ordinance.

A woodburning appliance shall comply with this ordinance if (1) it is reconstructed, (2) additions, alterations, or repairs are made to the appliance that require opening up immediately-adjacent walls, or (3) the residential unit or commercial building in which the appliance is located is renovated, and the renovation includes opening up walls immediately adjacent to the appliance.

DEFINITIONS:

1. "Bay Area Air Quality Management District" means the air quality agency for the San Francisco Bay Area pursuant to California Health and Safety Code Section 40200.
2. "E.P.A." means United States Environmental Protection Agency.
3. "E.P.A. certified wood heater" means any wood heater that meets the standards in Title 40,

Part 60, Subpart AAA, Code of Federal Regulations in effect at the time of installation and is certified and labeled pursuant to those regulations.

4. "Fireplace" means any permanently installed masonry or factory-built woodburning appliance, except a pellet-fueled wood heater, designed to be used with an air-to-fuel ratio greater than or equal to 35 to 1.

5. "Garbage means all solid, semi-solid and liquid wastes generated from residential, commercial and industrial sources, including trash, refuse, rubbish, industrial wastes, asphaltic products, manure, vegetable or animal solids and semi-solid wastes, and other discarded solid and semi-solid wastes.

6. "Gas fireplace" means any device designed to burn natural gas in a manner that simulates the appearance of a woodburning fireplace.

7. "Paints" means all exterior and interior house and trim paints, enamels, varnishes, lacquers, stains, primers, sealers, undercoatings, roof coatings, wood preservatives, shellacs, and other paints or paint-like products.

8. "Paints solvents" means all original solvents sold or used to thin paints or to clean up painting equipment.

9. "Pellet-fueled wood heater" means any woodburning appliance that operates exclusively on wood pellets.

10. "Solid fuel" means wood or any other non-gaseous or non-liquid fuel.

11. "Treated wood" means wood of any species that has been chemically impregnated, painted or similarly modified to improve resistance to insects or weathering.

12. "Waste petroleum products" means any petroleum product other than gaseous fuels that has been refined from crude oil, and has been used, and as a result of use, has been contaminated with physical or chemical impurities.

13. "Woodburning appliance" means fireplace, wood heater, or pellet-fired wood heater or any similar device burning any solid fuel used for aesthetic or space-heating purposes.

GENERAL REQUIREMENTS: It shall be unlawful to:

1. Use any woodburning appliance when the Bay Area Air Quality Management District issues a "Spare the Air Tonight" warning and when an alternate approved heat source is available.
2. Install a woodburning appliance that is not one of the following: (1) a pellet-fueled wood heater, (2) an EPA certified wood heater, or, (3) a fireplace certified by EPA should EPA develop a fireplace certification program.
3. Use any of the following prohibited fuels in a woodburning appliance.

a)	Garbage	g)	Paint solvents
b)	Treated wood	h)	Coal
c)	Plastic products	I)	Glossy or colored papers
d)	Rubber products	j)	Particle board
e)	Waste petroleum products	k)	Salt water driftwood
f)	Paints		

ENFORCEMENT: Any person who plans to install a woodburning appliance must submit documentation to the [building department of city or county] demonstrating that the appliance is a pellet-fueled wood heater, an EPA certified wood heater, or a fireplace certified by EPA should EPA develop a fireplace certification program.

Any person violating any of the provisions of this Ordinance shall be deemed guilty of a misdemeanor and upon conviction shall be punishable as provided by law.

IF ANY SECTION, subsection, sentence, clause or phrase or word of this ordinance is for any reason held to be unconstitutional by a court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of this ordinance. The [ ] of

the [ ] hereby declares that it would have passed and adopted this ordinance and all provisions thereof irrespective of the fact that any one or more of said provision be declared unconstitutional.

INTRODUCED and ordered Posted/Published this [ ] day of [ ].

ADOPTED this [ ] day of [ ], by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

ATTEST: APPROVED AS TO FORM:

Do You PAY MORE to Heat With Wood?

The chart below shows you which woods will produce the most heat per cord (128 cubic feet of wood), and will help you compare your conventional home heating fuel to wood. Pound for pound, all woods have about the same heating value. **But hardwood logs are heavier and denser than softwood logs and burn longer, providing more heat per log.**

Firewood Tree Species	Available Heat (Million Btu/Cord) 60% Efficient Stove
Alder	19
Almond	24
Apple	24
Cedar	14
Cherry	19
Eucalyptus	20
Elm, American	17
Fir, Douglas	19
Fir, White	15
Hemlock	14
Locust, Black	24
Madrone	24
Oak, Live	24
Oak, Red	21
Oak, White	23
Maple	19
Pine, Ponderosa	12
Pine, Sugar	12
Pine, White	12
Poplar	12
Redwood	12
Sycamore	18
Walnut, Black	20
Walnut, English	20
Willow	12

One Million Btu of Fuel* Equals:

293 kilowatt hours of electricity;

12.5 therms of natural gas; or

13.6 gallons of propane.

1. What Do You Pay for a Unit of Fuel? Check Your Utility Bill For Your Unit Price.

If you pay $0.60 per therm for natural gas, one million Btu of gas will cost you 12.5 x $0.60 = $7.50.

2. What Did You Pay for a Cord of That Wood?

You just bought a cord of Almond for $195. Almond wood has a heat value of 24 million Btu per cord, burned in a 60% efficient stove.

3. How Does Heating with Gas Compare to Burning a Cord of Almond ?

You would pay $7.50 x 24 = $180 for gas, $15 less than you paid for the cord of Almond.

In most areas of California you will pay more to heat with wood than to heat with gas, and less to heat with wood than to heat with electricity.

However, if you get a new, certified stove and your new stove's heating efficiency is 80%, you can increase the **heat energy available** in each cord of wood by 20%. Using the example above, a cord of Almond burned in an 80% efficient stove would have 28.8 million Btu of heat, not just 24. You would pay $7.50 x 28.8 = $216 for 28.8 million Btu of gas, or $21 more to heat with gas than with your $195 cord of Almond.

*Assuming an energy conversion process efficiency of 100% for an electric heater, 80% for a natural gas furnace, and 80% for a propane furnace. New model gas furnaces achieve up to 95% efficiency.

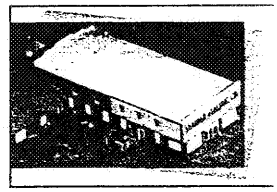
AR 13459

"Heat Island" Boosts Smog

In the Sacramento region, "heat island" mitigation would have a bigger impact on peak ozone formation than in two other cities, according to a study by scientists at Lawrence Berkeley National Laboratory for U.S. EPA, completed last year. This is primarily due to a larger impermeable surface area available for modifications. **Scientists expect the region to reduce peak ozone concentrations by 6.5 percent if urban areas get an additional 14 percent in vegetation cover and an additional 13 percent increase in surface reflectance of pavements and roofs.** Smaller or no reduction in peak ozone for Salt Lake City or Baton Rouge was indicated in the modeling of similar measures in those cities. For more information about how to help in heat island mitigation, find out about Sacramento Shade at www.sactree.com or www.smud.org. The Sacramento Cool Communities website is www.energy.ca.gov/cool_communities/ to

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Cool Roof Replacement. California businesses with flat roofs that need to be replaced or resurface could choose cool roof materials over dark to save 2 to 40 percent in air conditioning costs. The Californi Energy Commission's Cool Savings Plan will provide incentives averaging 10 cents per square foot of qualifying roof. "While cool roofs (of white colored materials) do not generally cost any more than dark roofs, they have been shown to lower cooling costs by 20-40 percent," said Energy Commissioner Arthur Rosenfeld. "This simple change will eventually save California thousands of megawatts of peak power. A cool roof can lower the temperature by 50-60 degree F, thus reducing the conduction of heat into the buildin and the air conditioning needed to remove that heat. **Qualified business customers and roofers may conta the Cool Savings Plan's regional coordinator:** Sacramento Municipal Utility District (SMUD), its servic territory, Misha Sarkovich at (916) 732-6484 or msarkov@smud.org; or Sacramento Tree Foundation, Bay Area and the Central Valley, except communities served by SMUD, contact Lisa Gartland at (510) 595-7674 or lisa@pstvnrg.com. The Cool Roof website is: www.consumerenergycenter.org/coolroof/index.html

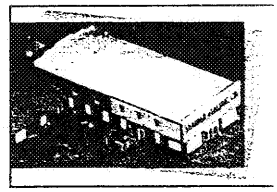


"Heat Island" Boosts Smog

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Pollution penalties

Bee Journ. 8/9/2002

Air district ponders fines for ozone violations

CELIA LAMB / STAFF WRITER

Though drivers deserve most of the blame for Greater Sacramento's ozone pollution, businesses and public agencies will pay the price — potentially writ- [illegible] meet Clean Air Act regulations for ozone by 2005.

Federal law requires air districts in the Sacramento region to assess penalties for factories, power plants and other "stationary source" polluters starting in 2007 if the region misses the [illegible] report by the Sacramento Metropolitan Air Quality Management District.

So although the district is optimistic that the region will meet the federal ozone standard, it has begun drafting a new rule detailing how penalties would be as [illegible]. The [illegible] to consider the new penalty rule on Aug. 22.

Who might pay: In the most likely scenario for Sacramento Coun-

See **AIR**, Page **39**

AIR: 450 businesses, agencies could be labeled major polluters

From Page **3**

ty, if it fails to meet the 2005 goal, the owners of seven factories and power plants emitting more than 25 tons per year of ozone-forming chemicals would have to pay the new fees. The Sacramento Municipal Utility District, Procter & Gamble, Silgan Can Co. and UC Davis Medical Center would face penalties ranging from $25,000 to $236,000 per year for each building, depending on how much they pollute.

In the worst scenario, another 450 businesses and public agencies in Sacramento County would be reclassified as major polluters, even if their ozone-forming emissions stay at current levels.

Suddenly Sacramento businesses as diverse as the Sara Lee Bakery Group factory that makes EarthGrains bread in South Sacramento, and the commercial printing company Graphic Center on Howe Avenue, would have to pay annual penalties of roughly $1,000 or higher.

The El Dorado, Placer, Feather River and Yolo-Solano air pollution control districts would have to follow suit if it becomes clear the region won't meet the 2005 deadline. It's unclear how many businesses in these other air districts might be subject to new penalties.

"Sacramento is just lining things up early," said Tom Christofk, Placer County Air Pollution Control District's air pollution control officer. He estimates that about 20 to 25 businesses emit 10 tons per year or more of ozone-forming chemicals in Placer County.

Transportation money: To meet the Clean Air Act goals, Greater Sacramento cannot exceed the federal ozone standard of 0.12 parts per million more than three days per year from 2003 to 2005.

Overall, the region has reduced ozone levels significantly in the last decade, thanks to more sophisticated strategies to reduce emissions.

But weather could blow that trend. The region exceeded the federal ozone standard only twice during last year's milder summer, but this year has already pushed over the limit three times.

"It's pretty close," said Brigette Tollstrup, manager of the Sacramento Metropolitan Air Quality Management District's program coordination division, when asked to assess the region's likelihood of meeting the 2005 deadline. "It's not a sure thing."

Millions of federal transportation dollars are at stake too. On July 18 the Sacramento Area Council of Governments approved a 23-year Metropolitan Transportation Plan that lays out proposals for dozens of new roads, public transit projects and bicycle paths.

Federal officials have said the new transportation plan violates a federal Clean Air Act requirement that a region's transportation plans must be consistent with air quality plans. The region's clean air plan was written in 1994 and needs to be updated with more accurate data about emissions from vehicles and other sources.

In July 2005, the transportation plan expires. To avoid losing federal money for projects like wider roads, new bridges and possibly even mass transit, the Sacramento region must have an updated air quality plan by then.

"Lots and lots of transportation dollars are put on hold," Tollstrup said, "and certain projects could lose funding altogether."

The air district hopes to meet the federal ozone standard through incremental changes that would be incorporated in the new air quality plan. It has also thrown support behind a state bill that would require the Bay Area to adopt the same vehicle smog check standards used in Sacramento. That bill passed the Assembly on May 23 and cleared the state Senate Transportation Committee this week. Now it goes to the full state Senate.

The penalties: The state Air Resources Board is compiling new emissions data that will be used to create a new air quality plan. But it's still unclear if an air quality plan can be developed that will reduce emissions enough to meet the 2005 ozone deadline while also conforming with the long-term transportation plan. And not meeting the deadline would lead to penalties for businesses.

If ozone levels are low enough, local air districts could request a one-year extension of the deadline, delaying the penalties on businesses until 2008. Probably only businesses and agencies that emit 25 tons per year or more of oxides of nitrogen (NOx) or volatile organic compounds would pay the penalties.

SMUD pays about $75,000 to $90,000 per year to local air districts and the state Air Resources Board to renew permits for three small gas-fired power plants it operates in the region, said SMUD spokeswoman Dace Udris. The utility hasn't calculated how much more it would pay under the new rules, but estimates are in the hundreds of thousands of dollars.

Penalties just for the planned Cosumnes Power Plant next to the former Rancho Seco nuclear plant could add $100,000 to $200,000 annually to the tab.

"The fees could impact the district financially," Udris said, "but we recognize the community needs to work on reaching the EPA's ozone goal."

Worst scenarios: If it becomes clear Greater Sacramento won't make the federal ozone standard by 2005 and can't qualify for the one-year extension, the region's air districts could ask the U.S. EPA for a five-year extension in exchange for downgrading the region's air quality designation from "severe" to "extreme" non-attainment for ozone.

That would mean reclassifying 450 businesses, which have permits to emit 10 tons per year of NOx or volatile organic compounds as major polluters. They would have to pay a total of $500,000 overall to obtain operating permits, plus additional annual penalties of at least $15,000. It would also mean that the region wouldn't have to worry about losing transportation funding for another five years.

The San Joaquin Valley Air Pollution Control District has said it plans to ask the U.S. EPA to downgrade its smog classification to extreme. But the San Joaquin Valley's ozone problem is more severe, and reclassification "is not something we're pursuing as a primary option," said Sacramento Metropolitan Air Quality Management District spokesman Kerry Shearer.

There are two other scenarios in which businesses that emit 10 tons per year or more would be assessed penalties under the new rule:

- If the ozone levels in the district exceed 0.14 parts per million more than four times in a year from 2003 to 2005
- If the district still hasn't reached attainment with the federal ozone standard by 2008.

COMMENT

We'll choke like Atlanta if we don't wise up



ANOTHER VOICE

DR. JERRY J. ZARRIELLO

When it was summertime in Atlanta last year, the "livin' wasn't easy." For weeks, a filthy brown haze obscured the New South's proud skyline.

Children in record numbers went to emergency rooms with respiratory infections. According to the American Lung Association, 200,000 people in the Atlanta region suffer from air pollution illnesses, and another million, especially children and the elderly, are at risk of lung infections.

The situation could easily face Sacramento in a few years.

The principal cause of Atlanta's misery? Sprawl.

In 1990, Greater Atlanta was 65 miles across. Today it stretches 110 miles. That's like an unbroken city from San Francisco to Placerville. Highways have made distant Atlanta suburbs desirable.

Each workday an army of dirty diesel trucks and commuters in SUVs and passenger autos produces 60 percent of Atlanta's smog, which in turn has placed the 13-county region in violation of the Federal Clean Air Act.

For decades, Atlanta's business community has supported an "all growth is good" policy. Its solution to the pollution problem: more roads.

If this sounds familiar, it should. The Sacramento region also violates federal clean air standards, is rapidly suburbanizing, and relies heavily on freeway driving to run the economy.

Traffic plan permits too much sprawl: Recently, $15 billion worth of transportation projects were approved for Greater Sacramento, to be built over the next 24 years. The emphasis — about two-thirds of the new construction — is on road and freeway widening to accommodate more traffic.

The new lane miles will, according to environmental groups, lead to more violations of federal clean air standards.

Development interests claim the only way to resolve traffic congestion is to build new traffic lanes. This allows for unsustainable urban sprawl, and it's only a matter of time before new highway capacity is filled up again.

And, as six- and eight-lane roads take over the transportation network, it becomes more and more difficult to walk or bike, and more difficult and expensive to serve travel needs with transit. Neighborhoods bisected by busy arteries become blighted and property values go down. Those who cannot drive have less and less mobility.

In Atlanta, environmental and community groups sued to force transportation groups to comply with the Clean Air Act. This halted funding of 44 new road projects until Atlanta came up with a plan to clean up the air. The settlement, announced last June, will transfer money from highways to public transit, car pooling and alternatives that don't endanger air quality.

The story in the Sacramento region will be less bleak if we have the courage to avoid Atlanta's fate. At 1.8 million people, our region is poised to add another 1 million residents in the next 20 years. How these residents will live and work in our region will make a tremendous difference in quality of life for everyone.

It's not too late to do better: Right now, we have rudimentary bus systems that can feed a basic light-rail system, and we have many bikeable streets and walkable neighborhoods. But the tide is starting to turn on livability; more and more neighborhoods are becoming safe only for automobiles. Many lack sidewalks, safe crossings, bike lanes and adequate transit service.

We can retain and expand quality of life, or lose it in the transportation investments we make now.

Fortunately, Sacramento has strong citizens' watchdog organizations that keep an eye on development interests and push for a "smart growth" policy. These organizations have recently taken legal action to enforce the Clean Air Act here, before our pollution problem spirals out of control and the feds step in with draconian measures.

Visualize alternative driving days based on your license plate.

Rewrite the plan: Sacramento has enough "Spare the Air" days already. Summer 1998 had 13 days in violation of the federal Clean Air Act. Local research has found that more than 20 percent of the region's households will have someone suffering from breathing problems on days like that, and 8 percent to 10 percent will have to take someone — often a child — in for medical care.

According to the American Lung Association, nationwide, air pollution costs about $50 billion in healthcare each year.

Until we develop a responsible transportation plan, the health of our children will be in the hands of the sprawl industry. Let's go back to the drawing board on the metropolitan transportation plan and increase emphasis on transportation alternatives that get people out of cars and reduce smog.

New highway projects will violate federal clean air laws and put us on a one-way road to Atlanta.

Dr. Jerry J. Zarriello, who lives in Sacramento, is a director of the Health Officers Association of California. He is a former director of the Nevada County Health Department.

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What is SECAT?

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SECAT by the numbers
Publications

The Sacramento Emergency Clean Air and Transportation (SECAT) program was created as a way to help truck owners and fleet operators reduce their vehicles' emissions in a business-friendly manner. Because this region has serious air quality problems, a partnership between local government, clean air professionals, local businesses, and manufacturers got together a year and a half ago to tackle the problem of air pollution from heavy-duty diesel trucks. SECAT has $45 million left to pay for the retrofit of your existing engine with a newer, cleaner-burning one, or pays a significant amount of the cost of a newer vehicle.

The goal of the program is to reduce the nitrogen oxide emissions from heavy-duty vehicles in our air three tons per day by 2005. Because our federal transportation money is tied to the quality of our air, if we accomplish this goal, we'll be well on our way to securing the nearly $700 million in federal transportation improvements that will make it easier for everyone to get around the Sacramento region. That's good news for truck owners, fleet operators and regular drivers alike.

While we need to disperse a total of $70 million by 2005, we envision the bulk of the program will be completed this year.

Where Does the Money Come From?
Sacramento's Assembly member Darrell Steinberg introduced legislation (AB680) setting aside $50 million of the state's 2000-2001 budget for the SECAT program. Local political leaders approved an additional $20 million from federal transportation money programmed for the Sacramento region (Congestion Mitigation and Air Quality (CMAQ) funds).

Why Do We Need It?
Our region has to meet a 2005 federal deadline to clean up our air, which is the 6th worst in the nation. Two-thirds of the emission reduction needed from heavy-duty vehicles must come this year. SECAT targets mobile sources because they account for more than 70 percent of the air quality crisis.

If we don't act now, not only do we risk losing $680 million from the federal government -- which would greatly jeopardize the region's economy -- but the human element would be devastating as well: we must continue to reduce cases of asthma, bronchitis and emphysema — diseases that hit children and the elderly especially hard.

Is it Voluntary?
It's a voluntary program, but we need between 3,000 and 6,000 trucks to do their part in order to make the air cleaner and stay in line with federal guidelines.



An LAO Report

Improving State Oversight and Direction of Local Air Districts

Background

The responsibility to regulate air quality in the state is divided between the state Air Resources Board (ARB) and 35 local air districts. This report evaluates whether the current allocation of responsibilities between the state and the locals is appropriate. It also reviews the implementation of stationary source pollution programs by the local districts and examines the effectiveness of the state's oversight of these programs.

LAO Findings

In general, the current division of responsibility between the state board and the local air districts is appropriate. However, it may be more effective for the state, rather than each individual air district, to adopt rules for particular stationary sources of pollution.

The state has an interest in ensuring that locally administered air quality programs are implemented effectively in order to achieve the state's air quality goals. However, ARB's review of local programs—a statutory mandate—is minimal. As a result, problems such as inconsistent and not fully effective local enforcement have developed without ARB taking timely corrective action.

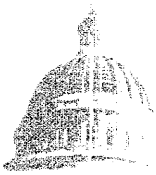
LAO Recommendations

To address the above issues, we recommend that the Legislature:

- Direct ARB to adopt *statewide* stationary source rules where cost-effective to do so.
- Direct ARB to adopt a statewide enforcement policy to guide local enforcement practices.
- Provide for mandatory minimum penalties in cases of serious and chronic stationary source violations.
- Clarify ARB's authority to take enforcement actions against stationary source violations independent of the local air districts.
- Standardize the violation and enforcement response data to be tracked by the local air districts and enhance the information routinely reported by the districts to the state.
- Provide that data management needs be considered when ARB allocates subvention funds to local districts.
- Direct ARB to provide a work and expenditure plan for timely local program reviews.

Elizabeth G. Hill
Legislative Analyst

January 25, 2001



INTRODUCTION

Air quality regulation in California is divided between the state ARB and local air districts. The local districts mainly regulate *stationary* sources of pollution, while ARB mainly regulates *mobile* sources of pollution and oversees local program implementation. Mobile sources include "on-road" sources such as passenger cars, trucks, and buses as well as "off-road" sources such as trains, ships, and portable equipment (such as lawn mowers). Stationary sources include fixed sources of pollution such as dry cleaners, gas stations, and petroleum refineries. The relative contribution of mobile and stationary sources to air pollution varies on a pollutant-by-pollutant basis. For example, mobile sources produce a majority of the emissions of carbon monoxide. On the other hand, stationary sources produce most of the emissions of fine particulate matter.

This report first considers whether the current division of responsibilities between the state and local air agencies is appropriate. Then, it focuses on the implementation of stationary source programs at the local level, and examines the effectiveness of the state's oversight of these programs.

Methodology. In reviewing how well the current state-local structure of air quality regulation works, we interviewed a broad range of stakeholders of the state's air quality programs. These stakeholders include business associations, including the California Chamber of Commerce, that represent a variety of types and sizes of businesses subject to regulation; environmental organizations; and state and local air agencies. We reviewed violation and enforcement data supplied by ARB and local air districts as well as studies conducted by others, including the U.S. Environmental Protection Agency (U.S. EPA), that evaluated air quality programs in the state.

OVERVIEW OF STATE VERSUS LOCAL RESPONSIBILITIES

Historically, the division of responsibility between state and local air agencies has largely been based on each level of government focusing on different sources of pollution–the state regulates mobile sources and the locals concentrate on stationary sources. Within each area of responsibility, federal and state laws require plans and programs designed to meet national and state ambient air quality standards. National and state ambient air quality standards for specified pollutants, including ozone, carbon monoxide, and sulphur dioxide, were first adopted around 1970. Today, there are national and/or state standards for ten pollutants, with the state standard in most cases being more stringent than the federal standard.

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Current State-Local Division of Responsibility

Stationary Versus Mobile Sources. Air quality was first regulated in California at the local level in 1947 when state statute authorized the creation of an air district in every county. (Subsequent law provided for the formation of multicounty and regional districts.) The focus of air quality regulation was initially on stationary sources of "visible" pollution, such as smoke and particulate. Today there are 35 local air districts that are the primary agencies responsible for regulating emissions from stationary sources of pollution, as shown in Figure 1 (see page 4). Stationary sources contribute substantially to emissions of certain pollutants. For example, between one-quarter and one-half of ozone-forming chemicals (the major components of smog) are from stationary sources.

A state-level board was created in 1960 to regulate emissions from motor vehicles. The ARB became responsible for regulating emissions from other mobile sources in the 1970s and started regulating consumer products in the late 1980s. (Consumer products include cleaning compounds, cosmetic aerosol sprays, and other chemically formulated products used by household and institutional consumers.)

Planning Process to Meet Ambient Air Quality Standards. Under federal law, states are required to develop plans (state implementation plans, or SIPs) showing how the state will meet *national* ambient air quality standards within specified time frames. Federal law does not dictate the governance structure for meeting these planning requirements, but rather leaves it up to the states to designate the responsible entity. In California, state law designates ARB as the agency responsible for developing SIPs, in coordination with the local districts.

In addition, state law requires local districts to develop their own plans and implement programs for meeting *state* ambient air quality standards. Unlike federal law that requires national standards to be attained by specific dates, state standards are to be achieved by the "earliest practicable date." While state law provides for a planning process separate from that required under federal law, local districts in general are able to integrate the state and federal planning requirements.

Development and Implementation of Plans—Local Role. In implementing the state and federal planning requirements, districts that have not attained air quality standards for a particular pollutant are responsible for developing a plan to control and reduce that pollutant. These plans include rules to regulate stationary sources of pollution. The plans also incorporate state-adopted measures (such as smog check) for mobile sources of pollution under ARB's jurisdiction. The combination of state and local measures in the plans are designed collectively to meet the air quality goals specified in statute.

To implement the plans, local air districts regulate stationary sources of pollution primarily by issuing and enforcing various permits. These permits specify various pollution emissions requirements with which a stationary source (such

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Figure 1

California Air Districts



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as an oil refinery) must comply. Permit requirements are based on rules adopted by the districts. The ARB and U.S. EPA retain some enforcement authority, primarily through their oversight roles.

Development and Implementation of Plans—State Role. The ARB's role in the planning process is three-fold:

- To adopt rules that control sources of pollution under its jurisdiction (namely mobile sources, fuels, and consumer products).
- To review and approve the local plans.
- To compile local plans into state implementation plans that are submitted to U.S. EPA for approval.

In order to implement the state plans, ARB primarily enforces permits and rules for pollution sources under its jurisdiction. For example, ARB conducts tests to ensure that new motor vehicles contain required emission controls. As regards the regulation of stationary sources of pollution, the state board's role is *mainly* one of providing guidance and model rules to local districts for the regulation of these sources. Guidance and rules may involve providing information on the best available technologies and appropriate control measures to be included as permit requirements. However, in the case of a few specific types of stationary sources, such as agricultural burning and vapor recovery at gas stations, ARB is statutorily responsible for setting statewide rules that local districts must follow.

In addition, ARB is responsible for developing statewide control measures for toxic air contaminants (TACs) emitted from *all* (both stationary and mobile) sources. The TACs—which include benzene, asbestos, and diesel particulate—are air pollutants that may cause or contribute to an increase in mortality or serious illness due to an individual's acute or long-term exposure to them. Local air districts must adopt the statewide control measures for TACs, unless the districts choose to adopt more stringent measures.

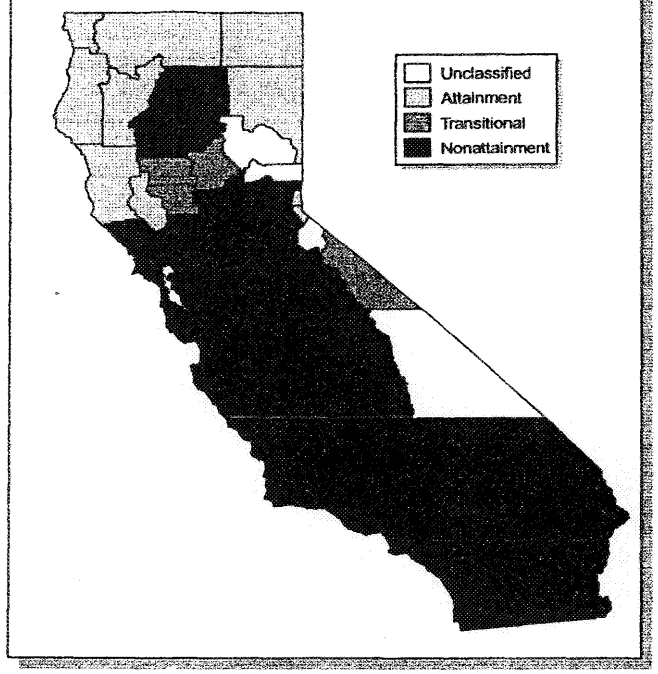
State Oversight of Local Program Implementation. It is important for the state to have effective oversight of the local districts' *implementation* of the local plans, including rule-making, permitting, and enforcement activities. This is because plan implementation directly affects the state's progress in meeting federal and state air quality goals. While most of the state has attained national and state standards for some pollutants, such as nitrogen dioxide and sulphur dioxide, most of the state is failing national and state standards for a number of other pollutants. For example, as shown in Figure 2 (see page 6), most of the state failed the state standard for ozone (smog) in 1999 and was designated as a nonattainment area.

The federal government can sanction the state if it fails to attain a certain level of air quality at various milestones prescribed by federal law. These sanctions potentially include a reduction in federal transportation funding to the state and the development of a made-in-Washington plan for controlling pollution in California (federal implementation plan, or FIP).

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Figure 2

State Ozone Standards Area Designations, 1999



As will be discussed in detail later, ARB has broad authority to oversee and evaluate local air district programs. Specifically, ARB is required under state law to review district plans, rules, and programs, including enforcement practices, to determine whether they are sufficiently effective to achieve and maintain the state's ambient air quality standards.

CURRENT DIVISION OF RESPONSIBILITY GENERALLY APPROPRIATE

Our discussions with various groups found that, in general, the current division of responsibility between state and local agencies relative to the source of pollution (stationary versus mobile) is appropriate. This is for a couple of reasons. First, local agencies are able to adopt stationary source rules that appropriately reflect local air quality conditions and the local make-up of pollution sources. Second, the relative accessibility of local agencies to regulated stationary sources located in their jurisdiction improves the level of service provided to these parties. As far as mobile sources are concerned, these are more effectively regulated at the state level, given that the pollution impacts from these sources typically transcend the borders of the air districts.

It is also appropriate for the state to prescribe measures to control TACs from stationary sources. This is because such statewide regulation ensures that the state's residents, no matter where they live, will receive a certain level of protection from those chemical emissions that have serious and direct public health impacts. It is also cost-effective because the development of these complex

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measures often requires a high level of technical expertise and fiscal support that may be lacking at the local level, but, when centrally conducted at the state level, achieves some economies of scale.

Statewide Rules to Regulate Stationary Sources More Cost-Effective in Some Circumstances. Current law recognizes that certain stationary source emissions are well suited for statewide regulation. Generally, these are emissions that come from the widespread use of a product that is portable, available statewide, and generally used in a similar fashion. Thus, current law requires ARB to adopt statewide rules for a few particular types of stationary sources–including vapor recovery at gas stations and certain diesel-fueled construction equipment.

Statewide regulation offers benefits to both the regulated community and the state. Generally, businesses find it easier and less expensive to comply with one statewide regulation than with multiple rules imposed by several different air districts. From a government perspective, one set of regulations is generally more cost-effective than district-by-district rules that can be easier to circumvent and more difficult to enforce.

Based on our review, there appear to be additional cases–such as architectural coatings (paints, stains, traffic coatings, et cetera), automotive coatings (mainly paints), and solvents–where a statewide rule would be more cost-effective in lieu of existing multiple local rules. According to ARB, local rules for these pollution sources have been easy to circumvent and compliance levels have been particularly low. In addition, ARB has indicated that manufacturers in general have expressed a preference for consistency for statewide rules for stationary sources such as architectural and automotive coatings.

Recommend Board Report to Legislature. We think that the Legislature should be advised of cases where district-by-district rule-making for particular stationary sources has resulted in relatively low levels of compliance and where regulation of these sources would be improved by statewide rules. Therefore, we recommend that ARB (1) identify for the Legislature stationary sources of air pollution where it would be more cost-effective for ARB to adopt statewide rules and (2) recommend statutory changes to give the board the authority to adopt rules for the sources identified.

STATE OVERSIGHT AND DIRECTION NEED IMPROVEMENT

While the division of responsibility between state and local agencies is generally appropriate, we find that stationary source regulation could be improved if ARB exercised more effective oversight of the local districts. While we think that ARB's statutory authority to oversee the districts should be strengthened and clarified, we also find that ARB could do a better job under its existing authority. Specifically, in this regard, our review finds that ARB:

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- Has not adopted a statewide enforcement policy to guide local district enforcement actions, even though it has the authority to do so.
- Takes little action when the local districts clearly disregard certain statutory reporting requirements.
- Lacks data to assess the extent of inconsistent and ineffective local district enforcement—a problem area identified by third parties, including federal environmental agencies.
- Devotes minimal staff to local program review, and has not sought budgetary or legislative remedies to improve its efforts in local program review.

We find that improvements can be made in two main areas, discussed in the sections that follow:

- Ensuring consistent and effective local district enforcement of stationary source rules and permits.
- Evaluation of local programs to ensure that the districts are operating effectively to attain the state's air quality standards.

Ensuring Consistent and Effective Local District Enforcement

The Importance of Local District Enforcement

Enforcement activities by the local air districts (which initiate almost all enforcement actions against stationary sources) are necessary in order to ensure compliance with requirements that are designed to meet air quality objectives. These activities involve enforcing stationary source rules and permits.

The Need for Consistent Enforcement. A key measure of the effectiveness of an enforcement program is the degree to which it results in compliance. To be effective, enforcement actions must be timely and sufficiently stringent to deter violations. In addition, enforcement actions must be relatively consistent statewide. This is for a number of reasons. First, inconsistent enforcement may result in the regulated community perceiving enforcement to be unfair, thereby weakening the incentive to comply with rules and regulations. Second, the lack of consistency, and therefore predictability of compliance requirements, adds to the compliance costs for business. Finally, consistent enforcement is necessary to ensure that the state's residents, no matter where they live, have a minimally adequate level of environmental protection.

What Guides Local Enforcement Actions. Local air districts enforce compliance with stationary source regulations in a number of ways. For example, districts conduct inspections; perform testing of emission levels at permitted facilities; investigate complaints; and, when violations are detected, issue warnings, assess administrative penalties, and initiate legal and other enforcement actions.

Current law provides broad direction that guides local district enforcement actions. For

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minor violations, air districts are required to issue a "notice to comply," which is a warning without a penalty. For other violations, local districts are *authorized* to impose monetary penalties of up to specified maximum amounts. However, penalties are *not required* in any case. Current law also contains broad criteria that districts must consider in determining the amount of a penalty, including the extent of harm caused by the violation, the frequency of past violations, and actions taken by the violator to mitigate the violation.

In addition to statutory direction, ARB provides local districts with some guidance on enforcement practices. However, this guidance is limited in scope and has not been adopted by the board as a statewide policy. For some matters, ARB has provided no guidance at all. For example, ARB has not provided guidance regarding when and how quickly a prior informal enforcement action (such as a warning) should be escalated to a more formal and stringent level of enforcement (such as a penalty assessment).

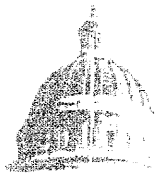
Finally, the local districts have developed their own enforcement policies within the broad directions provided by current law and ARB. In some cases these have been formally adopted by the district board, in other cases not. These policies vary among districts in some important aspects. For example, districts resolve most violations that have not been corrected after an initial warning by issuing a "notice of violation" and entering into settlement discussions with the violator. However, district policies vary significantly regarding the penalty amounts at which they typically open a settlement discussion for relatively similar violations. Additionally, only some districts have established policies that provide explicit time frames for resolving violation cases.

Enforcement Actions Are Not Consistent And Could Be Made More Effective

Based on our review, we find significant inconsistencies among districts in how they respond to violations. These inconsistencies, particularly as regards penalties assessed for air quality violations, have reduced the effectiveness of the program. This conclusion is based on our review of local air district data, interviews with the regulated community and ARB staff, and our review of evaluations conducted by others of air quality programs in the state. We also find that districts do not consistently seek penalties of an appropriate amount that serve to deter violations, although a number of districts have recently been making improvements in this area. We are unable to assess fully how wide-ranging these problems are because:

- The ARB does not collect data on a substantial portion of the enforcement actions by the local districts.
- The ARB audits of district programs are infrequent, resulting in outdated data regarding local enforcement activities.
- Only 13 out of 35 districts responded to our survey on their enforcement policies and practices.

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Inconsistencies Among Districts. We find that local districts vary in the length of time before they escalate the level of enforcement in cases where the initial enforcement action has not resulted in correction of the violation. For example, while some districts have policies requiring enforcement to be escalated within specified time frames, other districts do not have such policies and, as a consequence, have allowed some violations to continue unabated for several years.

Regarding the imposition of penalties, we similarly find that local districts vary in the amount of penalties sought for similar violations. Districts also vary in whether they propose a penalty with every notice of violation. While many districts routinely propose a penalty with almost every notice of violation, a few do not.

Additionally, penalties (including monetary settlements) sought have in general been low, although at least a couple of districts have recently revised their policies to increase recommended penalty amounts. Penalties have been low relative to ARB/U.S. EPA guidance on minimum penalty amounts necessary to deter violations, as well as statutory criteria for setting penalty amounts. These criteria include the seriousness of the violation, the compliance history of the violator, the violator's willingness in committing the violation, and the economic benefit to the violator of noncompliance.

In order to illustrate the variation between the level of penalties authorized and those collected, consider 1998-99. In that year, the average monetary penalty collected from almost 8,300 notices of violations was about $800 per violation. This was significantly lower than the maximum amounts of $1,000 to $50,000 per day authorized by statute, depending on factors listed above. Similarly, ARB's recent evaluation of the South Coast Air Quality Management District (January 2000) found that 75 percent of the enforcement cases reviewed—most involving emission-related violations—were settled for less than $500 per violation. According to ARB's report, this penalty amount "does not provide enough deterrence for a source to remain in continuous compliance."

Enforcement Could Be Made More Effective. There is evidence that the imposition of low penalties is limiting the effectiveness of local air district enforcement programs. Although the state lacks a database to assess the total extent of noncompliance with stationary source rules and permits, the number of reported violations exceeds 8,000 as discussed earlier. In addition, audits of the local districts conducted by ARB and U.S. EPA have both found that a substantial number of the violations involve repeat violators. For example, U.S. EPA found in its review of 50 local enforcement cases that almost one-half involved repeat violations, all of which occurred within two years of the previous violation. This suggests that the penalty amounts are not serving to deter violations.

As shown in Figure 3, a review of four air districts (three small, one large) conducted by U.S. EPA's Office of the Inspector General in 1997 confirms a number of problems with local enforcement practices. As a consequence of finding that

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district enforcement actions were sometimes deficient, U.S. EPA has exercised its enforcement authority to seek higher penalties than sought by the districts in a number of cases.

The existing variation in local enforcement practices is due to a number of factors. First, to a large degree, the variation reflects the relative latitude districts have to establish their own enforcement policies, provided that these policies fit within broad statutory parameters. Second, as discussed below, the inconsistent tracking of enforcement actions and general lack of enforcement data reported to ARB result in variations in practices not being identified and addressed. Finally, some of the variation between smaller and larger districts' practices is likely explained by varying amounts of resources available for enforcement.

Recommendations to Improve Local District Enforcement Activities

In the following sections, we recommend that the Legislature take a number of actions to improve the consistency and effectiveness of local air quality enforcement. These actions include:

- Directing ARB to develop a statewide stationary source enforcement response policy to guide local enforcement actions.
- Requiring the imposition of minimum penalties in cases of serious and chronic stationary source violations.
- Clarifying ARB's authority to take enforcement actions independent of the local air districts when the districts fail to take appropriate action.
- Requiring (1) standardized tracking of violation and enforcement response data by local districts, (2) routine reporting of enforcement-related information from the districts to ARB that is broader in scope and more detailed than currently reported, and (3) consideration by ARB of district

Figure 3

Federal Audit of California Air Compliance and Enforcement Program (1997)[a]

Major Findings

- ☑ In *every* case reviewed involving a *repeat* violation, districts had not escalated the enforcement response over the previous action taken.
- ☑ Some districts took as long as four years to ensure a return to compliance after a notice of violation was first issued.
- ☑ Districts in general sought penalties that were too low, when measured against U.S. EPA's penalty policy.
- ☑ Significant variation among districts existed in amounts proposed for penalties.

[a] Based on U.S. EPA's audit review of programs of the South Coast Air Quality Management District (AQMD), the Bay Area AQMD, the Sacramento Metropolitan AQMD, and the Monterey Bay Unified Air Pollution Control District.

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data management needs when it allocates subvention funds.

Expand ARB's Enforcement Policy Direction. Consistency and effectiveness in local enforcement do not dictate that there be a "one-size-fits-all" enforcement response to air quality violations statewide. Rather, we think that it is important for local districts to retain flexibility to develop the most effective enforcement response to a particular violation.

However, in order to make enforcement more consistent among the local districts for reasons discussed above, and to ensure that enforcement actions are appropriate, we believe that more state-level policy direction is warranted. To accomplish this, we recommend that the Legislature direct ARB to develop a statewide enforcement policy to guide local enforcement responses. There is precedent for adoption of such a policy in other environmental protection programs that have a local or regional enforcement component. For example, the Secretary for Environmental Protection (Cal-EPA) is currently developing regulations governing enforcement responses in the locally implemented hazardous materials program known as the Certified Unified Program Agency ("CUPA") program.

The ARB policy guidelines should specify time frames after which enforcement should in general be escalated if a violation has yet to be corrected despite a previous enforcement action. As mentioned previously, violations in some districts have gone unabated for several years. The policy should also specify a range of generally acceptable penalty amounts for particular types of violations, including a statutory requirement for mandatory minimum penalties (which we recommend below). In particular, we think that the policy should refine current guidance about how the repeat nature of a violation should factor into determining an appropriate penalty amount.

We think that a good model for developing statewide guidance on this latter issue is the recently revamped penalty policy of the Bay Area Air Quality Management District. Under this district's policy, there are two separate paths for determining penalty amounts. Penalties for first-time violators (provided that they do not result in large emission increases due to the violation) are handled under a mutual settlement program with penalties ranging from $250 to $1,000 per violation. However, in cases where there were multiple days of a violation, large emission increases due to the violation, or multiple repeat violations, penalties are determined using a different set of formulae and are set at substantially higher levels.

Establish Mandatory Minimum Penalties for Chronic and Serious Violations. Although we believe that it is important for local air districts to have the discretion to determine the most effective enforcement response to a violation, within parameters set by statute and ARB, we also think that the state should ensure that penalties of a minimum amount are assessed in *certain* circumstances. Specifically, we find that where minimum penalties have been mandated by law for *serious* or *chronic* environmental violations, substantial

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increases in compliance have resulted. This has been the experience in New Jersey, which in 1990 enacted minimum penalties for serious and chronic water quality violations. Since then, the number of water quality violations in New Jersey decreased by more than 60 percent. The New Jersey experience has also shown a policy of minimum penalties to be cost-effective, in large measure due to lower total enforcement costs resulting from a substantial increase in compliance.

While California also enacted legislation in 1999 mandating minimum penalties for water quality violations (Chapter 92, Statutes of 1999 [AB 1104, Migden] and Chapter 93, Statutes of 1999 [SB 709, Committee on Budget and Fiscal Review]), it is too early to assess the impact of this requirement on compliance levels. However, according to staff at the State Water Resources Control Board, waste dischargers appear to be paying more attention to water quality since the enactment of the minimum penalty law.

We think that mandating minimum penalties for serious and chronic stationary source violations could make local enforcement actions more consistent by prescribing a statewide standard for enforcement and, as shown by the New Jersey experience, would be cost-effective. The enactment of minimum penalties, however, should accommodate current practice whereby districts sometimes accept "mitigation" payments in lieu of cash penalty payments. These mitigation measures might include, for example, the purchase of additional pollution control devices beyond what is required. Because such "in lieu" payments often provide additional air quality benefits, we recommend the enactment of legislation to mandate minimum penalties, with an accommodation for in lieu mitigation payments.

Clarify ARB's Enforcement Authority. Under current law, both ARB and the local air districts have authority to take enforcement action when there has been a stationary source violation. However, since current law makes the districts primarily responsible for this enforcement, the issue arises as to when ARB can preempt or override local action (or inaction) and initiate enforcement action independent of the districts. Current law is not clear on this point.

There is general agreement that ARB, when requested by the districts, can assist with or take an enforcement action related to stationary sources. Current law is also clear that ARB can assume a district's enforcement authority if the board finds after a public hearing that the district is failing to act *in general* to achieve state air quality standards. The ARB has invoked this authority only a couple of times in the last 30 years. Except for these two sets of circumstances, it is unclear when ARB can exercise its authority.

Given evidence that local air district enforcement could be more timely and effective, we recommend that ARB be given clear statutory authority to take enforcement actions against stationary source violations independent of the districts in order to improve enforcement. By

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giving ARB this authority, local districts would likely be encouraged to act in a more timely manner. Even if a local district chooses not to act, ARB can initiate enforcement action to ensure that a violation does not go unabated for a long period of time.

However, we also think that there is a need to safeguard local discretion in taking enforcement actions. Accordingly, limits should be placed on ARB's authority to preempt local enforcement action. Specifically, we think that this authority should be limited to cases of serious or chronic violations. In addition, the authority should be triggered only after the local districts have been given a specific time period to initiate enforcement action and achieve compliance from the violator.

Standardize Tracking of Enforcement-Related Information and Enhance Local-to-State Reporting. We have identified a number of problems with the state's air quality enforcement data. First, neither state law nor ARB policy currently requires the local air districts to collect and track violation and enforcement data in a uniform manner. Predictably, the local districts vary significantly in how they approach this function. For example, some districts do not have a tracking system that links inspections with violations found during those inspections or that links violations with enforcement actions taken in response to a violation. Other districts do track such information.

Second, only limited information on violations and enforcement responses is reported regularly by the districts to ARB. For instance, local districts report monthly to the ARB certain enforcement-related data that focus on *major* pollution sources in order to fulfill federal grant requirements. These data, however, represent less than 10 percent of all stationary sources in the state. Additionally, the data are generic in nature (such as whether or not a facility was in or out of compliance), and provide little detail on the type of violations and the enforcement actions taken in response to the violations.

Finally, where information is required to be reported, it frequently is not submitted by local districts to ARB. For example, districts are required to report excess emissions detected from facilities that must continuously monitor their own emissions. However, our review finds that only 14, or 45 percent, of the 31 districts that have such sources of emissions have been reporting to ARB as required. The ARB has not enforced this requirement. The board last sent an advisory to the air districts about the requirement almost five years ago. We recommend that the Legislature direct ARB to report on steps that the board can take to ensure that this statutory requirement is followed.

We think that ARB would be more effective in its oversight role if the districts uniformly track and report on more violation and enforcement-related information than currently. Therefore, we recommend that the Legislature take the following actions:

- ***Ensuring Compliance With Monitoring Requirements.*** The Legislature should direct ARB to report on steps that it can take to ensure that the statutory requirement for districts to report on excess

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emissions from continuous emissions monitoring locations is met.

- ***Standardization of Data Tracking.*** The Legislature should direct ARB to work with local districts to establish and standardize the violation and enforcement response data to be tracked by the districts. In particular, data should be kept that link inspections with violations detected during those inspections, track violations from initial detection through resolution for all permitted stationary sources, and track the compliance history for each permitted facility.

  District collection of this information in a uniform manner is important for a couple of reasons. First, such basic information helps the districts to effectively target enforcement expenditures since it identifies where compliance problems lie. Second, permittees' compliance history needs to be tracked in order to set appropriate penalties for violations.

- ***Expansion of Local-to-State Reporting.*** The Legislature should expand the information required to be reported to ARB to (1) encompass a broader group of stationary source violations and (2) provide more detailed information on the nature and impact of violations and the districts' enforcement responses. It is not practical or cost-effective to require the districts to report all violation and enforcement data to the state. Rather, the information submitted should assist ARB in its oversight role. For example, expanded reporting requirements should allow ARB to identify cases where violations by a large number of smaller polluters collectively result in a major compliance problem to be addressed. In addition, ARB should be able to evaluate the appropriateness of the districts' enforcement responses. Finally, ARB should be able to determine whether there are statewide compliance issues pertaining to particular industries that necessitate changes to SIPs, its rule-making guidance to the local districts, or the targeting of its enforcement and compliance assistance expenditures.

  In order to enhance its oversight role, ARB should be provided with the following information in addition to current requirements: (1) violations of minor (smaller) sources where a violation involved *an increase in emissions,* (2) sufficient detail on the nature and location of the violation, (3) the amount of any emission increase due to the violation, (4) the district's enforcement response to date, and (5) the target date for subsequent enforcement action.

- ***Addressing Local Funding Requirements.*** The Legislature should direct ARB to include funding needs for data management and reporting requirements as one of the criteria used to allocate grant funds to local districts. The tracking and reporting requirements recommended above

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may place an additional financial burden on some air districts, particularly the smaller districts. Although districts have the authority to charge permit fees to cover their stationary source program costs, some districts have a small number of facilities on which to levy fees.

The state could ensure that the local districts meet these enhanced data requirements, as well as current reporting requirements, by including funding needs for these purposes as one of the criteria to allocate grants in an existing subventions program. For 2000-01, the state provided $15.1 million in matching grants to the districts, primarily on a population basis, in order to help the districts carry out their air pollution control plans and programs. The Legislature stated its intent that this funding level be ongoing.

State Review of Local Programs Is Minimal

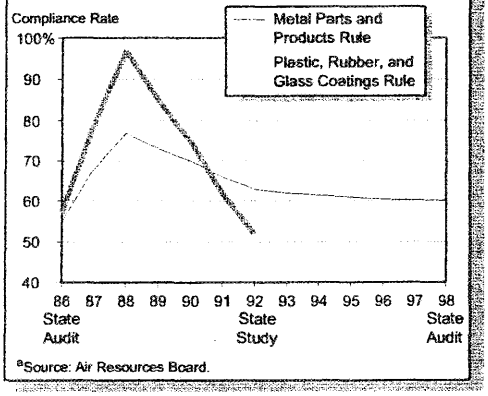
Program Reviews Serve Important Purposes. The ARB carries out various activities intended to enhance the effectiveness of local district programs—including adopting model rules, reviewing the districts' proposed rules, auditing the districts' monitoring networks, providing technical guidance to the districts, and conducting formal "program reviews." The program reviews can serve a particularly useful purpose. Specifically, by focusing on the districts' core activities of compliance assurance, enforcement, and permitting, these reviews help to ensure that local programs are actually *functioning* on a day-to-day basis to meet the state's air quality goals contained in the local plans. Through these reviews, ARB can ensure that local enforcement is consistent and adequate. However, statute does not specify the frequency or comprehensiveness of these reviews.

We think that ARB's review of district programs should be conducted on a regular basis—particularly for the larger districts—because the "state of affairs" in districts can change rapidly. The level of compliance can change substantially over time, and infrequent program reviews would not detect these changes. For example, as shown in Figure 4, the compliance rate for two particular rules of the South Coast Air Quality Management District steadily declined throughout most of the 12-year period between the ARB's major program reviews of the district. Thus, findings from a program

Figure 4

South Coast Air District: Compliance Trends for Selected Rules[a]

1986-1998



[a]Source: Air Resources Board.

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review in one year cannot be assumed to apply to future years. In addition, more frequent reviews are necessary to ensure that the air districts are implementing applicable federal and state law changes.

Program Reviews Not a Priority. In spite of their usefulness, reviews of local district programs are not a priority for ARB. Figure 5 shows that of the $47.1 million budgeted for the ARB's stationary source program in 2000-01, only $400,000 (four personnel-years)—less than 1 percent—is for program reviews.

As reflected in Figure 5, most of ARB's stationary source program expenditures are to operate programs for which it is primarily or jointly responsible with the districts, rather than for its oversight function. For example, the expenditures reflect ARB's responsibilities related to toxic air contaminants, consumer products, and agricultural burning as well as the requirement for ARB, in cooperation with the districts, to perform ambient air quality monitoring. In implementing this latter requirement, ARB establishes monitoring stations to meet data needs not being met by local monitoring.

Figure 5

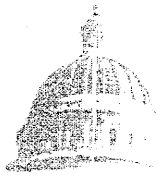
Air Resources Board
Stationary Source Program Expenditures

2000-01
(In Millions)

Program Area	Main Activities	Expenditures[a]
Monitoring and emissions inventory	• Ambient air quality monitoring and data analysis.	$14.8
Research	• Research on health effects, indoor air quality, and innovative technologies.	6.1
Enforcement/compliance assurance	• Training of local enforcement officials, enforcement actions, compliance rate reviews, violation tracking and reporting, and compliance assistance.	5.3
Technical assistance to districts	• Development of suggested control measures and permitting assistance.	4.1
Toxic air contaminants	• Identification of toxic air contaminants, control measure development, and exposure assessments.	3.8
Administration	• Budgeting, personnel, executive, and other program support.	3.5
Air quality planning/ modeling	• Coordination of local plans, assessment of cause and extent of air quality problems and progress made to address them.	2.7
Consumer products	• Regulation development and enforcement.	2.0
Technology/equipment certification and registration	• Evaluation of technology performance claims and certification of portable equipment for use in all districts.	1.7
Agricultural/open burning	• Regulation development, technical support to districts.	1.6
Review of district activities	• Rule review and review of variances from rules granted by districts.	0.9
	• Enforcement and permitting program review.	0.4
Regulation coordination with U.S. EPA		0.2
Total		**$47.1**

[a] As authorized in *2000-01 Budget Act.*

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While ARB's stationary source program expenditures in general appear consistent with its statutory responsibilities, we think that the relatively low priority given to program reviews has significant consequences. As discussed above, infrequent reviews are problematic. At the current staffing level, the board is able to perform reviews of only about 2 of the 35 districts each year. (A program review of a large district requires about 1.5 to 3 personnel-years, while a review of a small district typically requires about one-half of a personnel-year.) In fact, during the last six years, ARB has conducted detailed program reviews of only four districts, albeit larger districts including the South Coast Air Quality Management District. According to our discussions with ARB, it would take 20 years to perform a good program review of *all* districts with current staff.

Board Has No Schedule for Program Reviews. The ARB does not plan to conduct any detailed program reviews of any district in 2000-01. Instead, it plans to evaluate compliance rates of a few particular types of stationary sources in a number of districts. Also, ARB has no long-term schedule for conducting program reviews of particular districts. According to ARB, this is for a couple of reasons. First, to the extent the schedule shows that a district will not be reviewed for several years, such a schedule removes an incentive for a district to maintain a quality program until shortly before the review. However, we believe that any incentive for districts to be less concerned about program quality between reviews would be removed if the reviews were frequent. Second, ARB stated that it needs to be flexible in directing its resources in order to respond to changing problems at the district level. However, we think that the department can budget and still have flexibility to adjust to changing circumstances.

We think that ARB's oversight of the local air districts would be improved if program reviews were conducted on a regular basis so as to identify problems in their early stages of development, rather than later. This would allow problem areas to be addressed much more cost-effectively.

Recommend ARB Submit Expenditure and Work Plan for Enhanced Program Reviews. To ensure that the state's air quality objectives are achieved, we think that it is necessary for ARB to perform timely and thorough reviews of local air district programs, including enforcement practices. Therefore, we recommend that the Legislature direct ARB to submit an expenditure and work plan for the board to perform timely reviews of local district programs. This plan should include a time schedule for completing reviews of all 35 districts—or of at least those districts out of attainment with air quality standards—over the next five years. The plan should also identify resources needed to effectively meet the board's statutory oversight responsibilities. We think that the board would need to spend around $1 million annually to complete program reviews of all districts over a five-year period.

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CONCLUSION

In summary, we think that air quality regulation in the state can be made more effective by enhancing the state's direction and oversight of local air district programs. Specifically, we recommend the adoption of a statewide enforcement policy, the enactment of mandatory minimum penalties, improved local enforcement database tracking and local-to-state reporting, and clarification of ARB's enforcement authority. We think that each of these changes will serve to make stationary source enforcement more consistent and effective on a statewide basis.

Finally, we believe that ARB's legislatively mandated reviews of local air district programs serve an important role in ensuring that the state's air quality objectives are met. Given that these reviews have been performed infrequently, we recommend that ARB develop a work and expenditure plan that provides for timely reviews of local district programs.

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Acknowledgments

This report was prepared by Mark C. Newton, under the supervision of Dana Curry. The Legislative Analyst's Office (LAO) is a nonpartisan office which provides fiscal and policy information and advice to the Legislature.

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Current State-Local Division of Responsibility

Stationary Versus Mobile Sources. Air quality was first regulated in California at the local level in 1947 when state statute authorized the creation of an air district in every county. (Subsequent law provided for the formation of multicounty and regional districts.) The focus of air quality regulation was initially on stationary sources of "visible" pollution, such as smoke and particulate. Today there are 35 local air districts that are the primary agencies responsible for regulating emissions from stationary sources of pollution, as shown in Figure 1 (see page 4). Stationary sources contribute substantially to emissions of certain pollutants. For example, between one-quarter and one-half of ozone-forming chemicals (the major components of smog) are from stationary sources.

A state-level board was created in 1960 to regulate emissions from motor vehicles. The ARB became responsible for regulating emissions from other mobile sources in the 1970s and started regulating consumer products in the late 1980s. (Consumer products include cleaning compounds, cosmetic aerosol sprays, and other chemically formulated products used by household and institutional consumers.)

Planning Process to Meet Ambient Air Quality Standards. Under federal law, states are required to develop plans (state implementation plans, or SIPs) showing how the state will meet *national* ambient air quality standards within specified time frames. Federal law does not dictate the governance structure for meeting these planning requirements, but rather leaves it up to the states to designate the responsible entity. In California, state law designates ARB as the agency responsible for developing SIPs, in coordination with the local districts.

In addition, state law requires local districts to develop their own plans and implement programs for meeting *state* ambient air quality standards. Unlike federal law that requires national standards to be attained by specific dates, state standards are to be achieved by the "earliest practicable date." While state law provides for a planning process separate from that required under federal law, local districts in general are able to integrate the state and federal planning requirements.

Development and Implementation of Plans—Local Role. In implementing the state and federal planning requirements, districts that have not attained air quality standards for a particular pollutant are responsible for developing a plan to control and reduce that pollutant. These plans include rules to regulate stationary sources of pollution. The plans also incorporate state-adopted measures (such as smog check) for mobile sources of pollution under ARB's jurisdiction. The combination of state and local measures in the plans are designed collectively to meet the air quality goals specified in statute.

To implement the plans, local air districts regulate stationary sources of pollution primarily by issuing and enforcing various permits. These permits specify various pollution emissions requirements with which a stationary source (such

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Figure 1

California Air Districts



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as an oil refinery) must comply. Permit requirements are based on rules adopted by the districts. The ARB and U.S. EPA retain some enforcement authority, primarily through their oversight roles.

Development and Implementation of Plans—State Role. The ARB's role in the planning process is three-fold:

- To adopt rules that control sources of pollution under its jurisdiction (namely mobile sources, fuels, and consumer products).
- To review and approve the local plans.
- To compile local plans into state implementation plans that are submitted to U.S. EPA for approval.

In order to implement the state plans, ARB primarily enforces permits and rules for pollution sources under its jurisdiction. For example, ARB conducts tests to ensure that new motor vehicles contain required emission controls. As regards the regulation of stationary sources of pollution, the state board's role is *mainly* one of providing guidance and model rules to local districts for the regulation of these sources. Guidance and rules may involve providing information on the best available technologies and appropriate control measures to be included as permit requirements. However, in the case of a few specific types of stationary sources, such as agricultural burning and vapor recovery at gas stations, ARB is statutorily responsible for setting statewide rules that local districts must follow.

In addition, ARB is responsible for developing statewide control measures for toxic air contaminants (TACs) emitted from *all* (both stationary and mobile) sources. The TACs—which include benzene, asbestos, and diesel particulate—are air pollutants that may cause or contribute to an increase in mortality or serious illness due to an individual's acute or long-term exposure to them. Local air districts must adopt the statewide control measures for TACs, unless the districts choose to adopt more stringent measures.

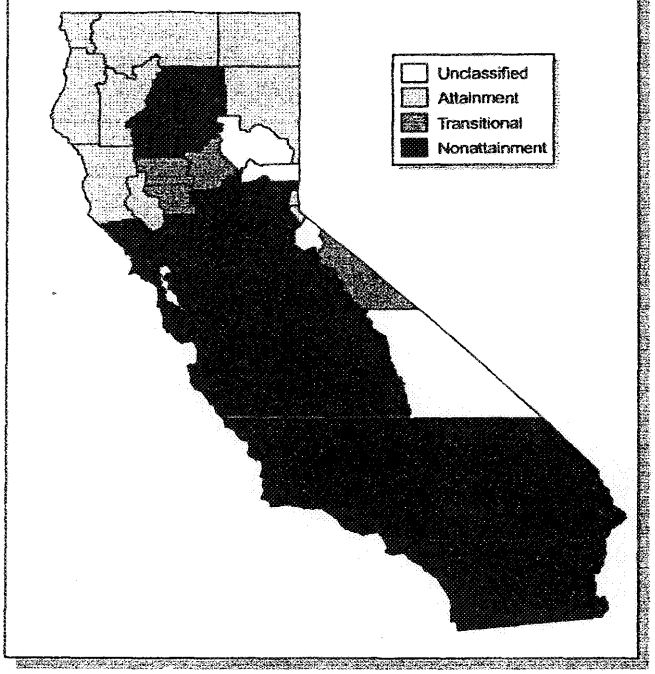
State Oversight of Local Program Implementation. It is important for the state to have effective oversight of the local districts' *implementation* of the local plans, including rule-making, permitting, and enforcement activities. This is because plan implementation directly affects the state's progress in meeting federal and state air quality goals. While most of the state has attained national and state standards for some pollutants, such as nitrogen dioxide and sulphur dioxide, most of the state is failing national and state standards for a number of other pollutants. For example, as shown in Figure 2 (see page 6), most of the state failed the state standard for ozone (smog) in 1999 and was designated as a nonattainment area.

The federal government can sanction the state if it fails to attain a certain level of air quality at various milestones prescribed by federal law. These sanctions potentially include a reduction in federal transportation funding to the state and the development of a made-in-Washington plan for controlling pollution in California (federal implementation plan, or FIP).

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Figure 2

State Ozone Standards Area Designations, 1999



As will be discussed in detail later, ARB has broad authority to oversee and evaluate local air district programs. Specifically, ARB is required under state law to review district plans, rules, and programs, including enforcement practices, to determine whether they are sufficiently effective to achieve and maintain the state's ambient air quality standards.

CURRENT DIVISION OF RESPONSIBILITY GENERALLY APPROPRIATE

Our discussions with various groups found that, in general, the current division of responsibility between state and local agencies relative to the source of pollution (stationary versus mobile) is appropriate. This is for a couple of reasons. First, local agencies are able to adopt stationary source rules that appropriately reflect local air quality conditions and the local make-up of pollution sources. Second, the relative accessibility of local agencies to regulated stationary sources located in their jurisdiction improves the level of service provided to these parties. As far as mobile sources are concerned, these are more effectively regulated at the state level, given that the pollution impacts from these sources typically transcend the borders of the air districts.

It is also appropriate for the state to prescribe measures to control TACs from stationary sources. This is because such statewide regulation ensures that the state's residents, no matter where they live, will receive a certain level of protection from those chemical emissions that have serious and direct public health impacts. It is also cost-effective because the development of these complex

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measures often requires a high level of technical expertise and fiscal support that may be lacking at the local level, but, when centrally conducted at the state level, achieves some economies of scale.

Statewide Rules to Regulate Stationary Sources More Cost-Effective in Some Circumstances. Current law recognizes that certain stationary source emissions are well suited for statewide regulation. Generally, these are emissions that come from the widespread use of a product that is portable, available statewide, and generally used in a similar fashion. Thus, current law requires ARB to adopt statewide rules for a few particular types of stationary sources–including vapor recovery at gas stations and certain diesel-fueled construction equipment.

Statewide regulation offers benefits to both the regulated community and the state. Generally, businesses find it easier and less expensive to comply with one statewide regulation than with multiple rules imposed by several different air districts. From a government perspective, one set of regulations is generally more cost-effective than district-by-district rules that can be easier to circumvent and more difficult to enforce.

Based on our review, there appear to be additional cases–such as architectural coatings (paints, stains, traffic coatings, et cetera), automotive coatings (mainly paints), and solvents–where a statewide rule would be more cost-effective in lieu of existing multiple local rules. According to ARB, local rules for these pollution sources have been easy to circumvent and compliance levels have been particularly low. In addition, ARB has indicated that manufacturers in general have expressed a preference for consistency for statewide rules for stationary sources such as architectural and automotive coatings.

Recommend Board Report to Legislature. We think that the Legislature should be advised of cases where district-by-district rule-making for particular stationary sources has resulted in relatively low levels of compliance and where regulation of these sources would be improved by statewide rules. Therefore, we recommend that ARB (1) identify for the Legislature stationary sources of air pollution where it would be more cost-effective for ARB to adopt statewide rules and (2) recommend statutory changes to give the board the authority to adopt rules for the sources identified.

STATE OVERSIGHT AND DIRECTION NEED IMPROVEMENT

While the division of responsibility between state and local agencies is generally appropriate, we find that stationary source regulation could be improved if ARB exercised more effective oversight of the local districts. While we think that ARB's statutory authority to oversee the districts should be strengthened and clarified, we also find that ARB could do a better job under its existing authority. Specifically, in this regard, our review finds that ARB:

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- Has not adopted a statewide enforcement policy to guide local district enforcement actions, even though it has the authority to do so.
- Takes little action when the local districts clearly disregard certain statutory reporting requirements.
- Lacks data to assess the extent of inconsistent and ineffective local district enforcement—a problem area identified by third parties, including federal environmental agencies.
- Devotes minimal staff to local program review, and has not sought budgetary or legislative remedies to improve its efforts in local program review.

We find that improvements can be made in two main areas, discussed in the sections that follow:

- Ensuring consistent and effective local district enforcement of stationary source rules and permits.
- Evaluation of local programs to ensure that the districts are operating effectively to attain the state's air quality standards.

Ensuring Consistent and Effective Local District Enforcement

The Importance of Local District Enforcement

Enforcement activities by the local air districts (which initiate almost all enforcement actions against stationary sources) are necessary in order to ensure compliance with requirements that are designed to meet air quality objectives. These activities involve enforcing stationary source rules and permits.

The Need for Consistent Enforcement. A key measure of the effectiveness of an enforcement program is the degree to which it results in compliance. To be effective, enforcement actions must be timely and sufficiently stringent to deter violations. In addition, enforcement actions must be relatively consistent statewide. This is for a number of reasons. First, inconsistent enforcement may result in the regulated community perceiving enforcement to be unfair, thereby weakening the incentive to comply with rules and regulations. Second, the lack of consistency, and therefore predictability of compliance requirements, adds to the compliance costs for business. Finally, consistent enforcement is necessary to ensure that the state's residents, no matter where they live, have a minimally adequate level of environmental protection.

What Guides Local Enforcement Actions. Local air districts enforce compliance with stationary source regulations in a number of ways. For example, districts conduct inspections; perform testing of emission levels at permitted facilities; investigate complaints; and, when violations are detected, issue warnings, assess administrative penalties, and initiate legal and other enforcement actions.

Current law provides broad direction that guides local district enforcement actions. For

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minor violations, air districts are required to issue a "notice to comply," which is a warning without a penalty. For other violations, local districts are *authorized* to impose monetary penalties of up to specified maximum amounts. However, penalties are *not required* in any case. Current law also contains broad criteria that districts must consider in determining the amount of a penalty, including the extent of harm caused by the violation, the frequency of past violations, and actions taken by the violator to mitigate the violation.

In addition to statutory direction, ARB provides local districts with some guidance on enforcement practices. However, this guidance is limited in scope and has not been adopted by the board as a statewide policy. For some matters, ARB has provided no guidance at all. For example, ARB has not provided guidance regarding when and how quickly a prior informal enforcement action (such as a warning) should be escalated to a more formal and stringent level of enforcement (such as a penalty assessment).

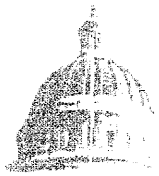
Finally, the local districts have developed their own enforcement policies within the broad directions provided by current law and ARB. In some cases these have been formally adopted by the district board, in other cases not. These policies vary among districts in some important aspects. For example, districts resolve most violations that have not been corrected after an initial warning by issuing a "notice of violation" and entering into settlement discussions with the violator. However, district policies vary significantly regarding the penalty amounts at which they typically open a settlement discussion for relatively similar violations. Additionally, only some districts have established policies that provide explicit time frames for resolving violation cases.

Enforcement Actions Are Not Consistent And Could Be Made More Effective

Based on our review, we find significant inconsistencies among districts in how they respond to violations. These inconsistencies, particularly as regards penalties assessed for air quality violations, have reduced the effectiveness of the program. This conclusion is based on our review of local air district data, interviews with the regulated community and ARB staff, and our review of evaluations conducted by others of air quality programs in the state. We also find that districts do not consistently seek penalties of an appropriate amount that serve to deter violations, although a number of districts have recently been making improvements in this area. We are unable to assess fully how wide-ranging these problems are because:

- The ARB does not collect data on a substantial portion of the enforcement actions by the local districts.
- The ARB audits of district programs are infrequent, resulting in outdated data regarding local enforcement activities.
- Only 13 out of 35 districts responded to our survey on their enforcement policies and practices.

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Inconsistencies Among Districts. We find that local districts vary in the length of time before they escalate the level of enforcement in cases where the initial enforcement action has not resulted in correction of the violation. For example, while some districts have policies requiring enforcement to be escalated within specified time frames, other districts do not have such policies and, as a consequence, have allowed some violations to continue unabated for several years.

Regarding the imposition of penalties, we similarly find that local districts vary in the amount of penalties sought for similar violations. Districts also vary in whether they propose a penalty with every notice of violation. While many districts routinely propose a penalty with almost every notice of violation, a few do not.

Additionally, penalties (including monetary settlements) sought have in general been low, although at least a couple of districts have recently revised their policies to increase recommended penalty amounts. Penalties have been low relative to ARB/U.S. EPA guidance on minimum penalty amounts necessary to deter violations, as well as statutory criteria for setting penalty amounts. These criteria include the seriousness of the violation, the compliance history of the violator, the violator's willingness in committing the violation, and the economic benefit to the violator of noncompliance.

In order to illustrate the variation between the level of penalties authorized and those collected, consider 1998-99. In that year, the average monetary penalty collected from almost 8,300 notices of violations was about $800 per violation. This was significantly lower than the maximum amounts of $1,000 to $50,000 per day authorized by statute, depending on factors listed above. Similarly, ARB's recent evaluation of the South Coast Air Quality Management District (January 2000) found that 75 percent of the enforcement cases reviewed—most involving emission-related violations—were settled for less than $500 per violation. According to ARB's report, this penalty amount "does not provide enough deterrence for a source to remain in continuous compliance."

Enforcement Could Be Made More Effective. There is evidence that the imposition of low penalties is limiting the effectiveness of local air district enforcement programs. Although the state lacks a database to assess the total extent of noncompliance with stationary source rules and permits, the number of reported violations exceeds 8,000 as discussed earlier. In addition, audits of the local districts conducted by ARB and U.S. EPA have both found that a substantial number of the violations involve repeat violators. For example, U.S. EPA found in its review of 50 local enforcement cases that almost one-half involved repeat violations, all of which occurred within two years of the previous violation. This suggests that the penalty amounts are not serving to deter violations.

As shown in Figure 3, a review of four air districts (three small, one large) conducted by U.S. EPA's Office of the Inspector General in 1997 confirms a number of problems with local enforcement practices. As a consequence of finding that

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district enforcement actions were sometimes deficient, U.S. EPA has exercised its enforcement authority to seek higher penalties than sought by the districts in a number of cases.

The existing variation in local enforcement practices is due to a number of factors. First, to a large degree, the variation reflects the relative latitude districts have to establish their own enforcement policies, provided that these policies fit within broad statutory parameters. Second, as discussed below, the inconsistent tracking of enforcement actions and general lack of enforcement data reported to ARB result in variations in practices not being identified and addressed. Finally, some of the variation between smaller and larger districts' practices is likely explained by varying amounts of resources available for enforcement.

Recommendations to Improve Local District Enforcement Activities

In the following sections, we recommend that the Legislature take a number of actions to improve the consistency and effectiveness of local air quality enforcement. These actions include:

- Directing ARB to develop a statewide stationary source enforcement response policy to guide local enforcement actions.
- Requiring the imposition of minimum penalties in cases of serious and chronic stationary source violations.
- Clarifying ARB's authority to take enforcement actions independent of the local air districts when the districts fail to take appropriate action.
- Requiring (1) standardized tracking of violation and enforcement response data by local districts, (2) routine reporting of enforcement-related information from the districts to ARB that is broader in scope and more detailed than currently reported, and (3) consideration by ARB of district

Figure 3

Federal Audit of California Air Compliance and Enforcement Program (1997)[a]

Major Findings

- ☑ In *every* case reviewed involving a *repeat* violation, districts had not escalated the enforcement response over the previous action taken.
- ☑ Some districts took as long as four years to ensure a return to compliance after a notice of violation was first issued.
- ☑ Districts in general sought penalties that were too low, when measured against U.S. EPA's penalty policy.
- ☑ Significant variation among districts existed in amounts proposed for penalties.

[a] Based on U.S. EPA's audit review of programs of the South Coast Air Quality Management District (AQMD), the Bay Area AQMD, the Sacramento Metropolitan AQMD, and the Monterey Bay Unified Air Pollution Control District.

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data management needs when it allocates subvention funds.

Expand ARB's Enforcement Policy Direction. Consistency and effectiveness in local enforcement do not dictate that there be a "one-size-fits-all" enforcement response to air quality violations statewide. Rather, we think that it is important for local districts to retain flexibility to develop the most effective enforcement response to a particular violation.

However, in order to make enforcement more consistent among the local districts for reasons discussed above, and to ensure that enforcement actions are appropriate, we believe that more state-level policy direction is warranted. To accomplish this, we recommend that the Legislature direct ARB to develop a statewide enforcement policy to guide local enforcement responses. There is precedent for adoption of such a policy in other environmental protection programs that have a local or regional enforcement component. For example, the Secretary for Environmental Protection (Cal-EPA) is currently developing regulations governing enforcement responses in the locally implemented hazardous materials program known as the Certified Unified Program Agency ("CUPA") program.

The ARB policy guidelines should specify time frames after which enforcement should in general be escalated if a violation has yet to be corrected despite a previous enforcement action. As mentioned previously, violations in some districts have gone unabated for several years. The policy should also specify a range of generally acceptable penalty amounts for particular types of violations, including a statutory requirement for mandatory minimum penalties (which we recommend below). In particular, we think that the policy should refine current guidance about how the repeat nature of a violation should factor into determining an appropriate penalty amount.

We think that a good model for developing statewide guidance on this latter issue is the recently revamped penalty policy of the Bay Area Air Quality Management District. Under this district's policy, there are two separate paths for determining penalty amounts. Penalties for first-time violators (provided that they do not result in large emission increases due to the violation) are handled under a mutual settlement program with penalties ranging from $250 to $1,000 per violation. However, in cases where there were multiple days of a violation, large emission increases due to the violation, or multiple repeat violations, penalties are determined using a different set of formulae and are set at substantially higher levels.

Establish Mandatory Minimum Penalties for Chronic and Serious Violations. Although we believe that it is important for local air districts to have the discretion to determine the most effective enforcement response to a violation, within parameters set by statute and ARB, we also think that the state should ensure that penalties of a minimum amount are assessed in *certain* circumstances. Specifically, we find that where minimum penalties have been mandated by law for *serious* or *chronic* environmental violations, substantial

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increases in compliance have resulted. This has been the experience in New Jersey, which in 1990 enacted minimum penalties for serious and chronic water quality violations. Since then, the number of water quality violations in New Jersey decreased by more than 60 percent. The New Jersey experience has also shown a policy of minimum penalties to be cost-effective, in large measure due to lower total enforcement costs resulting from a substantial increase in compliance.

While California also enacted legislation in 1999 mandating minimum penalties for water quality violations (Chapter 92, Statutes of 1999 [AB 1104, Migden] and Chapter 93, Statutes of 1999 [SB 709, Committee on Budget and Fiscal Review]), it is too early to assess the impact of this requirement on compliance levels. However, according to staff at the State Water Resources Control Board, waste dischargers appear to be paying more attention to water quality since the enactment of the minimum penalty law.

We think that mandating minimum penalties for serious and chronic stationary source violations could make local enforcement actions more consistent by prescribing a statewide standard for enforcement and, as shown by the New Jersey experience, would be cost-effective. The enactment of minimum penalties, however, should accommodate current practice whereby districts sometimes accept "mitigation" payments in lieu of cash penalty payments. These mitigation measures might include, for example, the purchase of additional pollution control devices beyond what is required. Because such "in lieu" payments often provide additional air quality benefits, we recommend the enactment of legislation to mandate minimum penalties, with an accommodation for in lieu mitigation payments.

Clarify ARB's Enforcement Authority. Under current law, both ARB and the local air districts have authority to take enforcement action when there has been a stationary source violation. However, since current law makes the districts primarily responsible for this enforcement, the issue arises as to when ARB can preempt or override local action (or inaction) and initiate enforcement action independent of the districts. Current law is not clear on this point.

There is general agreement that ARB, when requested by the districts, can assist with or take an enforcement action related to stationary sources. Current law is also clear that ARB can assume a district's enforcement authority if the board finds after a public hearing that the district is failing to act *in general* to achieve state air quality standards. The ARB has invoked this authority only a couple of times in the last 30 years. Except for these two sets of circumstances, it is unclear when ARB can exercise its authority.

Given evidence that local air district enforcement could be more timely and effective, we recommend that ARB be given clear statutory authority to take enforcement actions against stationary source violations independent of the districts in order to improve enforcement. By

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giving ARB this authority, local districts would likely be encouraged to act in a more timely manner. Even if a local district chooses not to act, ARB can initiate enforcement action to ensure that a violation does not go unabated for a long period of time.

However, we also think that there is a need to safeguard local discretion in taking enforcement actions. Accordingly, limits should be placed on ARB's authority to preempt local enforcement action. Specifically, we think that this authority should be limited to cases of serious or chronic violations. In addition, the authority should be triggered only after the local districts have been given a specific time period to initiate enforcement action and achieve compliance from the violator.

Standardize Tracking of Enforcement-Related Information and Enhance Local-to-State Reporting. We have identified a number of problems with the state's air quality enforcement data. First, neither state law nor ARB policy currently requires the local air districts to collect and track violation and enforcement data in a uniform manner. Predictably, the local districts vary significantly in how they approach this function. For example, some districts do not have a tracking system that links inspections with violations found during those inspections or that links violations with enforcement actions taken in response to a violation. Other districts do track such information.

Second, only limited information on violations and enforcement responses is reported regularly by the districts to ARB. For instance, local districts report monthly to the ARB certain enforcement-related data that focus on *major* pollution sources in order to fulfill federal grant requirements. These data, however, represent less than 10 percent of all stationary sources in the state. Additionally, the data are generic in nature (such as whether or not a facility was in or out of compliance), and provide little detail on the type of violations and the enforcement actions taken in response to the violations.

Finally, where information is required to be reported, it frequently is not submitted by local districts to ARB. For example, districts are required to report excess emissions detected from facilities that must continuously monitor their own emissions. However, our review finds that only 14, or 45 percent, of the 31 districts that have such sources of emissions have been reporting to ARB as required. The ARB has not enforced this requirement. The board last sent an advisory to the air districts about the requirement almost five years ago. We recommend that the Legislature direct ARB to report on steps that the board can take to ensure that this statutory requirement is followed.

We think that ARB would be more effective in its oversight role if the districts uniformly track and report on more violation and enforcement-related information than currently. Therefore, we recommend that the Legislature take the following actions:

- ***Ensuring Compliance With Monitoring Requirements.*** The Legislature should direct ARB to report on steps that it can take to ensure that the statutory requirement for districts to report on excess

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emissions from continuous emissions monitoring locations is met.

- ***Standardization of Data Tracking.*** The Legislature should direct ARB to work with local districts to establish and standardize the violation and enforcement response data to be tracked by the districts. In particular, data should be kept that link inspections with violations detected during those inspections, track violations from initial detection through resolution for all permitted stationary sources, and track the compliance history for each permitted facility.

  District collection of this information in a uniform manner is important for a couple of reasons. First, such basic information helps the districts to effectively target enforcement expenditures since it identifies where compliance problems lie. Second, permittees' compliance history needs to be tracked in order to set appropriate penalties for violations.

- ***Expansion of Local-to-State Reporting.*** The Legislature should expand the information required to be reported to ARB to (1) encompass a broader group of stationary source violations and (2) provide more detailed information on the nature and impact of violations and the districts' enforcement responses. It is not practical or cost-effective to require the districts to report all violation and enforcement data to the state. Rather, the information submitted should assist ARB in its oversight role. For example, expanded reporting requirements should allow ARB to identify cases where violations by a large number of smaller polluters collectively result in a major compliance problem to be addressed. In addition, ARB should be able to evaluate the appropriateness of the districts' enforcement responses. Finally, ARB should be able to determine whether there are statewide compliance issues pertaining to particular industries that necessitate changes to SIPs, its rule-making guidance to the local districts, or the targeting of its enforcement and compliance assistance expenditures.

  In order to enhance its oversight role, ARB should be provided with the following information in addition to current requirements: (1) violations of minor (smaller) sources where a violation involved *an increase in emissions,* (2) sufficient detail on the nature and location of the violation, (3) the amount of any emission increase due to the violation, (4) the district's enforcement response to date, and (5) the target date for subsequent enforcement action.

- ***Addressing Local Funding Requirements.*** The Legislature should direct ARB to include funding needs for data management and reporting requirements as one of the criteria used to allocate grant funds to local districts. The tracking and reporting requirements recommended above

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may place an additional financial burden on some air districts, particularly the smaller districts. Although districts have the authority to charge permit fees to cover their stationary source program costs, some districts have a small number of facilities on which to levy fees.

The state could ensure that the local districts meet these enhanced data requirements, as well as current reporting requirements, by including funding needs for these purposes as one of the criteria to allocate grants in an existing subventions program. For 2000-01, the state provided $15.1 million in matching grants to the districts, primarily on a population basis, in order to help the districts carry out their air pollution control plans and programs. The Legislature stated its intent that this funding level be ongoing.

State Review of Local Programs Is Minimal

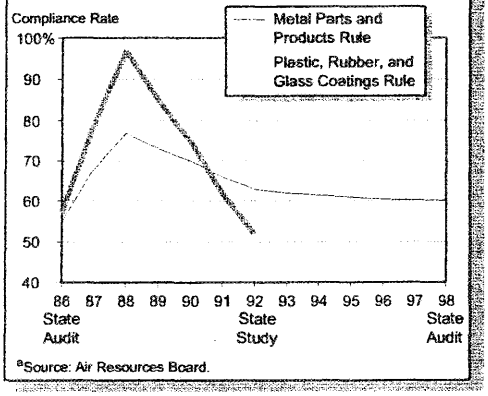
Program Reviews Serve Important Purposes. The ARB carries out various activities intended to enhance the effectiveness of local district programs—including adopting model rules, reviewing the districts' proposed rules, auditing the districts' monitoring networks, providing technical guidance to the districts, and conducting formal "program reviews." The program reviews can serve a particularly useful purpose. Specifically, by focusing on the districts' core activities of compliance assurance, enforcement, and permitting, these reviews help to ensure that local programs are actually *functioning* on a day-to-day basis to meet the state's air quality goals contained in the local plans. Through these reviews, ARB can ensure that local enforcement is consistent and adequate. However, statute does not specify the frequency or comprehensiveness of these reviews.

We think that ARB's review of district programs should be conducted on a regular basis—particularly for the larger districts—because the "state of affairs" in districts can change rapidly. The level of compliance can change substantially over time, and infrequent program reviews would not detect these changes. For example, as shown in Figure 4, the compliance rate for two particular rules of the South Coast Air Quality Management District steadily declined throughout most of the 12-year period between the ARB's major program reviews of the district. Thus, findings from a program

Figure 4

South Coast Air District: Compliance Trends for Selected Rules[a]

1986-1998



[a]Source: Air Resources Board.

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review in one year cannot be assumed to apply to future years. In addition, more frequent reviews are necessary to ensure that the air districts are implementing applicable federal and state law changes.

Program Reviews Not a Priority. In spite of their usefulness, reviews of local district programs are not a priority for ARB. Figure 5 shows that of the $47.1 million budgeted for the ARB's stationary source program in 2000-01, only $400,000 (four personnel-years)—less than 1 percent—is for program reviews.

As reflected in Figure 5, most of ARB's stationary source program expenditures are to operate programs for which it is primarily or jointly responsible with the districts, rather than for its oversight function. For example, the expenditures reflect ARB's responsibilities related to toxic air contaminants, consumer products, and agricultural burning as well as the requirement for ARB, in cooperation with the districts, to perform ambient air quality monitoring. In implementing this latter requirement, ARB establishes monitoring stations to meet data needs not being met by local monitoring.

Figure 5

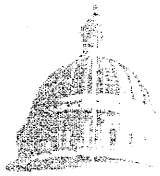
Air Resources Board
Stationary Source Program Expenditures

2000-01
(In Millions)

Program Area	Main Activities	Expenditures[a]
Monitoring and emissions inventory	• Ambient air quality monitoring and data analysis.	$14.8
Research	• Research on health effects, indoor air quality, and innovative technologies.	6.1
Enforcement/compliance assurance	• Training of local enforcement officials, enforcement actions, compliance rate reviews, violation tracking and reporting, and compliance assistance.	5.3
Technical assistance to districts	• Development of suggested control measures and permitting assistance.	4.1
Toxic air contaminants	• Identification of toxic air contaminants, control measure development, and exposure assessments.	3.8
Administration	• Budgeting, personnel, executive, and other program support.	3.5
Air quality planning/ modeling	• Coordination of local plans, assessment of cause and extent of air quality problems and progress made to address them.	2.7
Consumer products	• Regulation development and enforcement.	2.0
Technology/equipment certification and registration	• Evaluation of technology performance claims and certification of portable equipment for use in all districts.	1.7
Agricultural/open burning	• Regulation development, technical support to districts.	1.6
Review of district activities	• Rule review and review of variances from rules granted by districts.	0.9
	• Enforcement and permitting program review.	0.4
Regulation coordination with U.S. EPA		0.2
Total		**$47.1**

[a] As authorized in *2000-01 Budget Act.*

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While ARB's stationary source program expenditures in general appear consistent with its statutory responsibilities, we think that the relatively low priority given to program reviews has significant consequences. As discussed above, infrequent reviews are problematic. At the current staffing level, the board is able to perform reviews of only about 2 of the 35 districts each year. (A program review of a large district requires about 1.5 to 3 personnel-years, while a review of a small district typically requires about one-half of a personnel-year.) In fact, during the last six years, ARB has conducted detailed program reviews of only four districts, albeit larger districts including the South Coast Air Quality Management District. According to our discussions with ARB, it would take 20 years to perform a good program review of *all* districts with current staff.

Board Has No Schedule for Program Reviews. The ARB does not plan to conduct any detailed program reviews of any district in 2000-01. Instead, it plans to evaluate compliance rates of a few particular types of stationary sources in a number of districts. Also, ARB has no long-term schedule for conducting program reviews of particular districts. According to ARB, this is for a couple of reasons. First, to the extent the schedule shows that a district will not be reviewed for several years, such a schedule removes an incentive for a district to maintain a quality program until shortly before the review. However, we believe that any incentive for districts to be less concerned about program quality between reviews would be removed if the reviews were frequent. Second, ARB stated that it needs to be flexible in directing its resources in order to respond to changing problems at the district level. However, we think that the department can budget and still have flexibility to adjust to changing circumstances.

We think that ARB's oversight of the local air districts would be improved if program reviews were conducted on a regular basis so as to identify problems in their early stages of development, rather than later. This would allow problem areas to be addressed much more cost-effectively.

Recommend ARB Submit Expenditure and Work Plan for Enhanced Program Reviews. To ensure that the state's air quality objectives are achieved, we think that it is necessary for ARB to perform timely and thorough reviews of local air district programs, including enforcement practices. Therefore, we recommend that the Legislature direct ARB to submit an expenditure and work plan for the board to perform timely reviews of local district programs. This plan should include a time schedule for completing reviews of all 35 districts—or of at least those districts out of attainment with air quality standards—over the next five years. The plan should also identify resources needed to effectively meet the board's statutory oversight responsibilities. We think that the board would need to spend around $1 million annually to complete program reviews of all districts over a five-year period.

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CONCLUSION

In summary, we think that air quality regulation in the state can be made more effective by enhancing the state's direction and oversight of local air district programs. Specifically, we recommend the adoption of a statewide enforcement policy, the enactment of mandatory minimum penalties, improved local enforcement database tracking and local-to-state reporting, and clarification of ARB's enforcement authority. We think that each of these changes will serve to make stationary source enforcement more consistent and effective on a statewide basis.

Finally, we believe that ARB's legislatively mandated reviews of local air district programs serve an important role in ensuring that the state's air quality objectives are met. Given that these reviews have been performed infrequently, we recommend that ARB develop a work and expenditure plan that provides for timely reviews of local district programs.

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Acknowledgments

This report was prepared by Mark C. Newton, under the supervision of Dana Curry. The Legislative Analyst's Office (LAO) is a nonpartisan office which provides fiscal and policy information and advice to the Legislature.

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Ozone Harm Documented in Children

Recent research reports on ozone's impacts on California children have highlighted the health impacts of Sacramento's worst air pollution problem. The *Sacramento Bee* reported on July 16 that state scientists analyzing hospital Medi-Cal records for a two-year period, from 1992 through early 1994, found persistently high levels of ozone associated with a 14 percent rise in the number of asthma-related hospital admissions and emergency room visits involving low-income children and teenagers.

At the July meeting of the California Air Resources Board, scientists from the University of California reported that school absences for respiratory disease are associated with ozone (O_3) exposure. While the study is not complete, preliminary results show that school absences increases by 83 percent with a 20 parts per billion increase in ozone.

Air Pollution

Ozone found to harm young lungs

Monkeys have lasting problems after exposure as babies, a UC Davis study says.

By Edie Lau
BEE SCIENCE WRITER 10/14/2004

Ending a marathon season of hot, stagnant, dirty air, we breathe easier – or so we think. For the most vulnerable among us, breathing may never be easy after exposure to the Valley's most troublesome air pollutant, ozone.

Research with infant monkeys at the University of California, Davis, suggests that the lungs of young primates are permanently changed by inhaling high concentrations of ozone. Even giving them pristine air doesn't reverse the damage.

Although the monkeys breathed levels of ozone markedly higher than are reached in the Sacramento region – amounts akin to the pollution of Mexico City – and monkeys aren't people, the scientists said their findings have unmistakable implications for Californians.

"I would certainly keep little kids in" on bad-air days, said Laurel Gershwin, an immunologist on the UC Davis research team. "If they're anything like the baby monkeys, we don't want them breathing high levels of air pollutants."

As with infant monkeys, much of the lung growth in baby humans occurs after birth. That development continues to adulthood, with the first few years considered the most critical.

Focusing on that period, the UC Davis team exposed baby rhesus macaques to .5 ppm concentrations of ozone off and on for six months. Some of the monkeys also were exposed to dust mites, a common allergen.

The scientists found that repeated exposure to dust mites caused allergic

▶ LUNGS, page A14

Lungs: Damage may shorten lives

▶ CONTINUED FROM A1

reactions similar to asthma, and that the reactions were exacerbated by ozone exposure.

Ozone in the stratosphere high above Earth protects the planet from ultraviolet radiation. Closer to the ground, ozone is an invisible component of smog. Heat accelerates the formation of ozone from tailpipe emissions, making high ozone levels typically a summertime phenomenon.

The scientists noted striking changes in the lungs of monkeys that breathed high ozone: the number of lung branches was fewer; mucous cells were more abundant and produced mucus in prodigious amounts; the basement membrane around the airways was thicker, reducing lung elasticity; the airways, when constricted, tightened more than usual; and even neurons in the brain were hypersensitive to irritants.

The animals were exposed from the time they were 1 month until they were 6 months old – comparable to 3-year-old humans, said the research team leader, Charles Plopper.

Next, the scientists wanted to know whether giving monkeys clean air would correct their problems. So for the next six months, filtered air was piped into the animals' enclosures – air cleaner than a person could hope to encounter in Sacramento at any time of the year.

The researchers still are evaluating their data, so their findings have not yet been published, but they say the general results are unambiguous: "They didn't get better," Lisa Miller, an immunologist on the team, said of the monkeys.

Plopper, a professor of anatomy, physiology and cell biology, said that while the growth rate of the exposed monkeys' lungs was not affected – they were comparable in size to the lungs of monkeys not exposed to ozone – the organization of the lungs remained abnormal.

"It goes ahead and grows, but doesn't repair (itself)," he said.

The scientists fear that such a system would be incapable of coping with future assaults. "It's like having a damaged joint," Plopper said. "You could walk on it, but when you have to run away from fire, you can't."

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The damage might even shorten the life span.

"Decrease in lung reserves is directly related to longevity," said Edward Schelegle, a physiologist on the team. "... After about age 25, as you age, you lose lung function. As a result, those people who have less to start off with will have less to give up in the long term."

Such news is especially alarming coming on the heels of a singularly bad air-pollution season. On 28 days this summer, the air-quality index topped 100 in the Sacramento region, meaning that ozone concentrations were harmful to sensitive groups, or worse.

The worst day was Aug. 14, when the index reached 209 in the El Dorado County town of Cool. Anything over 200 is considered very unhealthy for everybody.

"That was a precedent-setting number," said Kerry Shearer, spokesman for the Sacramento Metropolitan Air Quality Management District. "It was a pretty ugly summer."

To put it into perspective, the highest ozone reading in the area all summer was .16 ppm, which is one-third the level the researchers used in the monkey study.

But ozone concentrations need not be as high as those in the study to be harmful. Researchers at the University of Southern California have tracked the health and lung function of 6,000 children for nearly 10 years. Those who live in the smoggiest parts of the Los Angeles basin clearly do worse than those in communities with cleaner air, such as Lompoc and Santa Barbara, said James Gauderman, an associate professor of preventive medicine.

Now, like the UC Davis researchers, the USC scientists want to know whether the effects of smog are reversible. In following a group of about 100 children who moved out of the area – some as far away as Seattle – the researchers found that getting away from dirty air seems to make a difference.

"If they moved to a cleaner community, their lung function improved, and if they moved to a more polluted community, it seemed to get worse in terms of the growth of their lung function – the growth rate was affected," Gauderman said.

Whether the children experienced the lung structure changes of the young monkeys isn't known because the children's lungs cannot be examined directly.

"It's a very interesting question whether that kind of restructuring is happening in the kids as well," Gauderman said. Developments in CT scans that can form three-dimensional pictures of organs may help answer that question in the future, he said.

At UC Davis, the research team hopes to focus next on treatment. A small pilot study using an experimental drug had remarkable results: asthmatic symptoms in three adult monkeys were completely reversed by the drug.

Unlike existing therapies, this one uses strands of synthetic DNA that mimic the DNA of certain bacteria. One hypothesis for the rise in allergies and asthma holds that the immune systems of people in industrial societies aren't sufficiently challenged by bacterial infections, resulting in an imbalance in the immune system that causes it to overreact to allergens.

The DNA treatment is thought to stimulate the immune system the same way that an invasion of bacteria would, and to suppress the allergic response.

Plopper cautioned that the results with the monkeys are preliminary and not peer-reviewed, but acknowledged being excited. "This opportunity to actually find something that might help is a big stimulus," he said.

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The Bee's Edie Lau can be reached at (916) 321-1098 or elau@sacbee.com.

AR 13504

Ozone Harm Documented in Children

Recent research reports on ozone's impacts on California children have highlighted the health impacts of Sacramento's worst air pollution problem. The *Sacramento Bee* reported on July 16 that state scientists analyzing hospital Medi-Cal records for a two-year period, from 1992 through early 1994, found persistently high levels of ozone associated with a 14 percent rise in the number of asthma-related hospital admissions and emergency room visits involving low-income children and teenagers.

At the July meeting of the California Air Resources Board, scientists from the University of California reported that school absences for respiratory disease are associated with ozone (O_3) exposure. While the study is not complete, preliminary results show that school absences increases by 83 percent with a 20 parts per billion increase in ozone.

Air Pollution

Ozone found to harm young lungs

Monkeys have lasting problems after exposure as babies, a UC Davis study says.

By Edie Lau
BEE SCIENCE WRITER 10/14/2004

Ending a marathon season of hot, stagnant, dirty air, we breathe easier – or so we think. For the most vulnerable among us, breathing may never be easy after exposure to the Valley's most troublesome air pollutant, ozone.

Research with infant monkeys at the University of California, Davis, suggests that the lungs of young primates are permanently changed by inhaling high concentrations of ozone. Even giving them pristine air doesn't reverse the damage.

Although the monkeys breathed levels of ozone markedly higher than are reached in the Sacramento region – amounts akin to the pollution of Mexico City – and monkeys aren't people, the scientists said their findings have unmistakable implications for Californians.

"I would certainly keep little kids in" on bad-air days, said Laurel Gershwin, an immunologist on the UC Davis research team. "If they're anything like the baby monkeys, we don't want them breathing high levels of air pollutants."

As with infant monkeys, much of the lung growth in baby humans occurs after birth. That development continues to adulthood, with the first few years considered the most critical.

Focusing on that period, the UC Davis team exposed baby rhesus macaques to .5 ppm concentrations of ozone off and on for six months. Some of the monkeys also were exposed to dust mites, a common allergen.

The scientists found that repeated exposure to dust mites caused allergic

▶ LUNGS, page A14

Lungs: Damage may shorten lives

▶ CONTINUED FROM A1

reactions similar to asthma, and that the reactions were exacerbated by ozone exposure.

Ozone in the stratosphere high above Earth protects the planet from ultraviolet radiation. Closer to the ground, ozone is an invisible component of smog. Heat accelerates the formation of ozone from tailpipe emissions, making high ozone levels typically a summertime phenomenon.

The scientists noted striking changes in the lungs of monkeys that breathed high ozone: the number of lung branches was fewer; mucous cells were more abundant and produced mucus in prodigious amounts; the basement membrane around the airways was thicker, reducing lung elasticity; the airways, when constricted, tightened more than usual; and even neurons in the brain were hypersensitive to irritants.

The animals were exposed from the time they were 1 month until they were 6 months old – comparable to 3-year-old humans, said the research team leader, Charles Plopper.

Next, the scientists wanted to know whether giving monkeys clean air would correct their problems. So for the next six months, filtered air was piped into the animals' enclosures – air cleaner than a person could hope to encounter in Sacramento at any time of the year.

The researchers still are evaluating their data, so their findings have not yet been published, but they say the general results are unambiguous: "They didn't get better," Lisa Miller, an immunologist on the team, said of the monkeys.

Plopper, a professor of anatomy, physiology and cell biology, said that while the growth rate of the exposed monkeys' lungs was not affected – they were comparable in size to the lungs of monkeys not exposed to ozone – the organization of the lungs remained abnormal.

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The scientists fear that such a system would be incapable of coping with future assaults. "It's like having a damaged joint," Plopper said. "You could walk on it, but when you have to run away from fire, you can't."

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AR 13506

What Is Asthma?

The link between air pollution and asthma is important. Asthma is the most prevalent of respiratory conditions affected by air pollution. The American Lung Association estimates that in the United States asthma costs over $12 billion, including direct health care costs ($7.5 billion) and indirect costs (3.8 billion). The largest indirect cost is lost school days (ten million days a year, estimated $1 billion in costs). Asthma is the sixth ranking chronic condition in the nation and the leading serious chronic illness of children. It is the number one cause of school absences due to chronic conditions leading to an estimated 10 million school days lost annually.



The national spotlight has landed on asthma as major national groups such as the Pew Charitable Trust have formed campaigns to address rising asthma rates. Pew found that:

"The nation is in the grip of a rapidly growing asthma epidemic whose victims will more than double by 2020. . . .Asthma rates are going up dramatically across all demographic groups, all across America. . . . In just one year, 1995, asthma accounted for 1.8 million visits to hospital emergency rooms and more than 10 million missed school days. That makes asthma the number 1 cause of school absenteeism."

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> — Pew Environmental Health Commission

The Cleaner Air Partnership' Annual Public Opinion Survey in 1995 found that 26 percent of the households in Sacramento County reported that someone in the household had asthma. At a regional level, assuming about 676,000 households in the region at that time, the number of affected households would be 169,000, a much higher estimate of the incidence of asthma than the official estimate. A comparable national survey by the American Lung Association found "nearly one in five of America's households includes one or more family members who have asthma." These data indicate that more thorough research needs to be done on the incidence of asthma in the Sacramento non-attainment area.

Trouble Breathing. Local survey data collected by the Cleaner Air Partnership shows that about one-third of the region's households (about 223,000) have health problems with unhealthy air during the summer. There is a variation of about 5 percent between years with severe versus more moderate ozone-forming conditions, and when smoke invades the area, that number rises to 40 percent. Nine percent of the households in the region reported that someone in the household had to go to the emergency room or to a short term medical appointment because of problems breathing during a period of unhealthy air during the summer of 1999.

What is asthma?
Asthma is a chronic lung disease, caused by inflammation of the lower airways and episodes of airflow obstruction. Recurrent breathing problems are caused by airway inflammation.

Symptoms of asthma:
- Wheezing, shortness of breath, tightness of the chest
- Trouble controlling a cough
- Persistent cough at night
- Difficulty breathing after physical exertion or exercise
- Waking up at night because of one or more of these

The New Air Quality Index (AQI)

AR 13507

Recent national studies have shown that asthma management falls below standard. Sacramento is no exception. The Asthma in America survey sample for Sacramento found:

• only 5 percent of asthma patients could name inflammation as the underlying cause of asthma symptoms;

• more than half (54%) thought it was possible to treat only asthma attacks and symptoms, not the underlying cause;

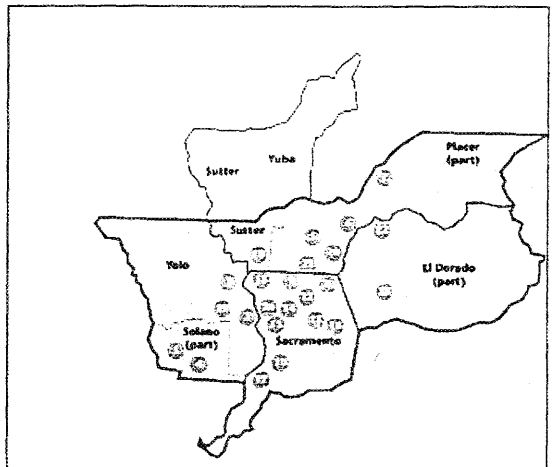
• many patients appear to be treating only the symptoms of asthma and not the underlying cause;

• 92 percent of the doctors say anti-inflammatory drugs are very important in long-term management but only 19 percent of the asthma patients report using this medication within the last four weeks.

[Asthma in America "Sacramento Not Reaching Asthma Goals," www.asthmainamerica.com/cities/sacramento.html.]

The American Lung Association conducts the Open Airways for Schools program. It teaches children how to prevent asthma episodes and emergencies, and to help schools control asthma by creating partnerships in asthma care with school personnel, physicians, families, and local American Lung Association volunteers. *Open Airways for Schools* consists of six lessons for children with asthma, aged 8-11. The chief limitation in delivering this program to children through the schools is space available and the difficulty of scheduling. The program is also limited by funding available. Information about American Lung Association programs is available on the web: www.saclung.org for our region; www.lungusa.org for national programs.

The American Lung Association of Sacramento-Emigrant Trails has formed the **Asthma Collaborative**, a new project initially funded by **GlaxoWellcome**, bringing together physicians, pharmacists, respiratory therapists, hospital administrators, parents and school nurses to focus on three priorities:



Sacramento Region air monitoring network

• raising public awareness of the seriousness of asthma;

• partnering with school administrators to improve policies and practices that facilitate self-care by children.

Using traditional public policy tools of education, advocacy and research, the Asthma Free Communities Initiative for the 21st Century will expand existing asthma programs with schools to implement the community collaborative's recommendations in the next three years.



AR 13508

Smog wave

THE ISSUE: *The war on smog doesn't seem so abstract when kids are told to beware the air*

OUR POSITION: *This week's haze shows what all those regs and fines are trying to minimize*

Unhealthy air is bad.

It's bad even if cleaning it up costs lots of Californians and businesses a lot of money.

That's a useful thought to keep in mind this week as Greater Sacramento, toiling through its latest smoggy hot spell, starts to contemplate afresh the penalties facing our lungs and wallets if this region doesn't meet federal ozone standards by 2005.

As we outlined in a news story last week, the regulatory penalties could add up to $236,000 per Sacramento business per year starting in 2007 if the business is one of the region's top sources of ozone, a major component of smog. (To find the story, go to Sacramento.bizjournals.com and search under "ozone violations.") Businesses in Yolo, El Dorado and Placer counties face penalties too. The area could also lose tens of millions of dollars that Washington would otherwise send our way for roads and transit projects. Some of this will get reviewed at a Sacramento Metropolitan Air Quality Management District meeting on Thursday.

But the main threat is starker yet — a future as a metro too polluted to want to live in. It's already likely that Greater Sacramento's traffic will keep congealing even if every road, public-transit project and bike path in the latest $22 billion, 23-year Metropolitan Transportation Plan gets built. Lay on a layer of smog above those rush-hour traffic jams, and the picture starts to get L.A.-ugly.

The scenario is worth conjuring, though, during a week when smog, excessive heat and stagnant air have made even a simple game of soccer a health risk for local kids. Consider it a warning of what we must work hard to avoid.

The region has remedies well short of punishments, but they rely on action by the state. One simple piece of progress would be for the state Senate to approve Assembly Bill 2637, which would require Bay Area drivers to run their vehicles through the same Smog Check 2 program we satisfy here in the valley. The Assembly has already said yes. The change will make the bay's air cleaner, and probably ours.

The bill is important because Smog Check 2 is exactly the kind of incremental change that has played a big role in improving Greater Sacramento's air since the 1980s. The region fouled the federal ozone standard of 0.12 parts per million only three times last year — the best performance of any year except 1997, which also saw three violations. During the 1980s, the region went into the red as many as 29 times a year. Credit cleaner fuels and tighter controls on vehicle emissions for much of the gain.

The bad news is that starting in 2005, the feds only *allow* three violations per year. We've already blown that quota for 2002. That means that despite continuing population growth, and stagnant heat waves we can do nothing about, we have to do no worse than the best year we've had so far. Forever. Despite population growth.

The Sacramento Metropolitan Air Quality Management District hopes to beat the 2005 deadline through further incremental changes made through the region's new air-quality plan, changes like forcing the retirement of old diesel engines, swapping gas-powered lawn mowers for electric or hand-powered models, or encouraging public transit on hazy "spare the air" days like we had this week. Those kinds of inducements help. Developing new offices and housing along public-transit corridors becomes more essential than ever. So do alternative-fuel cars.

Smog is a financial cost, especially when viewed through the lens of regulations and threats of fines. But the bigger toll is extracted from our health and quality of life. Let's take this week's disgusting blast of smog as a reminder of the challenge, and get on with the work.

Fresno Bee 6/11/1999

Commuters hit hardest by air contaminants

Study illuminates just how vulnerable drivers and passengers are.

BY JOHN D. COX
THE SACRAMENTO BEE

SACRAMENTO — Concentrations of some pollutants and toxic compounds are as much as 10 times higher inside the vehicles of California commuters than the air outside, a state Air Resources Board study reported Thursday.

The two-year, $440,000 study took place in specially-equipped vehicles in Sacramento and Los Angeles, the two areas of the state where motor vehicles account for the highest proportion of air pollution.

More California news, Pages B6, B8

"We're learning that people's highest daily exposure to air pollutants may be during their commute to and from work," said Dr. Alan Lloyd, board chairman.

The study also found higher levels of pollutants inside buses, although not as high as passenger cars.

"We have concerns about the potential impact on bus riders, especially children," said Lloyd, but the study included only two buses among the 27 vehicles tested. Lloyd said he has asked board staff "to collect more data to evaluate the risks."

The findings confirmed an earlier study done in 1988 by the South Coast Air Quality Management District.

"We're talking about things that in most cases have been identified as toxics," said board spokesman Jerry Martin, including benzene, formaldehyde, toluene, xylene and MTBE, heavy metals, hydrocarbons and carbon monoxide.

In general, said the board, levels of toxics and other pollutants are higher inside vehicles than in outdoor ambient air because cars are surrounded by emissions from other vehicles on freeways and streets.

But investigators found the pollution levels highly sensitive to the patterns of traffic. As much as one-half of the pollutants inside test cars were emitted by the vehicle ahead.

Air conditioning didn't help.

"Motorists who used air conditioning systems and those who drove with their air vents open were exposed to similar amounts of pollution," the researchers said.

The new study will help regulators find new ways to reduce vehicle pollution exposure, he said.

From the website of the SACRAMENTO METROPOLITAN AIR QUALITY DISTRICT:

The year 2003 begins the countdown to the 2005 attainment year. To show we have met the standard we must average no more than one violation per year for three years at any one station.

The air districts of the region have adopted more than 25 rules to reduce emissions from stationary sources. By 2005, these rules will result in reductions of more than 25 tons per day in ozone-forming emissions. On the other hand, anticipated emission reductions from mobile sources have not been realized. Federal heavy-duty engine and fuel standards will not be enacted in time to help the region meet its 2005 goal.

What are our options?

There is no legal requirement for our region to update its 1994 SIP. However, if the SIP is not updated, the region's transportation conformity could lapse by October 2004, and will certainly lapse by July 2005, when the current conformity finding expires. Therefore the air districts of the region have agreed to update the SIP.

Option 1:
The air districts' first preference is to demonstrate that our region can reach the 2005 goal with the revised vehicle fleet data incorporated into an updated SIP. The SIP will also use the California Air Resources Board's updated motor vehicle emissions model, called EMFAC. Air quality model projections of future air quality are imprecise. The air districts are working with ARB to determine whether a "weight of evidence" SIP considering the favorable trends we have documented in ozone reductions demonstrate that the region will meet the federal health standard by 2005, even if the model does not predict that we will. A "weight of evidence" SIP will then be submitted no later than October, 2004. U.S.EPA would be requested to approve the SIP's new emissions budget and approve it for conformity purposes. This would happen within 90 days from submittal.

Option 2:
In the event that the region fails to demonstrate attainment by 2005, the federal Clean Air Act provides that an extension of up to two years may be granted. This option depends on the region's ability to show that, by 2005, it is mathematically possible to reach the three-year rolling average.

Option 3:
If the region cannot demonstrate attainment by 2005, the updated SIP would be submitted in 2005 instead of 2004. This would result in penalty fees imposed on major stationary sources in beginning in 2007.

Option 4:
The region could "bump up" to be classified as "extreme nonattainment", as only Los Angeles has, and extend the deadline for reaching the health standard from 2005 to 2010, with a larger emissions budget for transportation projects. However, serious consequences would befall the region's businesses in exchange for this additional time. These include:

* The current roster of approximately 25 businesses in the region classified as "major sources" subject to Federal Title V permits, would increase to more than 450.
* Violations at these major sources are subject to federal enforcement action and citizen lawsuits.
* Businesses would be subject to increased emission offset ratios. Emission offsets are virtually nonexistent here, and as a result are some of the most expensive in the state (up to $40,000 per ton).

Will Sport Utility Vehicles Undo the Region's Air Plan?

Air quality and transportation officials have found that the vehicle age and type distribution on the road today is significantly different than what was assumed in clean air plans in 1994. What's the big difference? Vehicles are lasting longer in use than expected, and the population of light duty trucks is much greater than assumed. Light duty trucks is the category that includes Sport Utility Vehicles and mini-vans. SUVs and Minivans have had less stringent requirements for tailpipe emissions of hydrocarbons and NOx, the main ingredients in ozone production.

Light Truck Loopholes. The Union of Concerned Scientists (www.ucsusa.org) compares the average car and the average light truck on the road today and finds that the light truck emits 47 percent more smog-forming exhaust than the average car.

Too Much of A Good Thing? The California Air Resources Board (CARB) says that in 1980 light trucks were 20 percent of the California vehicle market and in 1997 they were 46 percent. The unexpected increase in vehicle emissions overall led the CARB in 1998 to restructure its requirements so that between 2004 and 2007, most new SUVs, mini-vans and pick-up trucks will be phased in to the same low-emission vehicles standards as passenger cars.

California's vehicle standards are complex, and include fleet averaging. This means that each manufacturer can average the emissions of all vehicles sold in California, and offer a mix of higher and lower emitting vehicles. (See http://www.arb.ca.gov/msprog/ccbg/ccbg.htm to identify lower emitting vehicles.) But, category by category, the SUVs and mini-vans are more polluting than the passenger cars. The larger the gross weight of the vehicle, the more difference there is between the passenger vehicle emissions and the light truck vehicle emissions.

How Bad Is It? The Sacramento Metropolitan Air District estimates that emissions from motor vehicles are at least 20 percent greater than expected. Will these increased emissions keep us from achieving our air quality goal for 2005? We don't know.



AR 13512

from CARB website
3/1/2003

Local Woodburning Regulations

In light of growing evidence of health effects, the smell of woodsmoke no longer has the pleasant associations it once had. Some California cities and counties have enacted local ordinances to limit the growing woodsmoke problem. Mammoth Lakes, Squaw Valley, Cloverdale, Healdsburg, Petaluma, and Fresno permit installation of only U.S. EPA certified wood-fired appliances in all new construction. Mammoth Lakes bans wood-burning when the air quality is poor, and the Bay Area Air Quality Management District has adopted a similar voluntary no-burn program on poor air quality days.

Future Woodburning Regulations? Yes, Very Likely...

The California Air Resources Board has suggested the following air pollution control measures for residential woodburning. The local California air pollution control agencies are adopting these and/or other regulations as they find it necessary:

- **Implement a Public Awareness Program** encouraging cleaner woodburning practices, including information on proper operation and maintenance of wood heaters, proper wood selection and use, the health effects of wood smoke, weatherization methods for homes, and determining the proper size of the heater needed before purchase and professional installation.

- **Require Replacement of Non-Certified Wood Heaters** upon sale of any residential, commercial or industrial property before completion of escrow.

- **Restrict the Sale and Installation of Used Wood Heaters.**

- **Require Firewood Advertised For Sale as "Seasoned"** to contain no more than 20% moisture by weight.

- **Prohibit the Burning of Certain Materials** such as garbage, treated wood, plastic, rubber, petroleum products, paints, solvents, and high-sulfur coal.

- **Implement Voluntary No-Burn Days for Non-Certified Wood Heaters and Fireplaces** during periods with unhealthful air quality.

Your State and local air pollution control agencies urge you to burn clean, burn safe, and burn smart - and to choose not to burn on air quality days.

For more information contact your local building inspector, fire department, county agricultural extension office, woodstove retailer, chimneysweep, or air pollution control district office.

AR 13513

5.12 Biological Resources

281-478

• Please refer to our scoping comments under Biological Resources, p. 59 ff.., incorporated by reference herein. Please respond to those comments in the FEIR.

Treatment of this topic in the DEIR begins by a description of El Dorado County that assigns the cause for "an impressive diversity of native flora and fauna" to "a wide range of elevations and varied terrain, diverse substrate material, large tracts of contiguous natural habitat, and a broad range of climatic conditions". "Much" of this diversity is said to be "on lands managed by the U.S. Forest Service" in the Eldorado and Tahoe National Forests and the Lake Tahoe Basin Management Unit.

281-479

The DEIR, however, focuses on the west slope lands under the jurisdiction of the County and begins with a list and description of major habitat types (pp. 5.12-1 to -7) broken broadly into Coniferous Forest, Woodland, Shrub-Dominated, and Herbaceous-Dominated. The last named includes only Annual Grassland, which now consists mostly of non-native primarily Mediterranean grasses and other annuals, though some native species endure here and there.

Over 101,600 acres in the County, and probably more because of limitations of the data, are "urban, agricultural, barren, and open water areas", per the DEIR (p. 5.12-7). Of this total, 3,203 acres are considered agricultural (cropland, orchards, and vineyards) in the Fair Play, Apple Hill, and Gold Hill regions. [Presumably grazing land is included under Annual Grassland, though it is not mentioned in the description.) Urban development covers some 12,600 acres, according to Fire and Resource Assessment Program (FRAP) data of the California Department of Forestry and Fire Protection, but according to the County Assessor 196,355 acres "have some level of development" (p. 5.12-8). Development is concentrated along U.S. Highway 50 in the western part of the County and along the south shore of Lake Tahoe. Open water covers 53,600 acres, and barren land (not truly barren) is largely concentrated on the outcrops at high elevations.

281-480

281-481

The DEIR next gives an overview of wildlife by habitat type, noting that "oak and other hardwood habitats at mid-elevations are important for a large percentage of the wildlife species found in El Dorado County" (p. 5.12-9).

281-482

The discussion of fisheries (p. 5.12-10) has some confusing statements in it. Mention is made of DFG's fish-stocking program.

281-483

• The FEIR should include the restrictions on CDFG's fish-stocking program relative to high mountain lakes to protect Mountain Yellow-Legged frogs.

281-484

• On p. 5.12-11 this statement appears: "waterway obstructions limit movement by resident fishes...but are not impediments to fish migration." Please clarify the apparent inconsistency.

So-called "sensitive" biological resources are discussed beginning on p. 5.12-11. The 29 special-status plants known in the County are listed in Table 5.12-2. Per the DEIR, six have been listed under state or federal law and "the remaining 24... are on CNPS List 1B or List 2".

281-485

• Please note that 6 and 24 add to 30, not 29, and explain the discrepancy. The table lists 29 species total, including 5, not 6, identified as listed.

The Pine Hill rare plants (also known as the gabbro soil rare plants) are next discussed (p. 5.12-15) and their habitat described, along with loss and fragmentation thereof. As one who participated in various aspects of the effort to protect these plants, the writer knows that the County

281-486

AR 13514

was informed of them probably at least a decade before the 1989 date given in the DEIR (p. 5.12-16). Habitat destruction nevertheless continued.

281-486

• The DEIR should acknowledge the efforts of the American River Conservancy for its difficult and committed work to bring into public ownership acreage sufficient to meet the requirements set forth in the Fish and Wildlife Service's recovery plan for these species.

281-487

• Table 5.12-3 sets forth the 52 special-status animal species thought to occur in the County though the text (p. 5.12-17) refers to 51. Please clarify the discrepancy.

281-488

• On p. 5.12-22, the California Red-Legged frog's occurrence within El Dorado County, one of three known sites remaining in the Sierra Nevada, is discussed. Here, again, the role of the American River Conservancy in protecting this habitat should be acknowledged.

281-489

On pp. 5.12-22 and -23, the DEIR discusses deer, noting that Fish and Game is concerned at protecting critical habitat and migration corridors for this important game species. Critical winter range is mostly between 2,000 and 4,000 feet elevation; critical summer range between 4,000 and 9,000 feet; holding areas and critical fawning areas also are between 4,000 and 9,000 feet. For the most part, the latter two categories are on national forest land. Not all deer populations migrate.

281-490

Next (p. 5.12-23) the DEIR lists and discusses several types of "sensitive habitats" derived from combining information from the California Natural Diversity Data Base and from FRAP. The list includes Montane Riparian, Valley-Foothill Riparian, Aspen, Valley Oak Woodland, Wet Meadow, and Vernal Pools.

281-491

On p. 5.12-25, the DEIR begins review of the regulatory environment, starting with federal laws (Endangered Species Act, Clean Water Act, and Migratory Bird Treaty Act) and going on to California law (California Endangered Species Act, California Fish and Game Code—especially those portions governing stream alteration, fully protected species, and wetlands conservation [no-net-loss]). We think there are some misstatements here as to law, however, and defer to the resource agencies in offering corrections.

281-492

Impact 5.12-1: Loss and Fragmentation of Wildlife Habitat (p. 5.12-32)

The DEIR groups land uses into high, medium, and low intensity groups (pp. 5.12-34 to -35) to assist in analyzing anticipated loss and fragmentation of habitat. The discussion here argues that high-intensity land uses (HDR, MDR, LDR, MFR, I, C, R&D, PF, and AP would have the highest adverse impact; that some medium-intensity land uses (TR, R, RR, A) would continue to have some habitat value; and that low-intensity land uses (NR, OS) would have little to no adverse impact on biological resources, though it notes that timber harvesting and mining are allowed on such lands.

281-493

• Please explain how underlying pre-existing parcelization has been incorporated into the analysis.

281-494

The DEIR catalogues the nature of impacts from land development in a recitation (p. 5.12-35 ff.) that includes fragmentation of habitat, piping and culverting of water courses, degraded water quality from urban runoff and erosion/siltation, increased noise and lighting, human intrusion accompanied by domestic animals, use of natural areas for recreational activities, loss of tree canopy and understory from fire-safety efforts, and introduction of non-native, invasive species.

281-495

• Other effects to include in the FEIR and discuss would be an increase in roadkill and (for

281-496

birds) windowkill, and, perhaps as part of fragmentation, an increase in the hindering of movement of wildlife associated with fencing, even when the habitat itself is little altered. Also, analyze the effects of competition for water, perhaps especially through pumping of groundwater, thereby reducing its surface availability.

281-496

We believe that Table 5.12-4 (p. 5.12-36) attempts to quantify how much important wildlife habitat of the several kinds previously listed (p. 5.12-2 ff.) would *be affected* at buildout for each of the equal-weight alternatives and for the three intensity-levels of development. Text says, p. 5.12-36, "[A]n impact was considered significant when 50% or greater of any habitat type that provides important wildlife habitat was designated for high- and medium-intensity land uses." Use of bold face corresponds to this, but, per a footnote to the table, bold figures are used "when the combination of low and medium land use intensity exceeds 50%". Under the latter definition, more bold face should be present, e.g., for wet meadows.

281-487A

- **Is the footnote in error? Should it read "high and medium land use intensity"?**

- **Please explain how these figures were obtained. Was modeling used, akin to that done by Duane and his students (SNEP v. II, chapter 11) or Saving and Greenwood (PSW-GTR-184, 2002)?**

281-488A

OAKS AND OAK WOODLAND

The DEIR recognizes that protection of oaks is an issue of particular concern in the County (p. 5.12-30). Oaks, especially, are a keystone species for many forms of wildlife and their habitat at the lower elevations is particularly vulnerable to residential development pressure. Estimates put the rate of loss statewide as about 30,000 acres a year.

281-489A

- **Please give the number of acres of oak habitat lost per year in El Dorado County since 1990, breaking it down into for residential and other development and for conversion to vineyards.**

- **Although not yet detected in El Dorado County, Sudden Oak Death Syndrome could become an additional concern relative to retention of oaks. What monitoring programs does the County have in place for early detection of SOD?**

281-490A

In 1993, the Board of Forestry delegated to the University of California's Integrated Hardwood Range Management Program "the responsibility of assisting counties in the development of locally based conservation strategies for oak woodlands" (p. 5.12-30).

281-491A

- **Please present in the FEIR the input received from IHRMP in development of such strategies and for El Dorado County and how this is reflected in policies in the various alternative general plans and in the mitigation proposed in the DEIR.**

Alternatives 1 and 4 share the same approach to preservation of oaks as did the 1996 General Plan: that of guidelines for canopy retention *or replacement*. But these guidelines apply *only to discretionary projects*. Unspecified is replacement where and with what size trees; also the guidelines are such that thinly scattered trees and isolated trees would receive no protection. Harris and Kocher note (p. 5.12-40) that retained trees receive only limited protection under the Design and Improvement Standards Manual, which prohibits disturbance or changes within the drip-line of any oak tree during construction. **(See, however, State Fish and Game's letter of 12 Jan 2001 calling for at least 10 feet *beyond* the drip line.)** Harris and Kocher judged the 1996 policies not effective at protecting oak woodlands. Nor did they find the mitigation requirements effective. Rather, they noted "lack of coordination regarding conditions on development permits, lack of enforcement or

281-492A

monitoring, field judgment calls on grading or building sitings by building contractors, and pure accident". As to replacement planting: "Site reviews revealed that oak trees were inappropriately planted underneath existing woodlands, in road median stripes, along property lines, and on cut-and-fill slopes."

281-492A

The DEIR noted (p. 5.12-31) that "mitigating the loss of oak woodland can be problematic for local jurisdictions". Replacement for lost trees has been called for in ratios from 1:1 to as high as 20:1, but few monitoring studies extend beyond 10 to 15 years. The DEIR says that Standiford et al., using a modeling approach, found that replanted blue oaks were still "quite small" and canopy cover "relatively low" after 50 years, as might be expected with relatively slow growing trees. Another factor, said Standiford et al., is "the high cost of tree planting as a mitigation strategy", *such that ensuring conservation of existing habitat may be a more cost-effective approach.*

281-493A

Overall, attempts at replacement of oaks lost to development, constrained also by the availability of suitable planting sites, seldom achieved a result that fulfilled the original ecological function.

The DEIR on p. 5.12-39 discusses another study of essentially Alternatives 1 and 4. **Saving and Greenwood concluded that "wildlands" (primarily oak woodlands)** would be considerably fragmented and thus functionally lost and that the proposed mitigating policies had little moderating effect. The DEIR noted that future agricultural development was not included in the model of Saving and Greenwood and would be expected to make their conclusions even more negative.

281-494A

• Indeed, considerable land conversion to vineyards has occurred since this study. (One example is the Duarte vineyard conversion in Greenwood, which cleared over 300 acres of trees.) In the DEIR, please provide figures on the amount of such conversion and explain the regulatory setting in which they take place.

Both Alternatives 2 and 3 call in Implementation Measure CO-J for development of an Oak Woodland Management Plan with canopy protection standards, thresholds of significance, requirements for tree surveys and mitigation for *discretionary* projects, replanting/replacement standards, and heritage/landmark tree protection standards . IM CO-J, however, says nothing about *putting such a plan into effect* and allows 5 years for developing the plan. "Replacement" is retained as a feature, there are no standards and there is no provision for long-term monitoring of the effectiveness of the plan and incorporation of changes if needed. *The policies thus seem inadequate for controlling further losses.*

281-495A

OTHER HABITAT TYPES

Because some 31% of vacant County land was subdivided before adoption of the 1996 General Plan, Savings and Greenwood pointed out that any protective policies would not apply to nearly a third of the remaining developable land in the County (p. 5.12-40) because only a (ministerial) building permit would be needed. Between adoption of the general plan in 1996 and issuance of the writ in 1999, the County approved another 14,565 dwelling units.

281-496A

• What percentage of the remaining vacant land in the County is represented by the five development agreements and other approvals comprising these 14,565 dwelling units? How much land does that leave to which protective policies adopted now would apply?

On p. 5.12-41, reference is made to the Sierra Nevada Ecosystem Project's incorporation of an evaluation of the general plans and EIRs for the counties of Nevada and El Dorado by Duane and his students. As referenced in the DEIR, this study concluded, "the planning process had failed to

281-497

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adequately determine the effects of land conversion on ecological systems and mitigate the effects of future land conversion ...[and]... that the EIRs had underestimated the scope and severity of environmental impacts associated with development."

281-497

The DEIR assesses the effect on habitat of the four proposed alternatives (pp. 5.12-41 to -54) and finds all wanting in some degree. We agree.

- Alternatives 1 and 4 would cause losses of half or more of 7 major habitat types. More fragmentation in Alternative 4 would mean functional loss of even more habitat. Mitigation in both applies only to discretionary projects, thus leaving more than a third of vacant land without protection.
- Alternatives 2 and 3 would cause losses of half or more of 4 major habitat types. Both include the Integrated Natural Resources Management Plan and related policies, but the 5-year timeline for implementation allows further losses in the interim. The "no-net-loss" of habitat feature in Alternative 3 lacks implementation details. Both prohibit disturbance on slopes over 30 percent but with loopholes. Alternative 3 includes the Important Biological Corridor overlay feature but without standards and with a 2-year timeline for implementation; moreover, wording is permissive ("may", not "shall"). Wording in both is ambiguous as to applying to both discretionary and ministerial projects .

281-498

Beginning on p. 5.12-54, the DEIR proposes several Mitigation Measures to apply to the various alternatives to improve the situation, though the impact would remain Significant:

- MM 5.12-1(a) would protect habitat on slopes of 25% or more.

- MM 5.12-1(b) (p. 5.12-55) would minimize erosion and maximize retention of natural vegetation by adding applicability to ministerial projects, but with unspecified standards to be incorporated into the Zoning Ordinance.

281-499

Comment: This derives from Alternatives 1 and 4, which lack implementation for their policies. Thus the timeline is unknown. Standards remain unspecified. Effectiveness, thus, remains uncertain. *Interim conservative standards would be needed to preclude losses until this measure was in effect.*

- MM 5.12-1(c) would prohibit surface mining on OS land-use designations. The land-use map would need modification.

281-500

Comment: Potential conflicts could be resolved if future sources of aggregate, the most likely need for future surface mining, were identified in the General Plan, as we have advocated since 1994. Allowing surface mining on OS lands is contradictory to conventional understanding of the uses of that designation.

- MM 5.12-1(d) (p. 5.12-56) calls for development *and implementation* of an Integrated Natural Resources Management Plan commencing with inventorying and mapping five specified types of habitat. (Policy CO-I in both Alternatives 2 and 3 calls for development of an Integrated Natural Resources Management Plan but says nothing about *implementing* it.)

281-501

Comment: "Important" habitat for migratory deer herds is undefined and should be dropped and grassland habitat added. The latter supports its own fauna (even if no longer much native flora in the aftermath of extensive grazing) and has been largely lost to development, accomplished or proposed. A provision for updating the plan every 3 years by incorporation of the amount of habitat removed through development implies

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that eventually there would be no (or very marginal) habitat left unless there is also an aggressive program to protect important habitat. "B" would address that need through "coordinated land acquisitions" (described in "D") and management thereof. Willing sellers, land trusts, state/federal land-management agencies, conservation easements, and other approaches are mentioned, with all such lands to be added to the Ecological Preserve overlay. Public participation would be encouraged and a conservation fund, deriving from grants, fees, and the County general fund, established to fund activities. We could anticipate involvement in monitoring by local schools.

281-501

○ MM 5.12-1(e) (p. 5.12-58) calls for adoption of a no-net-loss policy and mitigation program for important habitat.

Comment: As proposed, this would apply only to discretionary projects, not ministerial ones. Lost habitat would be mitigated at a 2:1 ratio, with costs to acquire, restore, and manage the land included in a mitigation fee. If the project exceeds 10 acres, on-site preservation/restoration would be required at a 1:1 ratio. Although mitigation at a 2:1 ratio would preserve a greater amount of habitat than that lost, there still would be an overall loss of habitat under the proposed conditions. Thus its effectiveness as mitigation is muted.

281-502

○ MM 5.23-1(f) (p. 5.12-60) addresses mitigation for loss of woodland habitat (see above under Oaks and Oak Woodland). This is directed at habitat, generally of smaller size and with isolated patches of woodland, not meeting the criteria for "important habitat".

Comment: While useful in extending the Oak Woodland Management Program to more marginal situations, the proposal retains the "replacement" aspect with standards yet to be developed. An alternative ("B") would be to contribute to the conservation fund in an amount that would "fully compensate for the impact to woodland habitat". To include the effects of fragmentation, "the replacement mitigation ratio shall be 2:1 and based on the total woodland acreage onsite (not just the area affected)". It is a little unclear here whether "replacement" refers to preserved habitat or to tree replacement. If the latter, long-term monitoring also would be needed but its costs are not included in the description of covered costs. The concept of "replacement" for slow-growing oaks is flawed. It would take many decades for a similarly-functioning replacement stand to be attained. Again, the effectiveness of this measure as mitigation is muted.

281-503

○ MM 5.12-1(g) (p. 5.12-61) would develop and implement an oak tree preservation ordinance. Here we get down to the level of the individual tree on both public and private property. The policy would require permits for removal of trees of a specified size, conditioned upon suitable replacement onsite or elsewhere, to be determined. Cutting for sale of firewood would also be subject to permit. Fines, to go to the conservation fund, would be issued for violations and development activities could be denied or delayed.

‡ **Please note that numerous measures relating to protection of oaks were included in the two letters to Planning from Fish and Game (12 Jan 2001 and 17 August 2002, incorporated by reference) that seem to have been overlooked. We support inclusion of these measures and endorse the two letters in their entirety. This will require revision of the Design Standards Manual.** Please also note that establishment of smaller plants is usually less problematical than of larger ones (p. 5.12-62, reference to 15-gallon trees).

281-504

AR 13519

○ MM 5.12-1(h) (p. 5.12-64) would remove open space from the mineral resources overlay, requiring modification of the land-use maps.

281-505

Comment: As we said above, the meaning of OS is not commonly viewed as allowing surface mining, which, in any event, is constrained in the County by the existence of Measure A. Conflict in potential use could be forestalled by designation of future sources of aggregate in the general plan.

○ MM 5.12-1(i) (p. 5.12-65) relates to implementation of the Integrated Natural Resources Management Plan, as previously discussed under MM 5.12-1(d).

281-506

○ MM 5.12-1(j) (p. 5.12-65) relates to a no-net-loss policy, as previously discussed under MM 5.12-1(e).

281-507

○ MM 5.12-1(k), (l), and (m) (p. 5.12-66 to -67) all have been previously considered under (f), (g), (h), and (c) above.

281-508

Another source of habitat degradation arising from activities associated with development —and road maintenance—is the introduction and spread of noxious weeds. Yellow star thistle is probably the best known to the average person, but Scotch broom, Klamath weed, Whitetop (especially in the Tahoe basin), and many, many others are also prevalent, along with numerous non-native annual grasses. These compete seriously with natives and degrade habitat. Yellow star thistle in particular has spread rapidly in recent years and now occupies an estimated 10 to 15 million acres in California. Scotch broom locally is a vestige of a gold-rush era nurseryman in the Georgetown area who liked it and imported it for sale.

281-509

• **The spread of noxious weeds is a serious impact not really dealt with in the DEIR. Please remedy this oversight in the FEIR and discuss it thoroughly, including aspects in the following discussion.**

Weeds often follow utilization of heavy equipment, such as grading equipment, which commonly has contaminated soil from other sites adhering to it. Disturbance fosters spread of weeds, and heavy equipment, used on one site after another, can spread weed seeds into a freshly disturbed area where they find a receptive home and another infestation takes off. The weediest sites are often at the roadside, where repeated spraying causes disturbance that weeds take advantage of and heavy equipment used in road repair and repaving activities introduces new seeds.

Ordinary vehicles, too, can be the source of an infestation. Researchers have grown numerous different kinds of plants from mud sampled from vehicles and from wastewater from a carwash (see References, *"Weeds at home on our roadsides"*).

We are dubious about the County Department of Agriculture's pushing use of Transline to combat yellow star thistle by blanket spraying, which is certain to affect non-target plants in the area to be sprayed, including wildflowers such as lupine. We have the impression that, because of the "hype", many people think Transline is specific to yellow star thistle; it isn't. We recall seeing a poster display on control of yellow star thistle in the lobby of Building C where a "cropduster" was spraying Transline over what looked very much like a wetland area. Yet the label says, Do not apply directly to water, or to areas where surface water is present...." Studies have shown that of the several herbicides Caltrans uses for control of roadside vegetation, Transline, because of its high solubility in water, had the highest loading percentage in runoff water during storm events. (See References.)

281-510

AR 13520

The County does participate in programs to release organisms to effect biological control of some of the more prevalent weeds, including insects that attack Klamath weed. There are some organisms that attack yellow star thistle, but so far the plant has been winning out. It isn't invasive in its Mediterranean home as it is here; presumably there are natural enemies that keep it under control where it is native. 281-510

‡ The County could require contractors to steam-clean heavy equipment before moving it to a new site as one way to combat transportation and introduction of viable seed. The Forest Service requires this. We are told, however, that some contractors interpret this to be merely "pressure washing". And the County could educate homeowners' associations that have responsibility for maintenance of private roads of the merits of this approach. 281-511

‡ Public education as to identification of weeds and non-technical information about control through environmentally appropriate means could occur through homeowners' associations. Even emphasis on the importance of cutting them *before* they set seed would help. Non-technical information about yellow star thistle and its management can be found at http://wric.ucdavis.edu/yst/yst.html Transline is expensive and there are effective alternatives. 281-512

Impact 5.12-2: Impacts on Special-Status Species (p. 5.12-69)

The DEIR notes "numerous" occurrences of these species on NR and OS land under County jurisdiction. NR, however, includes lands subject to exploitation for timber harvesting, mining, and related uses, so protection afforded by these land-use designations is problematical. The Ecological Preserve and Important Biological Corridor overlays also provide protection, though the latter exists only in Alternative 3 and its provisions aren't mandatory, "may" being the operative language (Alternative 3, p. 272) and standards yet undetermined. The Ecological Preserve has not yet attained the size desired by the Fish and Wildlife Service's recovery plan (see also p. 5.12-75). Moreover, the overlay does not include all present preserve lands. By 2025 the preserve is anticipated to be "substantially more isolated" because of allowable high- and medium-intensity land-use designations in the vicinity (p. 5.12-71). Agricultural expansion and additional exploitation and alteration of water resources, including groundwater, are additional sources of possible impacts to habitat of special-status species (p. 5.23-72). Intensified recreational uses in habitat; invasions of non-native species, both plant and animal (as pets); air and water pollution; noise and light that disturb nocturnal species are all factors associated with more development and further habitat degradation. 281-513

Table 5.12-5 (p. 5.12-74) lists special-status species in relation to their (known) occurrences (as reflected in the CNDDB) *in high- and medium-density land-use designations* [emphasis added]. Notable is that fewer of these occurrences would be affected by Alternatives 2 and 3 than by Alternatives 1 and 4. 281-514

• Also notable is the absence of certain entities from this list, which suggests reduced attention to preserving their known habitat, presumably because the two highest-intensity land-use designations don't apply to their occurrences. This could be prejudicial to their future. Please analyze this possibility in the FEIR. 281-515

• Are there no occurrences of the Foothill Yellow-legged frog in the CNDDB? It is known from the vicinity of EID's Akin Power Plant. What of the Red-legged frog? 281-516

• The DEIR states (p. 5.12-75) that the Ecological Preserve overlay does not cover "all five units" nor all the lands identified in the USFWS recovery plan. Does it reflect the most recent 281-517

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acquisitions made with the aid of the American River Conservancy (which should be acknowledged in the text on p. 5.12-76)? What is the process for modification of the overlay if more land is acquired? Why isn't the Cameron Park unit covered (p. 5.12-76)?

281-517

Proposed mitigation consists of Mitigation Measures 5.12-1(b) [establish and manage Ecological Preserves], (d) [develop and implement an Integrated Natural Resources Management Plan], and (e) [adopt a no-net-loss policy for important habitat]. As the DEIR notes, the County (aided by efforts of the American River Conservancy) is well on the way toward completing an appropriate gabbro-soils plant preserve.

281-518

‡ **We strongly support pursuit of an Integrated Natural Resources Management Plan and a no-net-loss policy for important habitat. Getting ahead of the problem as development proceeds would be an important step.**

Provision for something like a county-wide Habitat Conservation Plan existed in draft Policy CO-10b (July 2002), but was dropped. In the present draft alternatives, it surfaces in implementation, not policy, in both Alternatives 2 and 3: Implementation Measure CO-E calls for a program to identify special status plant and animal species and their habitats. IM CO-F contains a Plant and Wildlife Technical Advisory Committee that will assist in inventorying "important habitat". IM CO-G concerns implementation and management of the plant preserve. IM CO-I deals with development of an "integrated natural resources management plan". But timelines are long: only G is "ongoing"; the three others are up to 5 years. Although connectivity, thresholds of significance, "permanent" protection through OS and NR land-use designations or other means (remembering the limitations on OS and NR for this purpose), are all mentioned, there are no standards. *The wording does not even say to put the plans into effect, but merely to develop them.*

281-519

‡ **Considering the release of pent-up pressure for growth likely to accompany adoption of a new general plan, all could be quickly lost given the long timelines and absence of standards. There should be an interim moratorium and/or very conservative interim standards until these programs are developed and implemented.**

On the federal level habitat conservation plans (HCPs) have been around since the early 1980s and there is a considerable literature (see References for some) reflecting what has been learned about their problems and effective use. Though their purpose is not identical with the aforementioned Integrated Natural Resources Management Plan, they could help guide successful development and implementation of an INRMP. On the state level, the Natural Community Conservation Planning program of Fish and Game serves to assist in efforts to develop communities "to anticipate and prevent the controversies and gridlock caused by species' listings by focusing on the long-term stability of wildlife and plant communities and including key interests in the process".

281-520

• **Any County HCP/NCCP/INRMP should aspire to meet future regulatory requirements as well as present ones. A goal should be to forestall future additions to the list of species of concern.**

In an evaluation of existing HCPs conducted "through a national graduate seminar involving eight major research universities, 106 students, and 13 faculty advisors", it was found that there were important gaps in the quality of underlying data concerning proposed mitigation. Particular mitigation measures were commonly untested as to efficacy before species "take" was allowed (see *Using Science in Habitat Conservation Plans,* References). Any County HCP/NCCP/INRMP should be unimpeachably based in science and should include the concept of adaptive management.

281-521

AR 13522

Impact 5.12-3: Impacts on Wildlife Movement (p. 5.12-88)

Further development would create more fencing, more and wider roads, and more traffic. Proposed development of water resources would present additional barriers for fish. Artificial lighting interferes with routines of nocturnal animals (see comments under Visual Resources herein). Domestic pets may harass wildlife. Judging by the numbers of "flattened fauna" seen even now, roads and traffic may be among the most significant impediments to safe movement.

Savings and Greenwood (p. 5.12-39) were particularly concerned with connectivity of oak woodland habitat across US 50 because of the importance of this habitat for many forms of wildlife. This concern, serious now, would be exacerbated should this highway be widened as contemplated in some of the alternatives. Similar concerns would apply to many of the County roads contemplated to be expanded from two to four lanes, and from four to six lanes.

281-522

• The DEIR should analyze this aspect of the projected widening.

The DEIR appears to support the Important Biological Corridor overlay as a fairly effective means of connecting habitat (p. 5.12-95), but its proposed restrictions are governed by permissive language ("may"), standards are absent, and development has already occurred in some areas. "It is also important to note," says the DEIR (p. 5.12-96) that because the proposed corridor crosses the entire western section of the county, it could be the first step toward a multicounty regional corridor that could benefit wildlife and preserve wildlife habitat over a large region of the Sierra foothills."

281-523

• This is a great concept. Please enlighten us on the overtures to or negotiations with adjacent counties that have taken place toward this end.

The DEIR proposes three mitigation measures: MM 5.12-3(a), (b), and (c). The first consists of the Integrated Natural Resources Management Plan and the no-net-loss policy. The second consists of the Important Biological Corridor overlay. And the third relates to implementation of the INRMP. Rejected was requiring a 40-acre minimum parcel size in areas of critical summer and winter deer habitat on the grounds that the combination of "existing development restrictions in such areas", implementation of the INRMP, and the -IBC overlay "would provide a comparable level of protection to important migratory deer habitat."

281-524

• Please present reasoned analysis to substantiate this view rather than the conclusory statement presented here. In the absence of such an analysis, we support the 40-acre minimum parcel size, as well. In the absence of standards and with permissive language, assessing efficacy of these measures seems premature.

One aspect of the INRMP is to give priority "to parcels that would preserve natural wildlife movement corridors such as crossings under major roadways" (p. 5.12-57). The 1996 plan (Alternatives 1 and 4) included policies 7.4.2.1, 7.4.2.2, 7.4.2.4, and 7.4.2.5 directed at protecting corridors through presumably appropriate (but undefined) setbacks (p. 5.12-92). Only the last policy clearly applies to both ministerial and discretionary development. Except for this, we find nothing in the DEIR that addresses the concerns expressed by Saving and Greenwood about connectivity of habitat across US 50, especially if that road should be widened beyond its present configuration.

281-525

‡ The DEIR should include discussion of naturalistic vegetated overcrossings and/or undercrossings to facilitate wildlife's ability to cross major barriers such as multi-lane heavily-traveled roads like US 50, as well as the County roads contemplated for widening. The Federal Highway Administration has a booklet, "Critter Crossings" (see References), addressing solutions

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implemented in various other places. Financial assistance seems to be available for retrofitting existing roads. In view of the serious barrier US 50 presents to wildlife movement, it is unconscionable that no thought was given to this effect when it was built. Those were, of course, more innocent times. But we know better now and should be thinking of correcting past errors. Certainly no thought should be given to exacerbating the situation with addition of more lanes without incorporating features to facilitate wildlife movement.

281-525

‡ The DEIR should analyze the extent to which wildlife remains in areas like El Dorado Hills so as to judge the usefulness of "critter crossings" if County roads are widened from two to four lanes or four to six lanes, as anticipated under the various alternatives. This approach should be used anywhere it is proposed to widen County roads from present widths, as well as for existing roads that have elevated mortality levels for wildlife.

281-526

Deer jump typical wire mesh fences (if not too high), but fawns can't. Seeing frantic fawns unable to follow their mothers over fences is a not uncommon sight. Humans seem fond of perimeter fencing, yet smaller enclosures might equally well serve their purposes, whether it is to keep dogs in so they won't harass wildlife or have dangerous encounters with vehicles, or to keep deer out of a garden. Wire mesh or tall fences aren't needed to contain horses and other livestock; something through which small animals can pass will serve the purpose. People might be persuaded to "think outside the box" and consider the purpose of any desired fence rather than rote perimeter fence because "everyone does it". And the near ubiquitous use of strands of barbed wire atop fences could similarly be called into question.

281-527

‡ Fencing less obstructive to movement of wildlife should be encouraged, especially in important habitat areas. For discretionary development, this feature could be part of development agreements. For existing homes, public outreach could occur through homeowners' associations. For ministerial approvals, public outreach could occur at time of issuance of permits.

Impact 5.12-4: Removal, Degradation, and Fragmentation of Sensitive Habitats. p. 5.12-101

The DEIR defines "sensitive habitats" as including aspen, montane and valley-foothill riparian, valley oak woodland, wet meadow, and vernal pools (p. 5.12-102). It notes that "wetlands" receive protection under both the federal Clean Water Act and California Fish and Game. Aspen largely occur on Forest Service land and in the Tahoe Basin so are not a major consideration.

281-528

Little opportunity remains in Alternatives 1 and 4 to use designation as Open Space to afford protection for wetlands and riparian habitat in the western part of the County and the Ecological Preserve overlay is applied only to gabbro-soil habitat. Some discretionary approvals incorporate Open Space designation but it is unclear to what extent these set-asides involved land really not useable as part of the proposed development rather than truly sensitive habitat.

281-529

• Please in the FEIR analyze the set-asides in Promontory, Marble Valley, Carson Creek, Valley View, and Bass Lake Hills with respect to actually protecting sensitive habitat versus being available because of constraints in usability for development.

281-530

Certain policies in Alternatives 1 and 4 do, however, apply to wetland features (including riparian, wet meadow, and vernal pool habitat), but their effectiveness is compromised by ambiguity in wording, lack of standards, and/or application to discretionary approvals only. The same is true of policies directed at protecting oaks, which are additionally compromised by allowing replacement as a substitute for retention. Only Alternative 3, with its -IBC overlay, affords the possibility of

281-531

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protection for sizable amounts of sensitive habitat though, as already mentioned, it, too, is compromised by permissive language ("may") relative to protective features, lack of standards, and **long timeline for implementation.**

281-531

Proposed mitigation consists of:

° MM 5.12-1(d): (p. 5.12-56) calls for development *and implementation* (the former is in Alternatives 2 and 3, but wording calling for implementation is lacking) of an Integrated Natural Resources Management Plan].

° MM 5.12-1(e): a no-net-loss policy for important habitat

° MM 5.12-3(b): relates to implementation of the NRMP

° MM 5.12-4(b): calls for delineating waterbody features, using Army Corps of Engineers standards, developing "a database of important surface water features, including lake, river, stream, pond, and wetland resources", amending the Zoning Ordinance to provide buffers and setbacks "of riparian areas" accompanied by their incorporation into "conservation easements or natural resource protection areas"(with certain exceptions), and incorporating water features into new development so as to "enhance the aesthetic and natural character of the site" while minimizing disturbance and fragmentation.

281-532

Comment:

‡ **In its letter to the General Plan Team of 27 August 2002, the Department of Fish and Game specifically called for using U.S. Fish and Wildlife Service criteria (which Fish and Game also uses) for delineating wetlands, not those of the Corps of Engineers. It set forth specific reasons why FWS criteria were preferable.** ***We agree in preferring FWS criteria over those of ACE.***

281-533

‡ **It is unclear throughout these proposed mitigation measures whether or not ephemeral streams are included . They should be.**

281-534

‡ **No setback standards are included. We support those given by Fish and Game in the aforementioned letter, as well as its letter of 12 January 2001: at least 100 feet from a permanent wetland, and at least 50 feet from an ephemeral stream or swale. However, please note that in Red-Legged Frog habitat, Fish and Wildlife criteria call for 330 feet setback from water features to accommodate the upland movement these creatures display at time. We support this. Generous setbacks would not only help protect water quality but also would help protect the corridors for wildlife movement presented by streams.**

281-535

‡ **Because of the lengthy timeline called for in implementation throughout Alternatives 2 and 3, these setbacks (or greater) should be observed during the interim between adoption of the general plan and development and implementation of the setback program so as not to preclude options.**

281-536

‡ **A timeline is needed for development of the database mentioned under MM 5.12-4(b).**

281-537

We are concerned at mention in Alternatives 2 and 3, Policy PR-2a, of developing new points of public access to lakes, rivers, and streams. No qualifications are given.

281-538

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281-539

• If these water bodies are to retain integrity as important habitat and corridors, access cannot be indiscriminate. Please discuss this aspect in the FEIR.

281-540

There is no mention in the Biological Resources chapter of Implementation Measure CO-P, to develop standards for use of native plants in landscaping. Evidently this is viewed from the perspective of design review of discretionary projects. Yet it has important connotations for preservation of the local gene pool, as recognized in the Fish and Game letters previously referred to.

281-541

‡ We would add restoration projects to IM CO-P and support Fish and Game's request for including a policy "that requires mitigation, restoration, erosion control, and revegetation to use native plants obtained from a local genetic source to the greatest extent possible."

• If these water bodies are to retain integrity as important habitat and corridors, access cannot be indiscriminate. Please discuss this aspect in the FEIR. 281-539

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OPEN SPACE

• Please refer to our scoping comments on Open Space, p. 65 ff., and respond in the FEIR. 281-542

The rather weak treatment of Open Space is troubling. This is regarded as an important topic under Planning and Zoning Law. As the Office of Planning and Research says in *General Plan Guidelines* (incorporated herein by reference and available on the internet at www.opr.ca.gov), "Along with the housing element, the open-space element has the most detailed statutory intent...." Planning and Zoning Law reads as follows:

> Section 65561. Policy.
> The Legislature finds and declares as follows:
> (a) That the preservation of open-space land, as defined in this article, is necessary not only for the maintenance of the economy of the state, but also for the assurance of the continued availability of land for the production of food and fiber, for the enjoyment of scenic beauty, for recreation and for the use of natural resources.
> (b) That discouraging premature and unnecessary conversion of open-space land to urban uses is a matter of public interest and will be of benefit to urban dwellers because it will discourage noncontiguous development patterns which unnecessarily increase the costs of community services to community residents.
> (c) That the anticipated increase in population of the state demands that cities, counties, and the state at the earliest possible date make definite plans for the preservation of valuable open-space land and take positive action to carry out such plans by the adoption and strict administration of laws, ordinances, rules and regulations as authorized by this chapter or by other appropriate methods.
> (d) That in order to assure that the interests of all its people are met in the orderly growth and development of the state and the preservation and conservation of its resources, it is necessary to provide for the development by the state, regional agencies, counties and cities, including charter cities, of statewide coordinated plans for the conservation and preservation of open-space lands.
> (e) that for these reasons this article is necessary for the promotion of the general welfare and for the protection of the public interest in open-space land.
>
> 65562. Intent
> It is the intent of the Legislature in enacting this article:
> (a) To assure that cities and counties recognize that open-space land is a limited and valuable resource which must be conserved wherever possible.
> (b) To assure that every city and county will prepare and carry out open-space plans which, along with state and regional open-space plans, will accomplish the objectives of a comprehensive open-space program.
>
> 65564. Implementation
> Every local open-space plan shall contain an action program consisting of specific programs which the legislative body intends to pursue in implementing its open-space plan.

281-543

The *Guidelines* go on to list the kinds of purposes for which Open Space lands may be set aside (giving examples of each), following those set forth in Section 65560(b)(1), (2), (3), and (4) of the

AR 13527

Government Code. Policy CO-11(b) in Alternatives 2 and 3 follows this scheme. However, the *Guidelines* break two more categories out of these four; its list, then, had the following:

1. for preservation of natural resources
2. for managed production of resources
3. for outdoor recreation
4. for public health and safety
5. for trails
6. for retention of publicly owned corridors for future use

281-543

• We would suggest that consideration be given to adding a subscript letter(s) to the OS designation on the land-use maps to distinguish these categories. E.g., for (1): nr; (2): pr; (3): or; (4) hs; (5): t; (6): po. [One observation that immediately jumps out is that nowhere is the old Southern Pacific Railroad corridor mentioned except in the Land Use element in the context of having an adopted master plan. Clearly it would fit into # 6 above.] This might be a more useful characterization in the draft plans than, say, NR, because NR combines extractive purposes such as agriculture, timber, and mining, with protective purposes, such as preservation of natural resources. This also would avoid the contradiction inherent in allowing mining and agriculture on lands in the OS category. It would also facilitate assessing how much "OS" land actually would contribute toward habitat preservation. Please discuss this in the FEIR.

281-544

• There doesn't appear to be a "nonjurisdictional lands" category in the legends of the land-use maps. Rather, the OS label has been applied in a number of cases to lands that should be nonjurisdictional (e.g., Coloma State Historic Park, Auburn State Recreation Area, Folsom Lake State Recreation Area). In some cases, land-use categories calling for development have been applied inappropriately to BLM land. Please correct.

281-545

• Goal CO-11 and Policies CO-11(a) and (b) in Alternatives 2 and 3 apparently comprise the open-space "plan" but both policies are devoid of any implementation measure and thus would seem to fail the requirement for an action plan in Government Code Sec. 65562.

281-546

OPR's *Guidelines* also have "Ideas for Open-Space Action Programs" (p. 72) and OPR has issued "Putting Action into the Open Space Element: Techniques for Preserving Open Space and Farmland", also available on the internet www.opr.ca.gov.

REFERENCES

1. *Weeds. (Welcome to the Weed Information site for El Dorado County).* Downloaded 6/16/2003.
2. *Memorandum of Understanding:* El Dorado County Noxious Weeds Management Group. *Prevention of Noxious Weeds, Exclusion, Detection, Eradication and Suppression of Noxious Weeds.* El Dorado County Department of Agriculture.
3. *Weeds at home on our roadsides.* Sacramento Bee, 4 May 2003.
4. *Transline:* Label text.
5. *Field Monitoring and Treatment of Herbicide Runoff from Highway Roadsides.* Department of Civil and Environmental Engineering, University of California, Davis.
6. *Natural Community Conservation Planning.* Department of Fish and Game website.
7. *Merced County Natural Community Conservation Plan.* Merced County website (overview of effort underway)
8. *Status of NCCP Planning Efforts.* Department of Fish and Game website (summarizes efforts throughout the state)
9. *Using Science in Habitat Conservation Plans.* National Center for Ecological Analysis and Synthesis and American Institute of Biological Science.
10. *Critter Crossings: Linking Habitats and Reducing Roadkill.* Federal Highway Administration. February 2000
11. *Common Types of Wildlife Crossing Structures.* From www.wildlifecrossings.info (includes over- and undercrossings, barriers, and escape structures.
12. *Right of Way (Cutting Edge).* Audubon Magazine, June 2003

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HOME Beautiful El Dorado ... The County of Choice for a Better Tomorrow

HOME

Agriculture Department - Weights and Measures

A Taste of El Dorado

www.atasteofeldorado.com

Ag Department
Programs
Annual Crop Report
Pesticides
Certified Farmer's Markets
Ag Commission
Apple Cider Quality Assurance Plan
Weeds

Avoid Wildlife Problems
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Bears
Coyotes
Opossum
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Skunks
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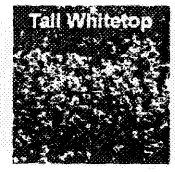
Weights & Measures
Programs & Consumer Information
Firewood Purchases
Gasoline Purchases-"Fuel for Thought"

What's In Season?
Harvest Calendar
Grower Organization/Farm Maps
Harvest Fair

Agricultural Links
E-Mail
Staff

County of El Dorado Department of Agriculture
311 Fair Lane
Placerville, CA 95667
(530) 621-5520
FAX (530) 626-4756









Welcome to the Weed Information Site for El Dorado County!

WEEDS

The El Dorado County Noxious Weed Group (NWMG) was begun in 1998 as a coordinated approach to identify sites, develop responses and educate the public in more effectively reducing or eliminating noxious weed infestations. A Memorandum of Understanding was signed by 20 area organizations, businesses and agencies in an effort to coordinate weed work and education throughout the county.

NWMG Memorandum of Understanding

Integrated, invasive weed management programs include:

- Yellow Starthistle (YST) and Scotch Broom Control "How To" Workshops
- Weed Identification Brochure specific to El Dorado County
- Yellow Starthistle "Pest Notes" - which includes the latest information on the best ways to control YST

For information on the above programs/materials, email ceeldorado@ucdavis.edu or call (530)621-5528

- Cost share (50:50) for purchase of Transline™ herbicide for Yellow Starthistle control.
- An educational display regarding weed control and weed identification for use at fairs and festivals
- An advisor is available to meet with property owners to discuss YST control on-site
- Cost of share (50:50) aerial application of Transline™ herbicide to control YST on rangeland
- Tall Whitetop eradication project in the Lake Tahoe Basin and along Highway 50
- Yellow Starthistle mapping in the Sierras to determine the eastern leading edge of the infestation and eradication of small leading edge and other populations

- Rental of spray equipment, weed wrenches (to remove woody stemmed plants, i.e., Scotch broom) and flamers (to spot singe young weeds)

For further information contact
eldcag@atasteofeldorado.com
or call (530)621-5520

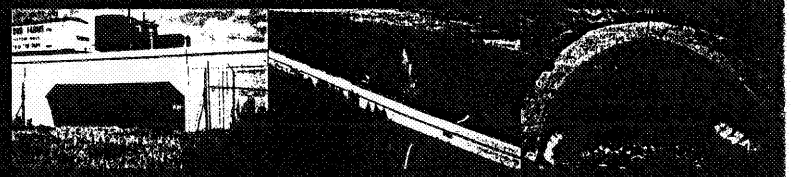
Weed Links:

- U.C. Weed Research and Information Center wric.ucdavis.edu
- California Department of Agriculture "Encycloweedia" - weed identification and information www.cdfa.ca.gov/phpps/ipc/encycloweedia/encycloweedia_hp.htm
- California Exotic Pest Plant Council (CalEPPC) www.caleppc.org/
- National Invasive Species Information www.invasivespecies.gov
- Weed Free Feed www.weedfreefeed.com
- Tall Whitetop - University of Nevada Cooperative Extension www.unce.unr.edu/tallwhitetop/
-  Yellow Starthistle Control Information
  UC Davis 'Pest Notes'
  UC Davis Weed Research & Information Center
  Transline™ Herbicide Label

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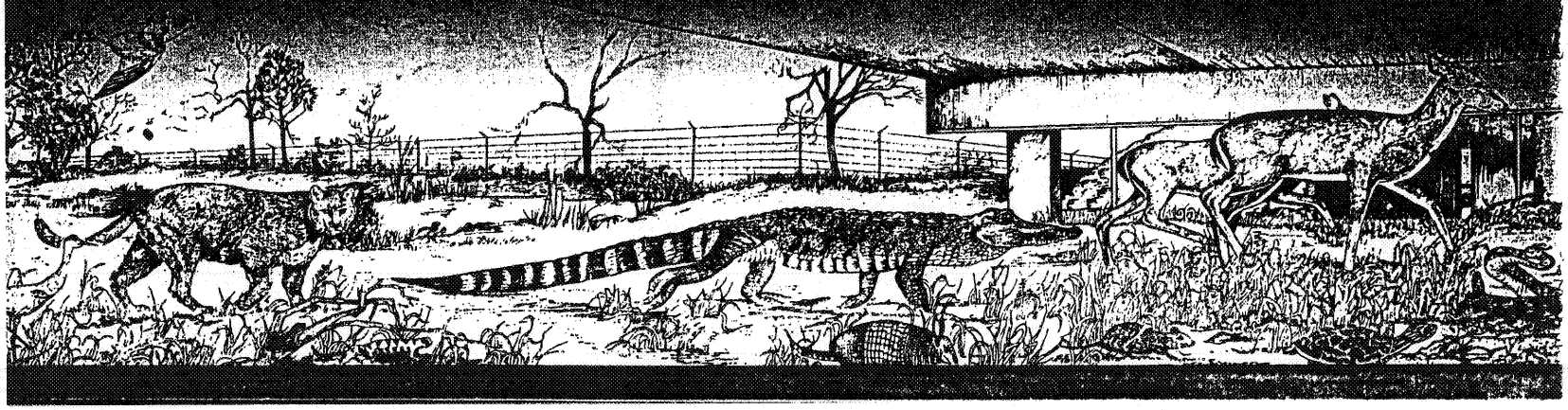
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U.S. Department of Transportation
Federal Highway Administration



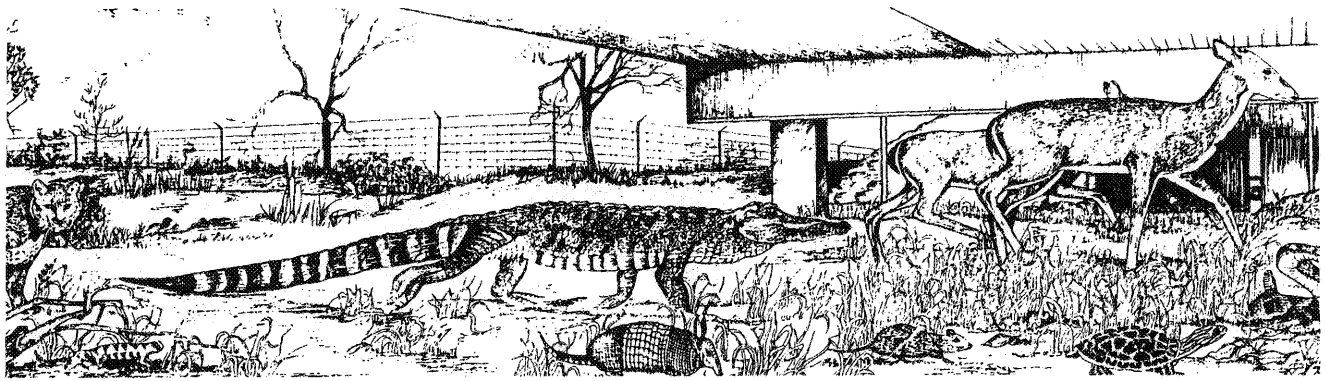
Critter Crossings

Linking Habitats and Reducing Roadkill



Critter Crossings

Linking Habitats and Reducing Roadkill

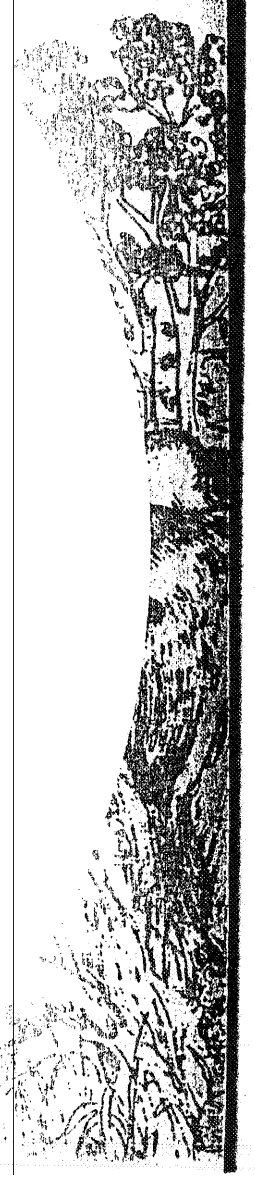


U.S. Department of Transportation

Federal Highway Administration

Office of Natural Environment

February 2000



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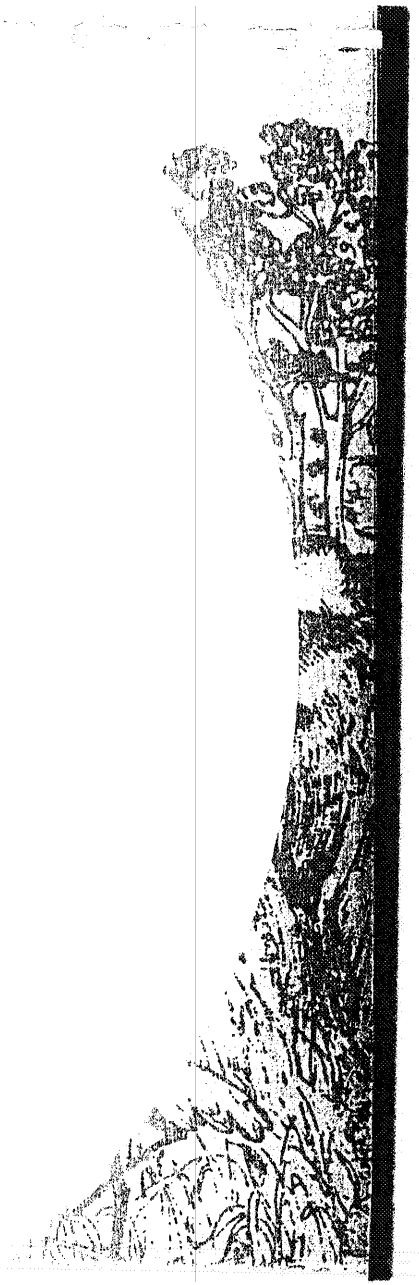












WHO can benefit from this brochure?
Everyone interested in protecting wildlife along highways and the habitats that sustain them.

WHAT are the issues?
Roads are the arteries of life. They get us where we want to go. They also stop animals in their tracks–often dead in their tracks.

WHERE does *Critter Crossings* fit in?
The brochure describes transportation's impacts on wildlife and highlights exemplary projects and processes that are helping to reduce these impacts.

WHY has the Federal Highway Administration developed *Critter Crossings*?
"President Clinton has made protecting the environment one of his top priorities," says Kenneth R. Wykle, FHWA Administrator. "The Transportation Equity Act for the 21st Century–TEA-21–offers an unprecedented opportunity for us to reduce highway impacts on wildlife." In our 1999 Strategic Plan, we commit ourselves to environmental stewardship–to protecting and enhancing the natural environment and communities affected by highway transportation. In the Plan, we also pledge to build and strengthen the partnerships that enable this to happen.

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Acknowledgments



This brochure was written by Ginny Finch under the direction of the Office of Natural Environment. The author thanks Jim Shrouds, Fred Bank, Paul Garrett, Eliane Janzegers, Noreen Bowles, Gary Evink, and Dennis Unsworth for their help and encouragement.

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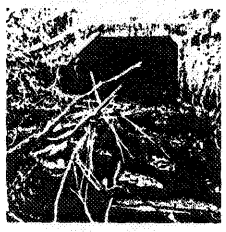
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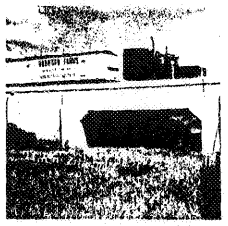
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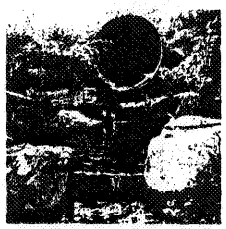
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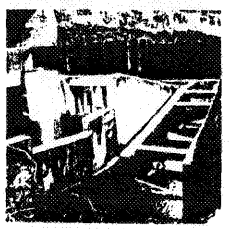
Photo Credits 30







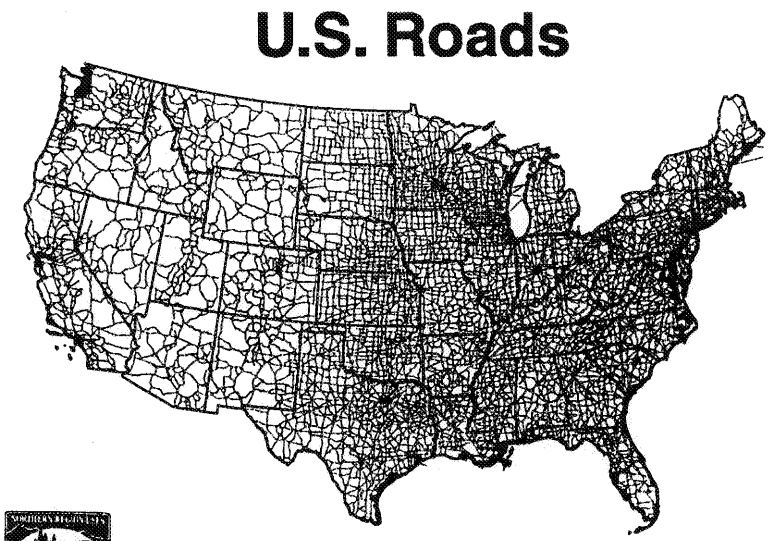






AR 13536

Wildlife and Highways: An Overview



3

At least 3.9 million miles of public roads crisscross the United States.

Wildlife experts say these roads impact animals in several ways:

Roadkill. Millions of vertebrates–birds, reptiles, mammals, and amphibians–are killed every year by vehicles traveling on America's roads. For example, roadkill has helped reduce the population of a federally endangered cat–the ocelot–to about 80 animals.

Slow-moving animals like turtles and salamanders are at high risk of roadkill, especially when they try to cross a road to reach mating or nesting sites on the other side.

Wide-ranging large carnivores like wolves, grizzly bears, and mountain lions are also vulnerable, simply because they routinely have to cross a lot of roads.

Roadkill threatens humans as well as animals. Each year, more than 200 motorists are killed and thousands more are injured in animal-vehicle collisions, according to The Wildlife Society. The insurance industry estimates that the annual cost to society for these fatalities and injuries is $200 million. Individual motorists usually pay at least $2,000 in vehicle repair every time they hit a large animal.

Habitat loss. Over the centuries, habitat lost to wildlife has resulted not only from highway construction but also from timber harvesting, agricultural conversion, urban and residential development, and other factors.

Loss of habitat is permanent and severe. For example, the federally threatened grizzly bear is now confined to less than 2 percent of its former range south of Canada, and only two robust populations remain of the rare lynx that once prowled forested

AR 13537

areas from Maine to Oregon. The federally endangered red-legged frog has disappeared from 99% of its habitat in California's Central Valley. Another federally endangered amphibian in California–the Arroyo toad–can only be found in remote areas of the state. Still another wildlife species–Attwater's greater prairie chicken–is down to three isolated populations (42 animals) in Texas. The list goes on.

Habitat fragmentation. Few species use all the patches of a landscape. Their survival depends on being able to move from one patch to another.

When highways "fragment" landscapes, they divide wildlife populations into smaller, more isolated units. Smaller populations are less stable and, over time, face extinction from predators or natural causes. They may also be more susceptible to inbreeding and to genetic defects.

Habitat fragmentation threatens all wildlife species that have to cross roads to meet their biological needs. "Forest carnivores are particularly vulnerable," says biologist Bill Ruediger of the U.S. Forest Service. "They're at risk because of their small populations, low reproduction rates, and large–even huge—home ranges."



Wide-ranging large carnivores like wolves and grizzly bears and slow-moving animals such as turtles and salamanders are particularly vulnerable to roadkill.

AR 13538



An uphill climb for fish

Impacts on fish populations are less obvious. We drive over culverts without even realizing there are streams underneath. Even if we can see the streams, we usually can't see the fish swimming in their waters.

Nonetheless, the impacts are real–and serious.

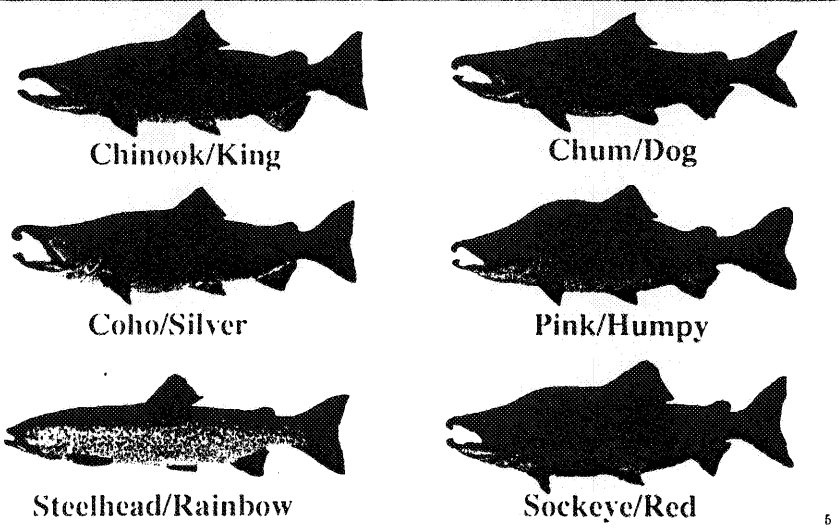
Anadromous fish–species that migrate from freshwater to saltwater and back to freshwater–are the most severely impacted by fish passage barriers. Most of the culverts we drive over today were built decades ago before we knew about the needs of these species.

Ability to migrate upstream is a critical issue for both anadromous and resident fish species. "Juveniles have a tougher time than adults," says Rose Owens, a biologist at the Oregon Department of Transportation. "They can't jump as high or sustain the same bursts of energy, and they're more sensitive than adults to turbulence and to changes in water temperature."

In the Pacific Northwest, the fish-passage issue is complicated by biology. Pacific salmon, unlike Atlantic salmon, exist as several species. Different populations spawn at different times and in different streams. What's more, Pacific salmon spawn only once and then die.

Fish populations in the Pacific Northwest have been steadily declining not only because of transportation-linked barriers to upstream movement but because of dams, pollution, over-harvesting and other human-caused disturbances. Populations have declined to such an extent that virtually *all* stocks of wild salmon and trout are federally listed in some region of the Pacific Northwest. For example, Chinook salmon stocks are federally listed in Puget Sound, in the Columbia and Sacramento Rivers, and in other watersheds.

Imperiled Wild Salmon and Trout Stocks in the Pacific Northwest



AR 13539

Opportunities to make a difference

Under the Transportation Equity Act for the 21st Century, or TEA-21, Federal Highway Administration funding support is available for wildlife crossings on both *new* and *existing* roads. Thanks to TEA-21 and an expanded "Transportation Enhancements" category, states and communities can get help not only for crossing structures but for habitat connectivity measures.



6

From break-up to link-up

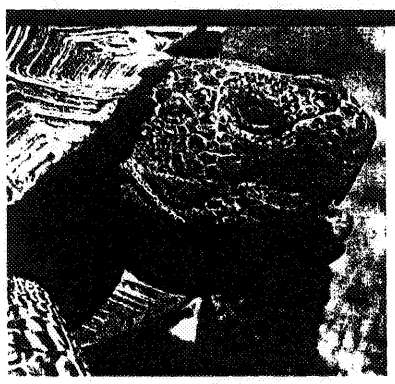
In the following pages, you'll read about strategies being used to counteract roadkill and habitat loss and fragmentation. The strategies range from site-specific projects like goat bridges and bear underpasses to regional models that combine landscape ecology, conservation biology, and human safety concerns with long-range transportation planning.

For more information, contact Paul Garrett at 303-969-5772 extension 332 or paul.garrett@fhwa.dot.gov

AR 13540

Tortoise Underpasses

California



Desert tortoises are found in the Mojave and Sonoran deserts of Arizona, California, Nevada, and Utah. The Mojave population is state- and federally listed as threatened. The desert tortoise is a large, terrestrial turtle with a light brown to very dark brown shell and thick, stumpy hind legs. Desert tortoises live a long time (50-70 years), mature late, and reproduce few offspring. They eat mostly native plants, including cacti. During inactive periods, they hibernate in underground burrows or caves.

Imagine several hundred desert tortoises wearing name tags.

That was the scene a few years ago on Mojave Desert land along State Highway 58 in San Bernardino County, California. Locating and tagging the tortoises was the first step in a multi-agency project to monitor the tortoises' use of new storm-drain culverts spanning the width of the highway. Eight federal and state partners were involved–the California Department of Transportation, the Bureau of Land Management, the California Energy Commission, the U.S. Fish and Wildlife Service, the Federal Highway Administration, the Nevada Department of Transportation, the California Department of Fish and Game, and the U.S. Geological Survey.

Since desert tortoises move rather slowly and within a limited home range, finding them and attaching IDs to their shells was relatively easy. Developing a reliable system for tracking their passage into and out of culverts proved more difficult.

"We needed an automated system that could be left unattended from March through October, when the tortoises were not hibernating," says William Boarman, USGS biologist and project manager. "We also wanted it to be secure from vandalism and environmental damage."

The research team's solution: *Passive Integrated Transponder* (PIT) tags and a computerized reading system. The PIT-tag system, used primarily to census fish, was adapted by AVID, Inc. and Beigel Technology Corporation to meet the criteria of the desert tortoise project. Easy maintenance was achieved by using a renewable energy source–solar panels and a solar-rechargeable battery. Protection from theft and environmental damage (for example, high summer temperatures) was accomplished by burying the system's receiver and antennae underground and camouflaging them with desert soil. (Protecting the solar panels, which could not be hidden and which were frequently stolen, required more complicated measures).

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Here's how the PIT-tag system worked: When a tortoise entered or left a culvert, it passed through an electromagnetic field emitted from a "reader" tuned to a specific radio frequency. The reader detected and decoded the tortoise's ID (programmed into the memory of the system's microchip), and a datalogger inside the reader recorded it along with the date and time of passage.

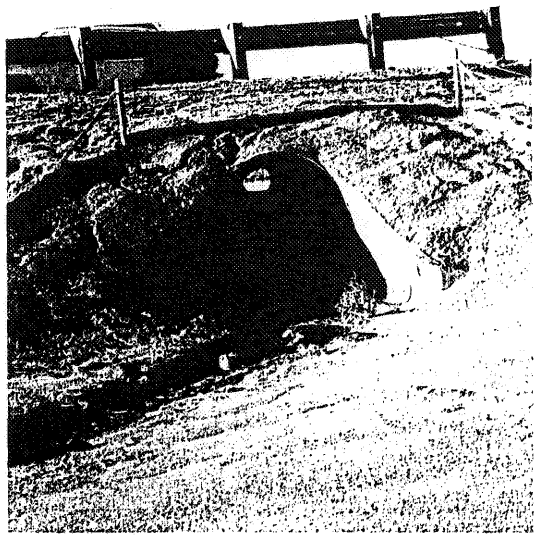
Throughout the research project, team members paid attention to the smallest details. They attached the PIT tags to the tortoises' shells with an Epoxy glue that would not hurt the shells...They programmed the reading system to turn itself off at night (desert tortoises are active only during the day)...They consulted a world-class *surfboard* designer to come up with a well-insulated "house" for the reader coil...They buried each reader in locked "nesting boxes"...They designed the reading coil to cover an 8-foot (2.4 m) area, overcoming the short-distance limitations of PIT-tag technology.

The system recorded five tortoises using the culverts on 75 occasions in 1995 and 1996. Since the small vertebrates have no identifiable "corridor" and move at a leisurely pace (it took one tortoise seven hours–stopping and starting—to get through a culvert), these numbers are likely to increase as the tortoises gradually discover the culverts.

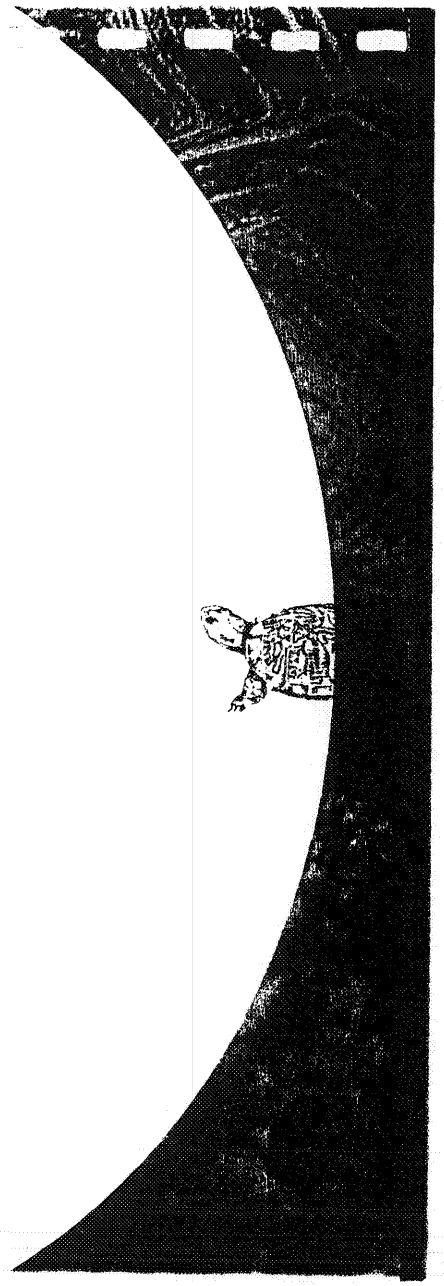
The solar-powered PIT-tag system used on the Highway 58 project can be used on almost any narrow wildlife crossing, according to Michael Beigel of Beigel Technology. Says Beigel: "If you need more power, you can make simple adaptations—bigger batteries, additional solar panels, or moving solar panels."

The system is also easily adaptable to other species. "It can be used for virtually every animal you can catch," says Boarman.

For more information contact William Boarman at 909-787-5152 or william_boarman@usgs.gov



To record the movement of desert tortoises through this underpass, researchers adapted a computerized tracking system that until then had been used mostly to census fish.



AR 13542

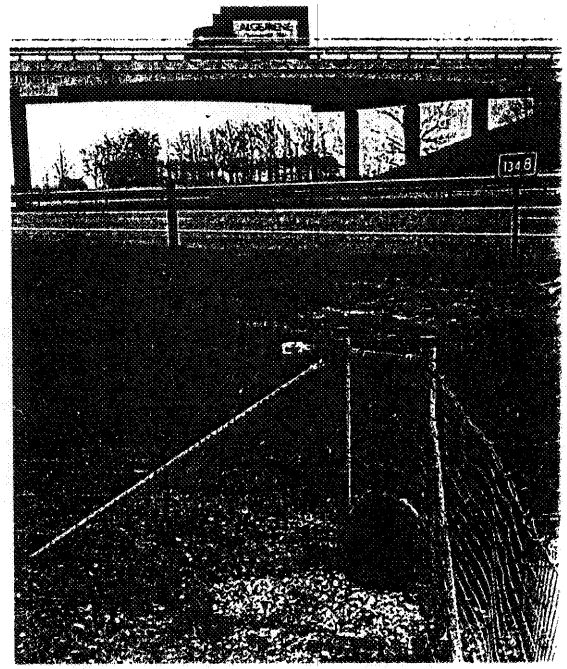
Badger Tunnels

The Netherlands



9

Badgers live in families in a maze of underground tunnels and chambers called a "set." Some sets are hundreds of years old. Badgers are nocturnal animals, foraging for food at night along hedges and wooded banks. Their favorite foods are mice, slugs, insects, and earthworms. Although they can live to age 14, badgers often die or are killed at a younger age. Urbanization and agriculture can threaten the long-term survival of the species, since badgers adapt poorly to change once their sets are disturbed and they are forced to move.



10

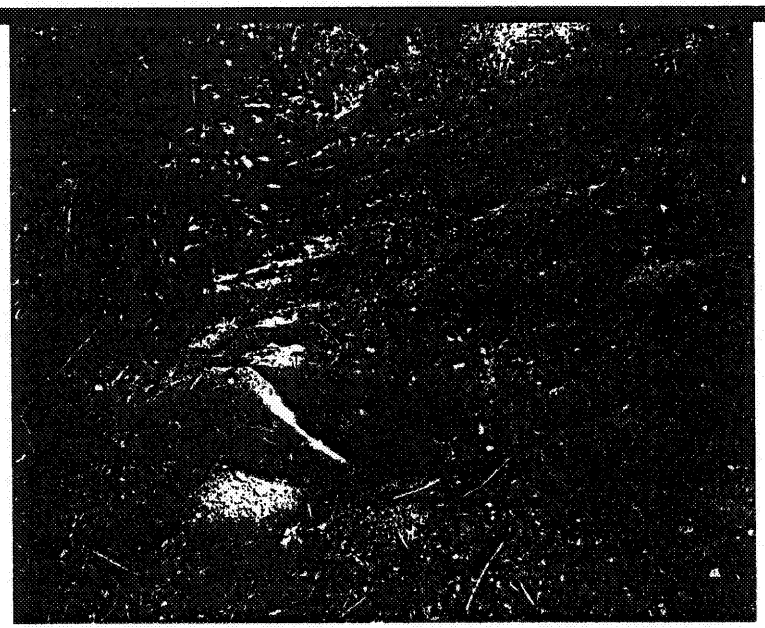
This badger tunnel under A73 near the town of Heumen was the first to be built in the Netherlands.

Until the 1990s, 20 percent of the badger population in the Netherlands were killed every year on the country's highways.

As their habitats were destroyed–for example, by intensive farming–the animals had fewer places to live and no easily-available food. When they ventured away from their sets to hunt for food, they often had to cross roads, where they were usually killed.

Early fences and tunnels to prevent roadkill and allow movement were not highly successful. The fences were too low and were not anchored in the ground, allowing the badgers to climb over or crawl under them and onto the road. The fences also frequently developed large holes, so they offered little protection. These deficiencies were corrected in later projects. Near the town of Heumen, for example, the national Ministry of Transport constructed five tunnels under the highway and built higher, stronger fences. Escape gates were put in the fences at one-kilometer-intervals to protect any badgers that ended up on the road.

AR 13543



In one project, badger sets like the one shown here were linked to other sets by a protective "green network."

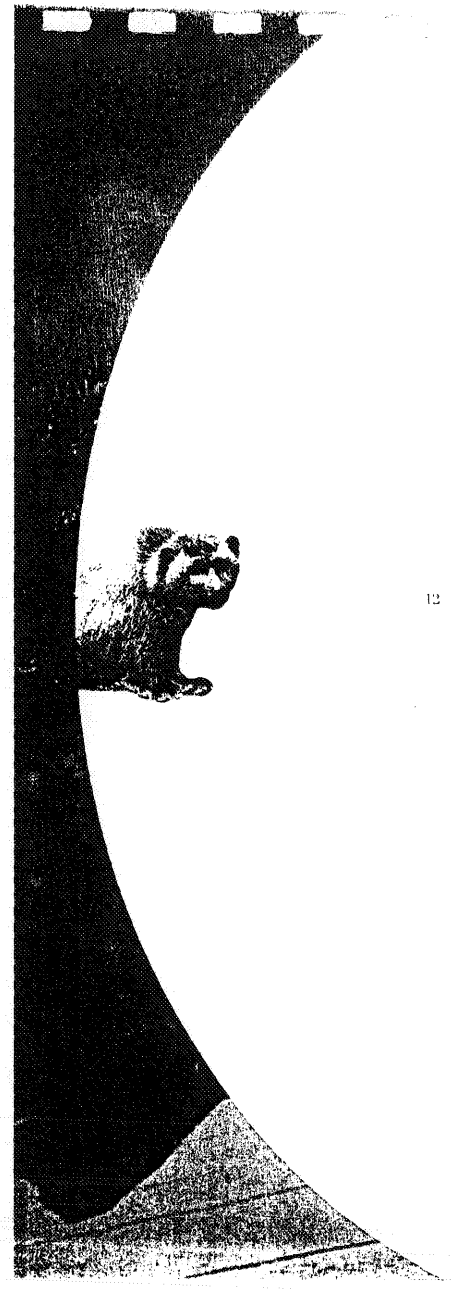
That's not all. Workers created a "green network" between the badger sets, and Heumen Municipality incorporated rules for protecting the sets into its by-laws. Together, the fences, tunnels, green space, and habitat protection have resulted in nearly doubling the local badger population.

As for the badgers safely crossing the road...Infrared cameras and tracks in sand and ink beds demonstrate the animals are using the Heumen tunnels almost every night. Foxes, rabbits, and hedgehogs also travel through them.

Similar successes have been reported on badger-tunnel projects in other parts of the country. In fact, badger tunnels in the Netherlands have been so effective it is now standard procedure to consider them for every new highway project.

For more information, contact Hans Bekker at +31-15-2699-470 or g.j.bekker@dww.rws.minvenw.nl

AR 13544



Four Tools to Assess Wildlife Linkage Areas

Washington



12

The study area included wide-ranging animals like the wolverine (left) and less-mobile animals like the papillose tail dropper (right). The powerfully-built, dark brown wolverine looks like a small bear (except for its bushy tail), but it acts and moves like a weasel. Human disturbance has reduced its vast historic range in the U.S. to the northern Rockies in Montana, Wyoming, and Idaho. The papillose tail-dropper is a $^{1}/_{2}$ inch-long (12-millimeter-long) slug, brown with bumps ("papilla") and black spots. It can drop and regenerate its tail as a defensive tactic against predators. Old forests offer the tail dropper the dampness and food (fungi) it needs.



13

The President's Northwest Forest Plan calls the Snoqualmie Pass-Interstate 90 corridor east of Seattle "a critical connective link in the north-south movement of organisms in the Cascade Range." The corridor is considered a "critical" link because it passes through old-growth forests, separating the unique plant and animal species that live in them.

Early in 1998, the Washington State Department of Transportation (WSDOT) and the U.S. Forest Service (USFS) launched a cooperative research effort to study the effects of I-90 on wildlife movement. The researchers chose a 30-mile (48.3-km) study area along I-90, from Snoqualmie Pass and its popular ski resort east to the town of Cle Elum on the edge of the Wenatchee Forest. In many places, I-90 is 8 lanes wide; traffic averages 24,400 vehicles a day and is expected to grow to 41,400 a day by 2018.

Dramatic changes in elevation and precipitation (snow depth can reach 30 feet—9 meters—at the pass but rarely exceeds 3 feet at Cle Elum) have created a variety of vegetation zones and associated wildlife communities. Wide-ranging large carnivores like lynx and wolverine have been reported as well as little-known old-forest species such as the red-backed vole and the papillose tail-dropper.

"Many of our old forest species hardly move at all," says USFS biologist Peter Singleton. "In fact, some spend their whole life on one log."

To learn about the wildlife in the study area, the researchers used a multi-scale approach. They looked not only at where animals cross the highway but how they get there in the first place. They analyzed habitats to determine where animals are likely to live and raise their young or simply travel through. They looked at wildlife distribution both *along* and *near* the highway.

AR 13545

"It's like buying a house," says Singleton. "You look at everything–the city, the neighborhood, the street, even the color of the carpet."

The research team used *GIS technology* to evaluate habitat connectivity and analyze deer and elk roadkill distribution; *snow-tracking* to document highway crossings and animal distribution along the highway; *off-road automatic camera surveys* to identify wildlife found near the highway; and *monitoring of bridges and culverts* to find out what species use these structures to cross the highway.

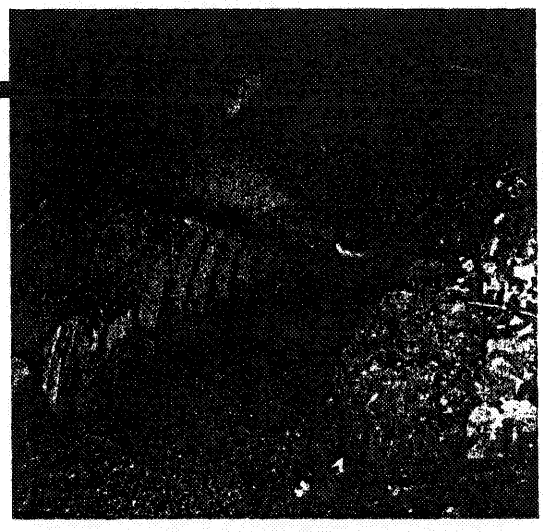
Here's what the team of researchers discovered:

- Small mammals–but not medium and large carnivores–use I-90 drainage culverts;
- Three locations in the corridor—Easton Hill and the north and south ends of Keechelus Lake are important habitat connectivity areas; and
- There are no substantial differences between species detected more than a mile from I-90 and those found within a mile of it.

Transportation planners will be able to use not only this information but the research methodology itself—a methodology that can be used in I-90 and in other transportation corridors in the Pacific Northwest.

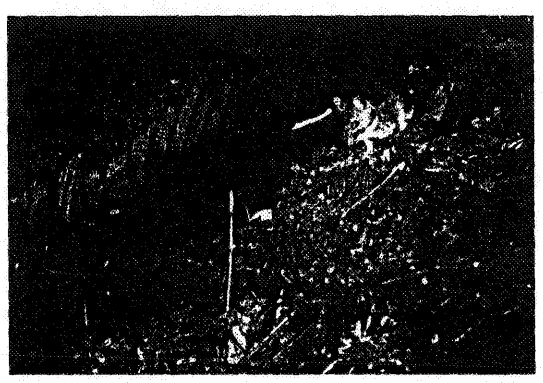
"This work has major implications for how we adapt existing crossing structures and how we build new ones," says Marion Carey, a biologist at WSDOT. "It will be a vital resource for us as we try to make highways safer for animals and humans."

For more information, contact Peter Singleton at 509-662-4315, extension 226, or phsingle/r6pnw_wenatchee@fs.fed.us

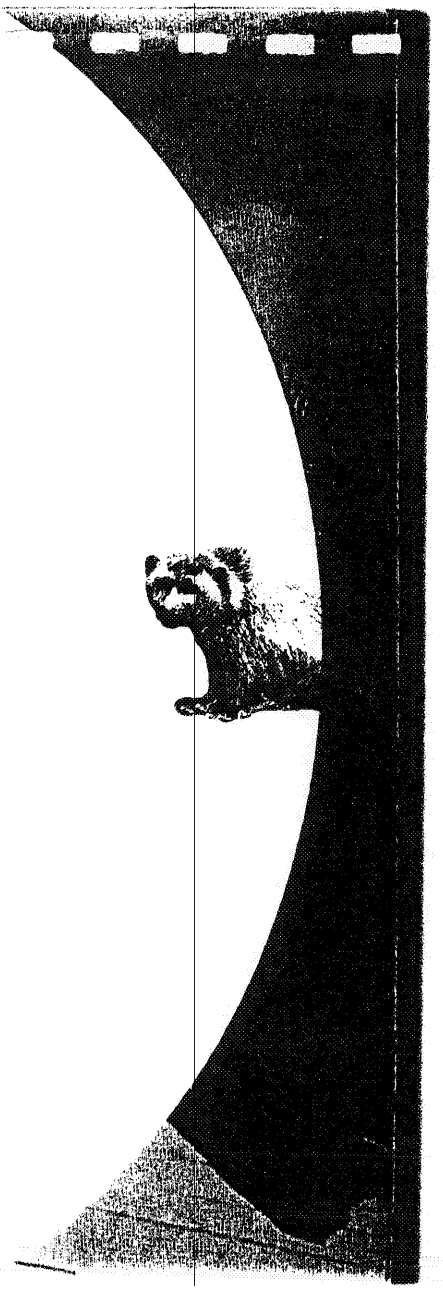


14

A mule deer (above) and a bushy-tailed woodrat (below) approach a culvert under I-90.



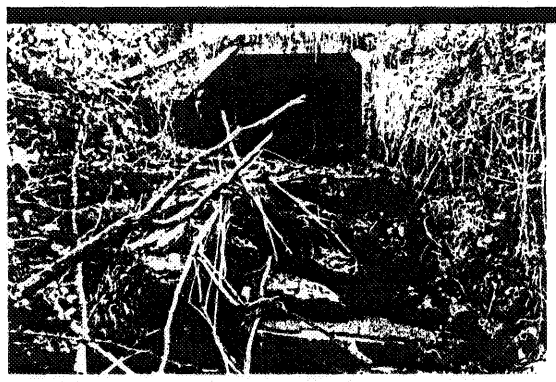
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AR 13546

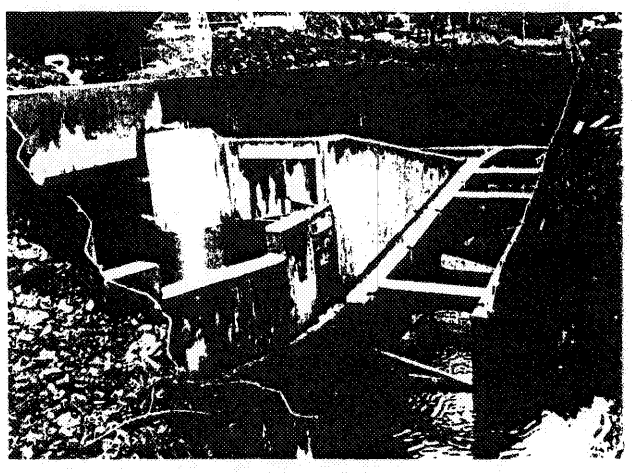
Programs to Remove Fish Passage Barriers

Washington



16

These pictures show McDonald Creek before (left) and after (lower right) fish passage barriers were removed.



17

Wild salmon and sea-run trout need upstream habitat for spawning. *Getting there* is the challenge.

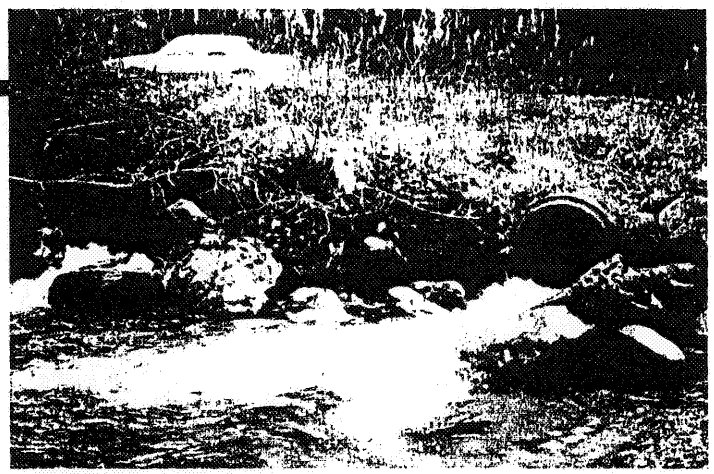
In many Washington streams, wild salmonids get part way into an upstream culvert, only to be washed back downstream. If they do make it upstream, they're often too exhausted to spawn. If they don't make it and have to spawn in densely-populated downstream areas, their offspring are often forced to compete for any available rearing habitat.

Washington's wild salmon and trout are getting a break, thanks to an ambitious program to remove fish passage barriers along state highways. In this ongoing, state legislature-funded program, teams from the Washington State Department of Transportation and the Washington Department of Fish and Wildlife are working together to identify, prioritize, and remove barriers in culverts under state roads. Since the program began in 1991, they've surveyed tens of thousands of road crossings to come up with 4,463 sites where state highways cross fish-bearing streams. They've identified more than 500 "problem culverts" at these sites–culverts where the water depth is too shallow, the water velocity too high, or the outfall drop too far. Engineers have begun fixing the culvert barriers using a "Priority Index System" that ranks projects according to their potential habitat gains.

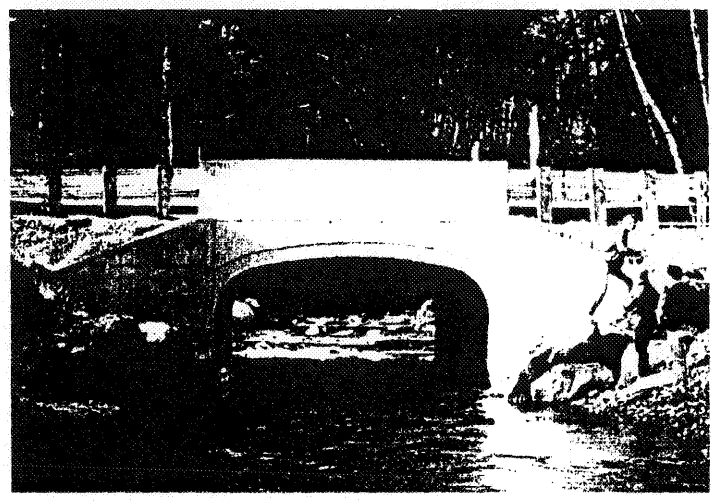
Here are two of the program's success stories:

Rasmussen Creek (Clallum County)---Two round culverts under State Route 112 had been built on a steep slope, so the water velocity was too high for most fish swimming upstream. Engineers replaced the culverts with a single concrete archway

AR 13547



18



19

For years, fish could not swim through the fast-moving waters in these Rasmussen Creek culverts (right). Replacing the culverts with a single archway solved the problem (lower right).

spanning the stream–ideal "natural" conditions for fish passage. The project added nearly 7/8ths of a mile (1,324 m) of stream habitat, and post-project surveys reported coho salmon, cutthroat trout, and other fish species in the upstream section of the creek where they had not been seen before.

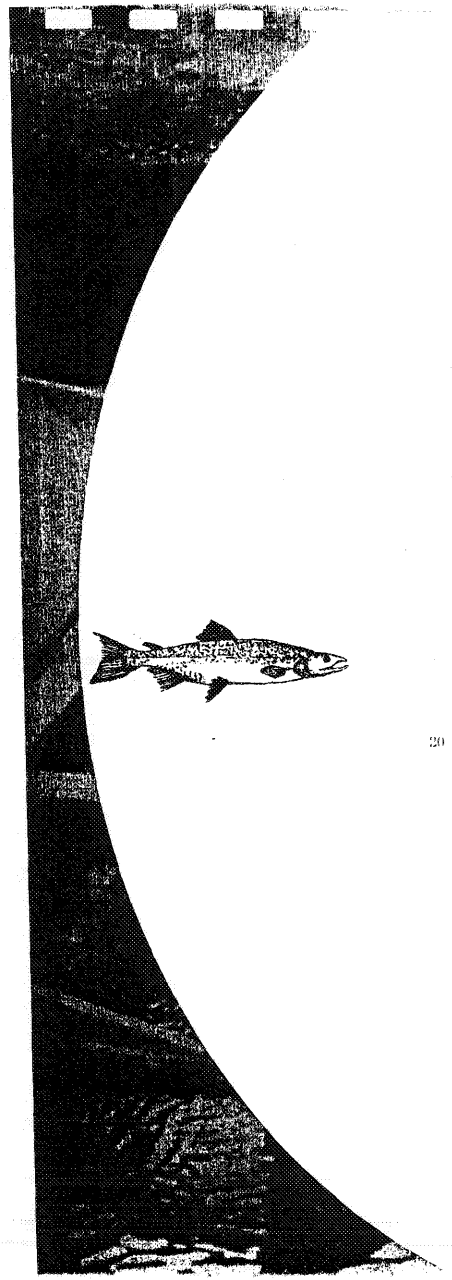
McDonald Creek (Mason County)—Not even one fish could enter this upstream box culvert under State Route 108, because the culvert was perched 6 feet (1.8 m) above the streambed. Engineers installed a pool-and-weir fishway (a concrete "flume" dotted with weirs). Each pool is slightly higher than the pool below, allowing fish a gradual climb to the culvert. The project increased stream habitat by 1,393 yards (1,279 m). A December 1998 survey counted 475 chum salmon, and a survey taken only one month later, 908 chum.

The Washington State Legislature is so confident of the success of the interagency program to remove fish passage barriers, it has pledged to support the program for a 20-year period and has increased its funding from an initial $2 million/biennium to $4 million/biennium to $9.3 million for 1999-2001.

For more information, contact Cliff Hall, 360-705-7499 or hallcli@wsdot.wa.gov



AR 13548



Oregon



Occasional floating debris won't clog these plastic baffles on Canyon Creek, because the baffles have a 45-degree slant.

In the early 1960s, highway engineers realigned fast-moving Canyon Creek in Douglas County to make room for improvements to Interstate 5. To stabilize the new slopes and stream bottom at certain locations, they covered the sides and bottom of the creek with concrete.

The change was bad news for Oregon's wild salmon and trout.

At Milepost 94.2, where the water velocity was frequently 15 feet (4.6 m) per second and the water depth a scant few inches, only a few steelhead trout were able to make it upstream. The steep terrain, narrow culvert, and concrete-covered sides and bottom precluded using traditional methods to fix the problem.

Teams from the Oregon Department of Transportation (ODOT) and the Oregon Department of Fish and Wildlife, who had been working together to remove fish passage barriers, came up with a "natural" solution. They used *fishrocks* to slow the velocity in the steepened streambed and to create small fish resting areas. The technique involved placing large rocks in a form of wet concrete secured to the existing concrete streambed and culvert bottom.

Water depth increased from 4 to 6 inches (10 to 15 cm) to about $1^1/_2$ feet (0.5 m)–deep enough for steelhead, Chinook, and other wild salmon and trout to rest in while making their way upstream. Water velocity in these resting areas slowed to 1 to 2 feet (0.3 to 0.6 m) per second. "There is still some fast-moving water between the resting pools," says ODOT hydraulics engineer Lance Clark, "but since the pools are only one meter apart, the fish can skirt through the swifter water and hide in the resting areas."

At other stream-road locations, ODOT teams used different techniques to remove fish passage barriers. For example, at Milepost 95.39, they used a *plastic baffle* to slow water velocity and increase water depth through the culvert. The award-

AR 13549

winning device, invented by Clark, works like a concrete or steel baffle. Clark's version is faster, cheaper, and won't corrode. It's also designed with a 45-degree slant so any floating debris can easily pass over it.

At Cleveland Creek 4 miles east of Mapleton on Highway 36, the teams used a series of *rock weirs* (upstream-pointed, "chevron" shaped networks of rocks) to pool water. "The weirs let fish swim–not jump–into the culvert outlet," says Clark. "This is a particular advantage for juveniles, who can't jump very high."

Newer than 25 weeks over the past three summers, ODOT has removed 55 fish passage barriers at stream-road culverts, opening up more than 100 miles (161 km) of habitat. Many more barriers need to be removed, according to state surveys, but ODFW Fish Passage Coordinator Albert Mirati thinks ODOT is equal to the task. "All levels of transportation are now stressing fish passage," he says. "They even go out and fix barriers on their own volition."

For more information, contact Clarence Clark at 503-986-[illegible] clarence.a.clark@odot.state.or.us, or [illegible] 503-[illegible] susan.a.chase@state.or.us

Thanks to the upstream-pointed rock weirs at this location on Cleveland Creek, fish have an easier time swimming into the culvert.

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AR 13550

Bear Underpasses

Florida



This sub-species of the American black bear is black with a brown muzzle. Males weigh about 350 pounds; females, approximately 150. They live in forests and eat mostly vegetable matter. A female's home range averages 11 square miles (28.5 km²), a male's can reach 66 square miles (171 km²), making male bears particularly vulnerable to roadkill. Florida black bears have been on the state's list of threatened species since 1974. There used to be 12,000 in the state; now there are 1,500 or fewer. More than 50 bears are killed on Florida roads each year.

When biologists and engineers from the Florida Department of Transportation (FDOT) and the Florida Fish and Wildlife Conservation Commission (FWC) designed the state's first underpass for black bears on a stretch of State Route 46 in Lake County, they had done their homework.

They knew bears had been using similar crossings built for Florida panthers on Alligator Alley (now I-75). They had also observed that bears routinely traveled across the targeted section of SR 46 near County Road 433 to get to habitat within central Florida's Wekiva River Basin. And they had learned bears were being hit by vehicles more often at this spot on SR 46 than at almost any other spot on the highway.

To ensure bears could easily access the underpass from the south, the FWC purchased a 40-acre (16-ha) tract of land in the bears' travel corridor—a private "inholding" within Rock Springs Run State Park.

The SR 46 underpass built by FDOT is a bear-friendly, dirt-floor box culvert, 47 feet- (14.3 m-) long by 24 feet- (7.3 m-) wide by 8 feet- (2.4 m-) high. Work crews elevated the two-lane road over the crossing to give skittish animals a clear view across to the other side. They also planted rows of pines in the open pasture on one side of the road to guide bears to the culvert entrance.

Bears did indeed use the SR 46 crossing. In fact, post-project research revealed that bears plus 12 other species, including bobcats, gray foxes, and whitetail deer, crossed through it.

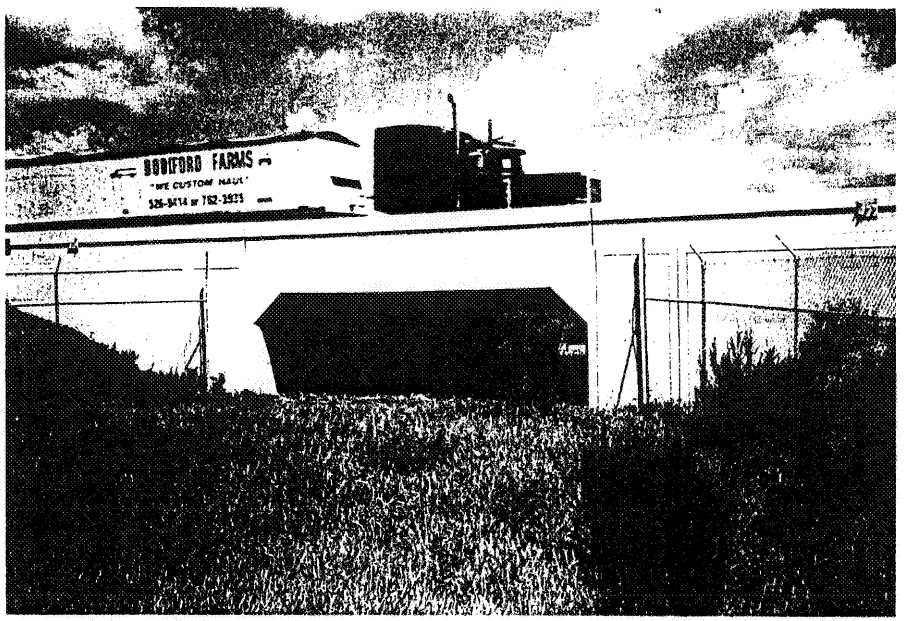
Laurie MacDonald, field coordinator of Defenders of Wildlife and director of Defenders' Habitat for Bears Campaign, sees the SR 46 crossing as an important step in connecting bear habitat. "The Florida black bear needs a half million acres of connected habitats to survive," she says. "The SR 46 underpass helps meet that challenge."

AR 13551

"Underpasses like this one, together with land acquisition and habitat protection, are tools we can use to minimize the impacts of highways on wide-ranging mammals," adds Terry Gilbert, an FWC biologist and member of the SR 46 design team.

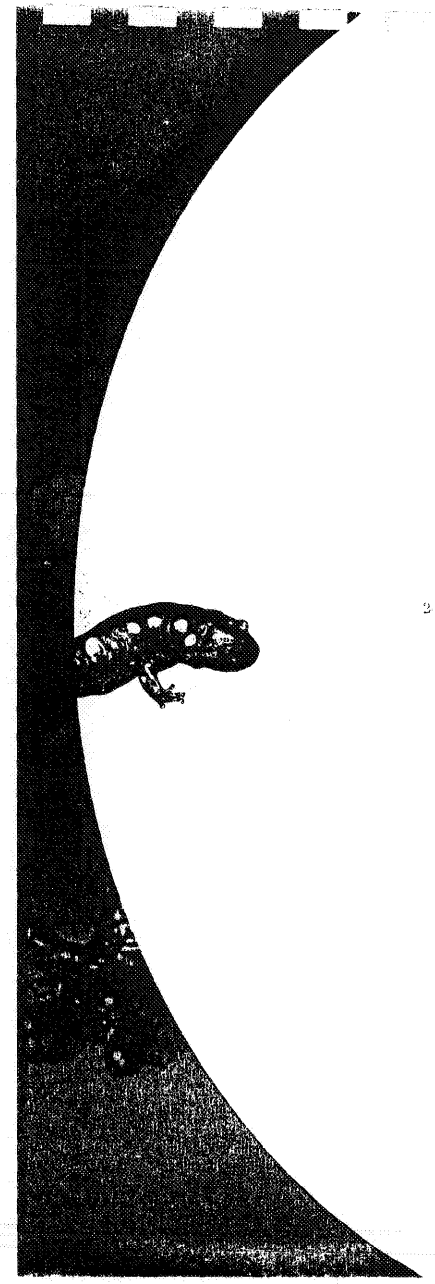
Gilbert and his colleagues have analyzed more than 20 years of collected black bear roadkill data. They've identified and prioritized 15 bearkill "hot spots"–problem areas within seven counties which represent at least 39 percent of Florida's bear roadkills. "Their research will help in the planning, project development, construction, and maintenance of existing and future highways in Florida," says FDOT ecologist Gary Evink.

For more information, contact Terry Gilbert, 850-488-6661 or gilberd@gfc.state.fl.us



State Route 46 was elevated over this bear underpass so crossing animals could clearly see from one side of the road to the other.

AR 13552



Salamander Tunnels

Massachusetts



The spotted salamanders commonly seen in New England and the eastern United States are glossy black with two rows of bright yellow spots down their backs and tails. They can crawl up to half a mile. One night every spring they leave their underground forest homes and migrate to wetland ponds to breed. Salamanders are famous for their energetic "love dance." The females' eggs hatch quickly into larvae, and the larvae develop into young adults that emerge from their ponds in summer or early fall to migrate back to the forest. Unlike many amphibians, adults have a high survival rate.

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Every year after the first spring rains in Amherst, Massachusetts, volunteer "bucket brigades" used to stop traffic along Henry Street to carry migrating salamanders safely across the road.

That is, until the animals could cross on their own through two underpasses.

Two-lane Henry Street separates salamanders from the warm, fishless vernal pools (small temporary ponds) where they migrate every spring to mate and to lay their eggs. "Local residents knew when the salamanders would head for the pools," says wildlife biologist and consultant Tom Tyning. "They knew the prime conditions for migration–sustained rain, the beginning of a thaw, and temperatures above 42 degrees."

Those who came out to watch the nighttime migration noticed salamanders killed on the road. When word spread about the animals' plight, the British Fauna and Floral Preservation Society and ACO Polymer in Germany provided funds for an experimental tunnel project on Henry Street. The Amherst Department of Public Works, University of Massachusetts, Massachusetts Audubon Society, Hitchcock Center for the Environment (a local conservation group), and local residents worked together to make it happen.

In 1987 two tunnels, 200 feet (61 m) apart, were built at the salamanders' crossing site, and short "drift fences" were constructed to guide migrating salamanders into the tunnels. Each tunnel had a slotted top to let in light and provide the damp conditions salamanders need.

To study the effectiveness of the project, volunteers caught salamanders as they approached the tunnels and marked each one with a colored paper dot representing the section of fence from which they had come. "We wanted to be sure the length of the fence didn't interfere with the salamanders' movement into the tunnels," says Scott Jackson, University of Massachusetts

AR 13553

amphibian and reptile expert. "If it did, the two tunnels would need to be closer."

Study results indicated that salamanders at fences farthest from the tunnels were just as successful in reaching the tunnels as those at fences closer to the entrances. The study also revealed that more than three quarters of the animals that reached the tunnels successfully used them to cross the road.

Jackson offers these tips to those who may be considering salamander tunnels in their communities:

- Design tunnels to accommodate specific site conditions.
- Avoid single-species designs.
- Know the biology of the target species.
- Locate tunnels close to the movement corridors of these species.
- Monitor the project and make appropriate adjustments.
- Share the results (positive and negative).

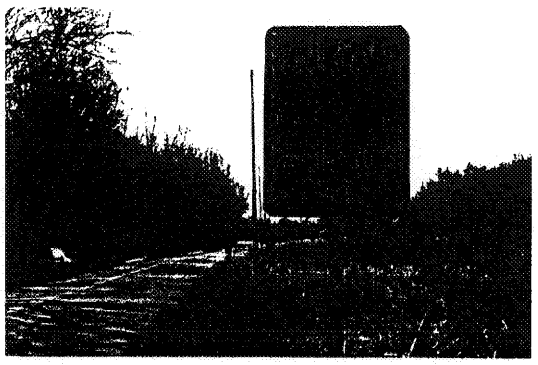
For more information, contact Scott Jackson at 413-545-4743 or sjackson@umext.umass.edu, or Tom Tyning at 413-442-2165 or ttyning@massaudubon.org



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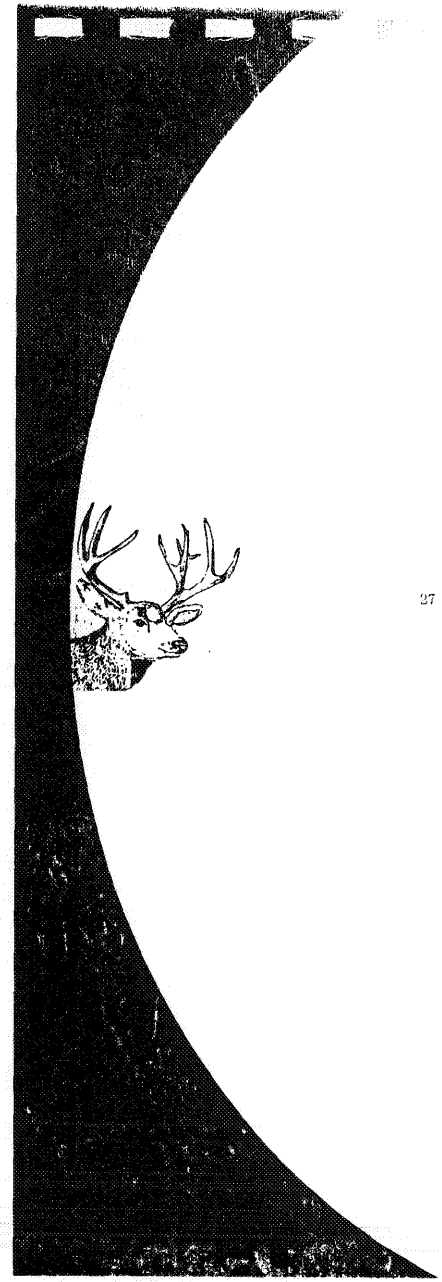
(Above) One night every spring, most of Amherst's migrating salamanders use these tunnels to get to vernal pools where they mate and lay their eggs.

(Below) A "Watch Out for Salamanders" sign identifies the location of the Henry Street tunnels and warns motorists to drive slowly.



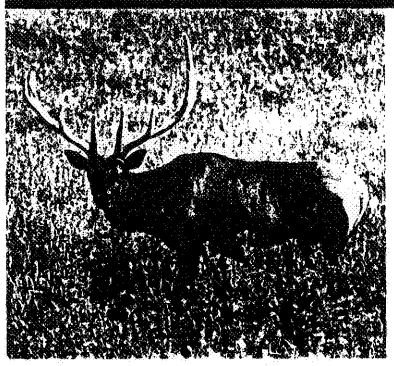
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AR 13554



Passages for Large Mammals

Alberta, Canada



27

Elk and grizzly bear are two species often seen in the project area. Elk are large deer with white tails, reddish-brown bodies, and large spreading antlers (which they shed every year). They're seen mostly in national parks, usually in groups of 25 or more. Elk feed on grasses, herbs, twigs, and bark. They migrate up mountains in the spring and return in the fall. Males have a high-pitched bugling call. Elk live 14-25 years. They use the Banff underpasses more often than any other species. The federally threatened grizzly bear is brown with white tips on its hairs giving it a frosted or "grizzly" look. Grizzlies weigh 325-850 pounds (1.5-3.9 kg). They live in high mountains and wilderness areas, where they hibernate in winter and where they sometimes use the same trails–even the same footprints–over and over. Grizzlies occur in low densities and have long lives, wide ranges, and low reproduction rates.

Each year, close to five million people travel the Trans-Canada Highway to visit Alberta's Banff National Park. In summer, at least 20,000 vehicles a day clog the road. Throughout the year, unending streams of traffic whiz up and down the high-speed commercial section between Calgary and Vancouver.

The Trans-Canada Highway cuts through the Bow River Valley and the habitats of elk, deer, moose, wolves, cougars, black bears, grizzly bears, and other species. So when 28 miles (45 km) of the highway (the section between Banff's east gate and Castle Junction) were widened, park and transportation officials joined forces to protect the corridor's wildlife. Parks Canada put up 8-foot-high (2.4-meter-high) fencing on both sides of the highway and built 22 underpasses—arched culverts, box culverts, and open-span bridges—and two 164-foot-wide (50-meter-wide) overpasses.

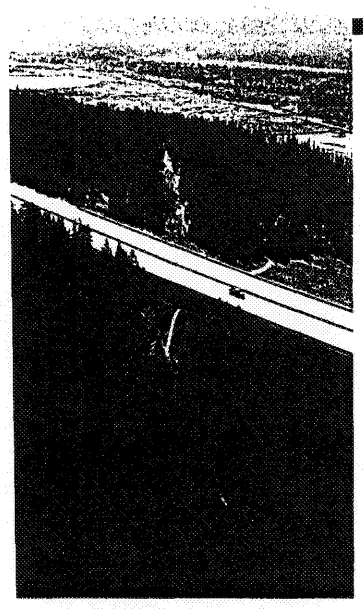


28

The result? The fence has cut ungulate (hooved animal) roadkill by 96 percent, and 35 months of monitoring animals' back-and-forth movement through the crossing structures has demonstrated that both ungulates and carnivores are using them.

Locating the underpasses and overpasses near the animals' natural travel corridors was crucial to the project's success. For carnivores, this meant placing the structures close to stream corridors or drainage areas. For ungulates, it involved doing the opposite–placing the structures far from carnivores (their predators) and with a clear view of the structures' entrance.

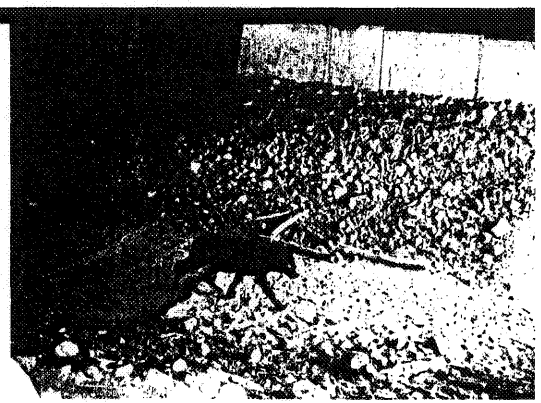
AR 13555



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(Left) The overpasses shown in this aerial view are 164 feet (50 m) wide. Together, the park's overpasses and underpasses have cut ungulate roadkill by 96 percent.

(Right) Wolves and female grizzly bears are more likely to use underpasses like these when there's no sign of human activity nearby. Parks Canada hopes that urging stricter limits on human activity near the crossing structures will increase the numbers of carnivores using them.



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So far, equal numbers of species are using the overpasses and the underpasses (especially open-span bridges), but Parks Canada biologist David Poll thinks overpass use will surpass underpass use over time. "Once the new vegetation has grown," he says, "the animals will no longer see the highway as they approach or travel on the overpass, and they'll be less bothered by traffic noise."

Despite the successes of the project, Parks Canada admits there's a lot more work to be done. For example, solutions must be found to preventing black bears and cougars from climbing over the fence. Parks Canada contractor Tony Clevenger has already begun exploring strategies ranging from eliminating the dandelions (a delicacy for black bears) on the highway side of the fence to placing additional wire mesh at a 90-degree angle on top of the fence. Parks Canada researchers are also urging stricter limits on human activity near the Banff crossing structures–a strategy they hope will increase the low numbers of large carnivores (especially wolves and female grizzlies) using the structures and a critical step to take as traffic continues to increase on the Trans-Canada Highway and more and more visitors come to the Park. "*Distance from humans* is the most important consideration in designing crossing structures for large carnivores," says Clevenger. "The further, the better."

For more information, contact Tony Clevenger at 403-760-1371 or tony_clevenger@pch.gc.ca

AR 13556



Goat Underpasses

Montana



Mountain goats are white and bearded, with long hair, black hooves, and short black horns that curve slightly backwards. They live on rocky crags at or above timberline, where they feed on high-mountain vegetation. Their home range is 3.6 miles (4.8-9.7 km). In the wild, mountain goats can live 12 years or more. They can be seen in the Black Hills of South Dakota and in 5 national parks: Glacier, Olympic, Mt. Rainier, Banff, and Jasper.

From April through August for the past 19 years, mountain goats in Glacier National Park have been using specially designed passages under U.S. Highway 2 to get to a natural salt lick along the banks of the Middle Fork of the Flathead River.

After a 1979 avalanche destroyed a section of U.S. 2 near the salt lick, the Montana Department of Transportation used FHWA funds to build a goat passage under a new highway bridge and to adapt an existing bridge for safe goat passage. Goats were kept off the highway with a wall downhill and a fence uphill.

Security for goats crossing under the bridges was enhanced by fastening metal screening to the bridge rail and by planting 40 conifer trees. Existing goat trails were obliterated and new trails leading to the underpasses were dug. Visitors were accommodated–and the risk of human interference minimized–with an off-road overlook away from the underpasses.

Before and during road and bridge construction, workers went out of their way to protect the mountain goats from disturbances. They delayed construction until early August 1980 and limited it to certain hours of the day. They located construction away from key crossing zones. They restricted speed limits and stopped all passing vehicles for crossing goats. They sequenced construction activities so goats could gradually adapt.

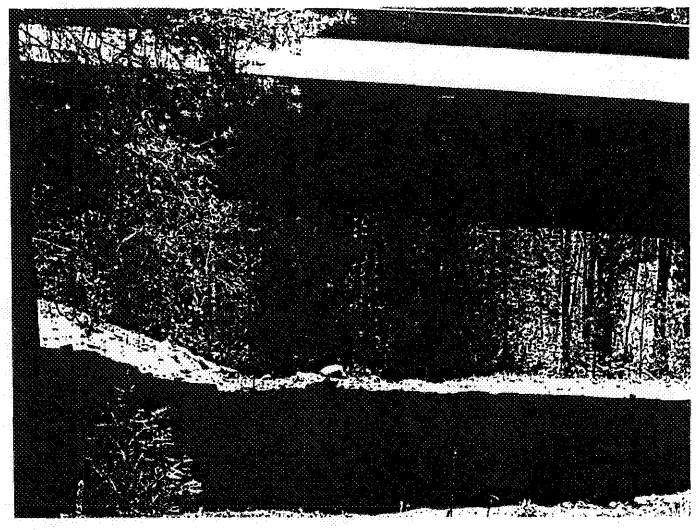
Their extra effort paid off. Within weeks of construction, only a few crossing goats moved around the ends of the fence to cross the highway, and the goats seldom hesitated or ran back at the bridges or when they encountered visitors. Less than half showed signs of fear (erect tails).

In the first year, 99.4 percent of the crossing goats used the underpasses, and the number of individual lick visits doubled. Some goats even extended their visits to the lick into fall and winter. By 1984 *all* of the crossing goats used the underpasses.

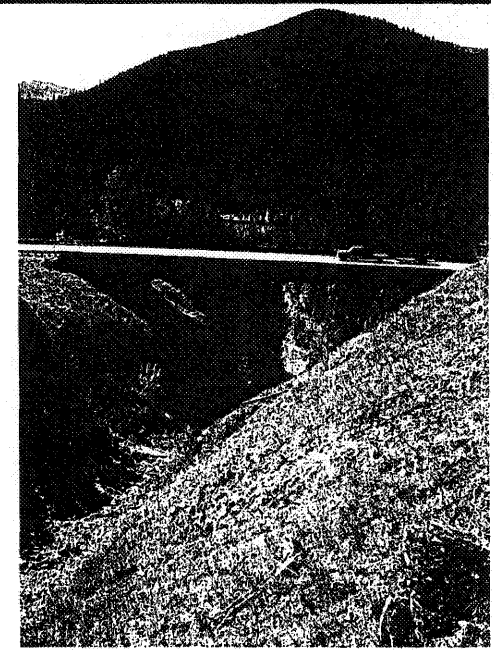
AR 13557

Today, nearly 20 years after project completion, mountain goats continue to use the underpasses to cross U.S. 2 and enter the path to the salt lick.

For more information contact Mark Traxler at 406-444-6257 or mtraxler@state.mt.us, or Gerald Wright at 208-885-7990 or gwright@uidaho.edu

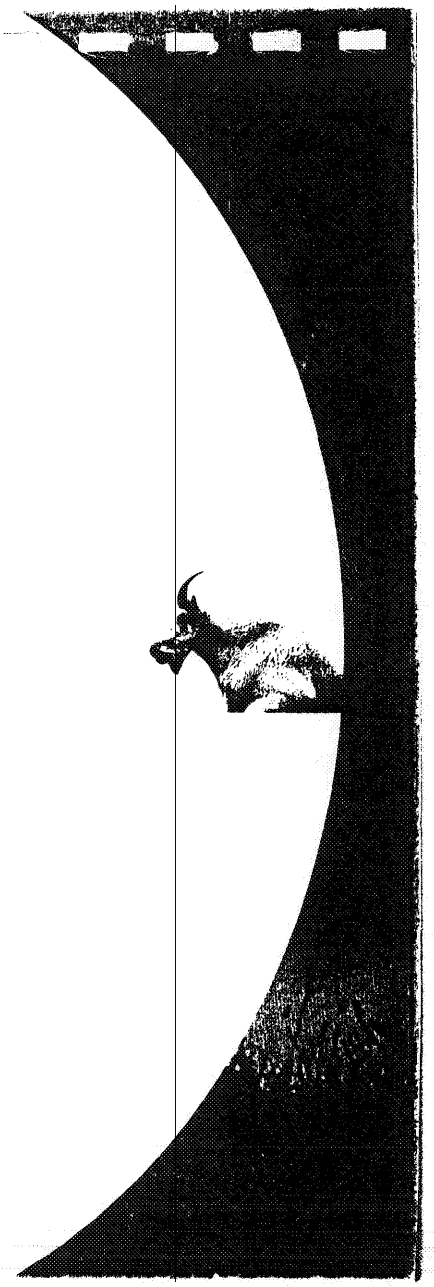


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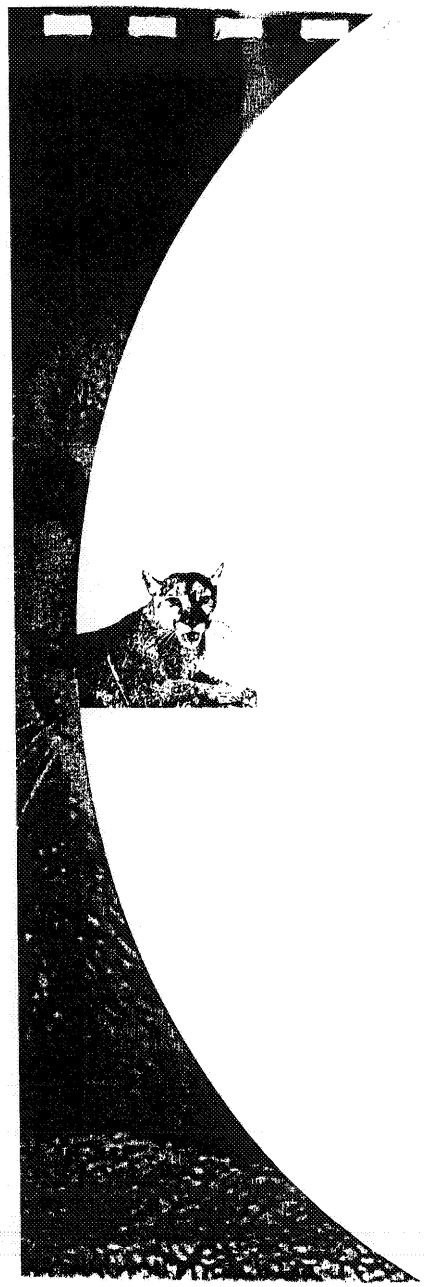


33

Mountain goats used to cross U.S. 2 to get to a salt lick on the other side of the canyon. Now they can get there on rocky passageways underneath these bridges, shielded from view by tree cover and the steep hillside.

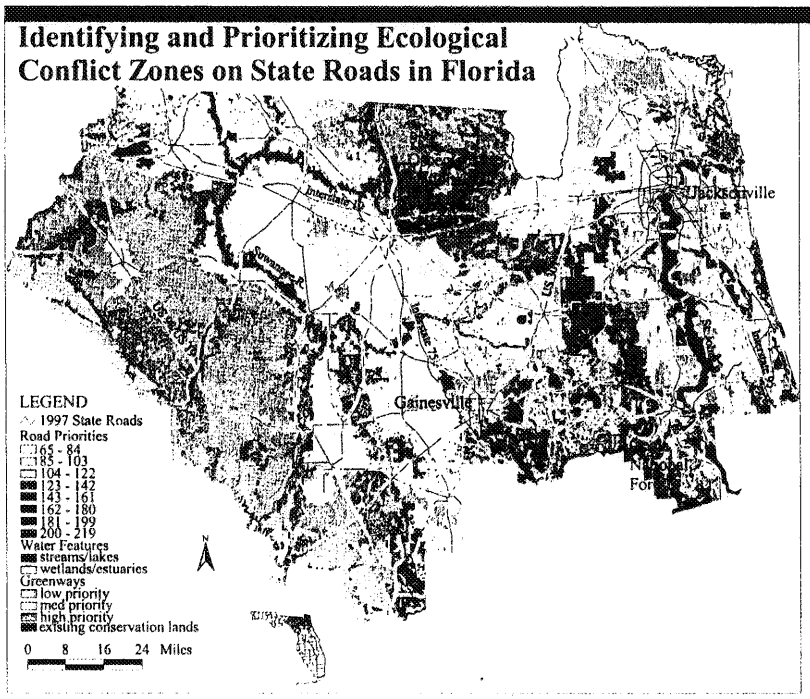


AR 13558



A Computer Model for Exploring Highway-Wildlife Relationships

Florida



State roads in Florida were prioritized according to overall environmental impact. This map displays the results of the analysis for northeast Florida. The areas shown here in red represent those road segments that ranked high in the road prioritization analysis. Primary criteria influencing high rankings included chronic roadkill sites, biodiversity hot spots, riparian systems, greenway linkages, and rare habitat types.

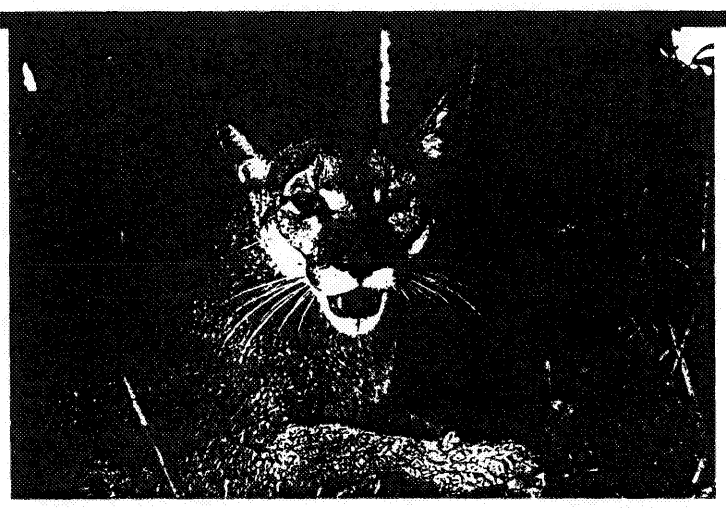
What guidelines can transportation planners use to identify future wildlife crossings? How will they prioritize these projects? How can wildlife conservation be integrated with other environmental initiatives to make the best use of limited resources?

Researchers in the University of Florida's Landscape Ecology Program have devised a solution. They have developed a Geographic Information System (GIS) computer model that captures, manipulates, displays, and combines spatial information such as hydrology, land use, species distribution, and existing roads and greenways.

The statewide, geographically referenced planning tool has arrived at a critical time. Close to 48.7 million tourists visited Florida last year–43 percent arriving by car–and 700 people a day move into the state. As Florida's population continues to grow, so does the demand for more roads.

The GIS model will help FDOT integrate the need to improve transportation with the need to counteract increasing habitat fragmentation by roads. Transportation planners

AR 13559



Underpasses on "Alligator Alley" (I-75) have been highly successful in preventing roadkill of the federally endangered Florida panther.

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can use it to identify and prioritize roadkill "hot spots"–habitat corridors where wildlife-vehicle collisions are likely to occur. They can then adapt existing crossing structures or build new ones (like the highly-successful underpasses on I-75–"Alligator Alley"–designed for the federally endangered Florida panther).

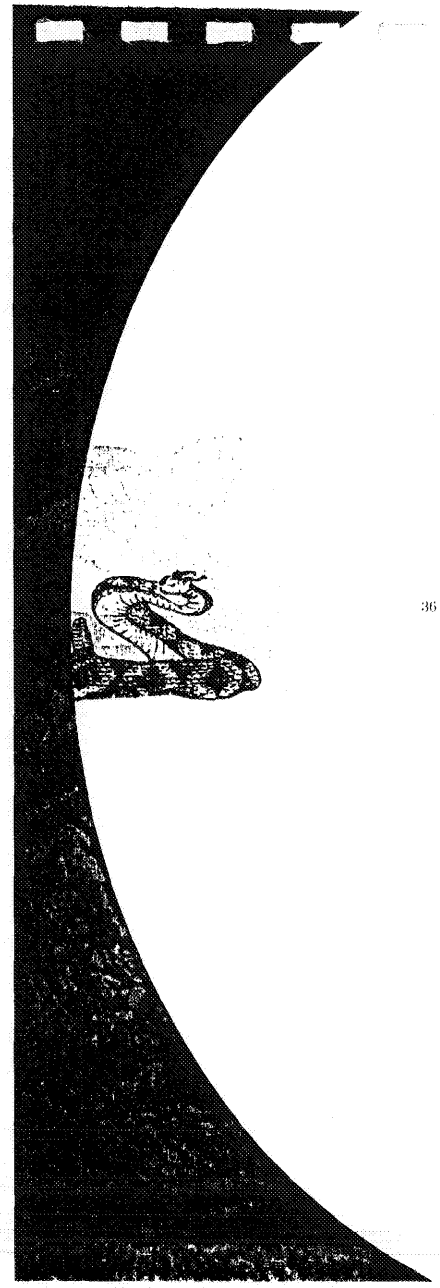
The project began with a survey of transportation and wildlife experts, who evaluated and ranked criteria for prioritizing projects aimed at reducing roadkills and restoring ecological linkages. Individual criteria corresponded to relevant spatial "datasets." For example, "chronic roadkill sites," ranked #1 by survey respondents, corresponded to data on known roadkill locations for Florida panther and Florida black bear and roadkill data for state and federal parks and preserves.

The project identified 72 "priority one" road segments and hundreds of lower-priority segments. It also named the highest-priority roads in each of Florida's seven districts–for example, State Route 29 and U.S. 41 in the Everglades–and noted the contributing criteria for each.

University researchers are conducting field studies to evaluate the context and condition of any existing crossing structures on prioritized segments. They've identified hundreds of structures so far, many of which only need minor adaptations like directional fencing and vegetative screens to enable wildlife to move safely across highways.

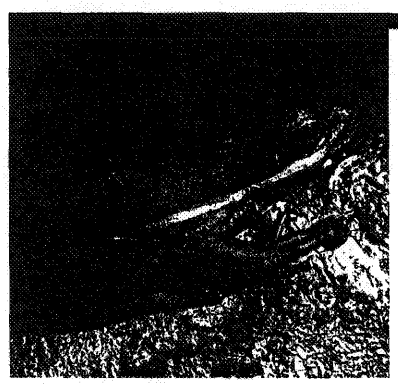
For more information, contact Dan Smith at 352-846-0559 or djs@ufl.edu

AR 13560



Amphibian-Reptile Wall and Culverts

Florida

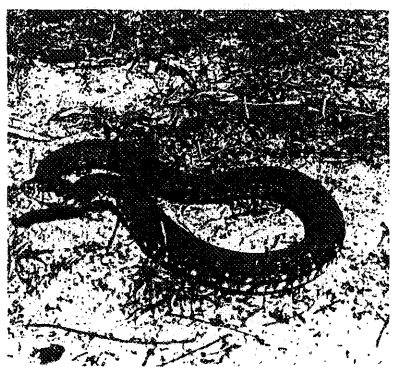


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The green treefrog (left), spotted leopard frog (right), and Florida banded water snake (lower center) are three of the most frequently killed species on U.S. 441. The Florida banded water snake lives in gator holes. It's a fish-eater and harmless to humans. The tiny, brightly colored green treefrog is sometimes called the "rain frog" because it tends to call only during humid weather, and the chuckling calls of a chorus of spotted leopard frogs make it sound as if the whole swamp is laughing.



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A short stretch of U.S. 441 in central Florida has more documented roadkills than any other road segment in the state.

Thousands of animals from more than 80 species are killed every year on the nearly 2-mile (3.2-km) section that crosses Paynes Prairie State Preserve just outside Gainesville. Most are frogs, turtles, and snakes attempting to cross the road to mate and to forage for food.

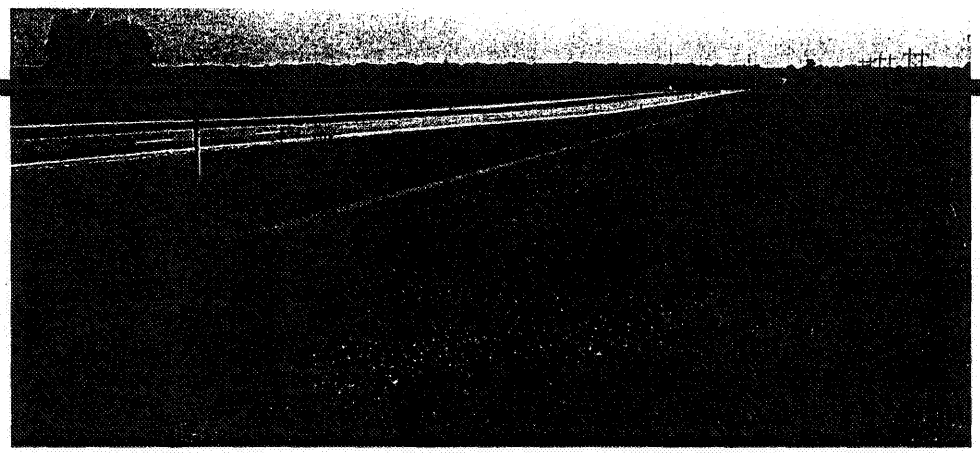
In 1997 a multi-disciplinary "Paynes Prairie Working Group" representing state transportation and natural resource agencies, environmental groups, and the University of Florida met to brainstorm ways to curb the death toll and help animals resume their natural movement patterns.

The group came up with an innovative strategy: a 3 1/2-foot-high (1.1-meter-high) concrete wall that will divert animals to eight highway underpasses.

The wall's distinguishing feature–a 6-inch (15.2-cm) "lip" at the top–is characteristic of walls in zoo serpentariums. Snakes, frogs, alligators, and other animals that manage to scale the smooth vertical surface of the wall will be stopped by the lip. "At that point, the force of gravity will take over," says Jim Weimer, park biologist at the Paynes Prairie State Preserve. "It will force the animals to lean backwards. Their own body weight will then flip them upside down and off the wall."

"Even large alligators will be deterred," says Pete Southall, a Florida Department of Transportation (FDOT) biologist. Southall admits that rat snakes and other habituated climbers

AR 13561



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may occasionally scale the wall, but he says there are few such species in the area.

Southall thinks the new wall will not only benefit Paynes Prairie animals that *climb* but also those that *jump*—for example, bobcats. "When bobcats reach the wall, they'll most likely behave as they do when they encounter a similar barrier along the highway," he says. "Instead of trying to jump over the fence, they typically move along it to the culvert opening."

FDOT began construction in December 1999. The wall will extend along 1.8 miles (2.9 km) of highway and connect with four new pipe culverts which will be spaced between four existing culverts.

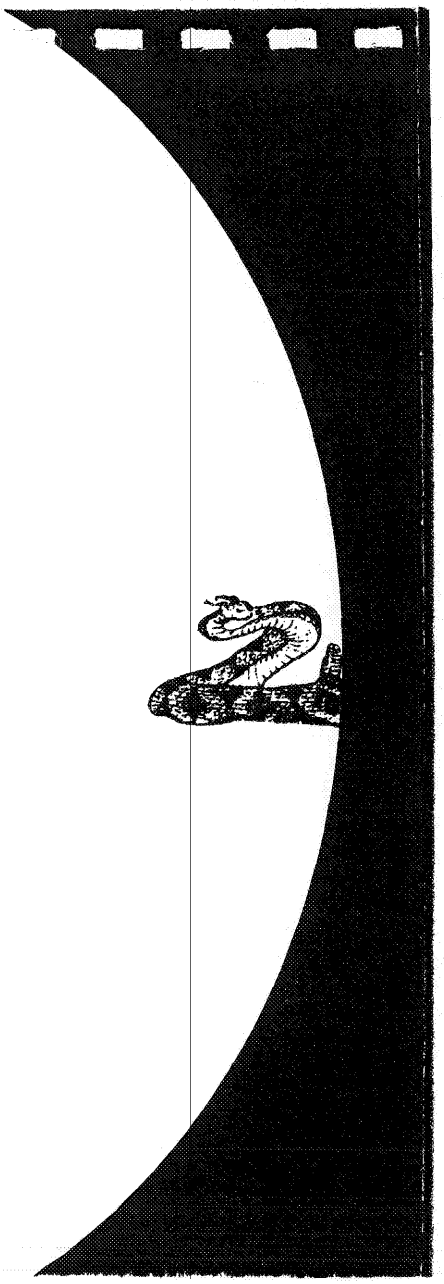
If the U.S. 441 project is successful, it will become the model for the rest of the state–and for the nation.

For more information, contact Pete Southall at 904-758-3725 or peter.southall@dot.state.fl.us

Amphibians and reptiles that manage to scale the vertical surface of this wall will be stopped by a "lip" at its top.



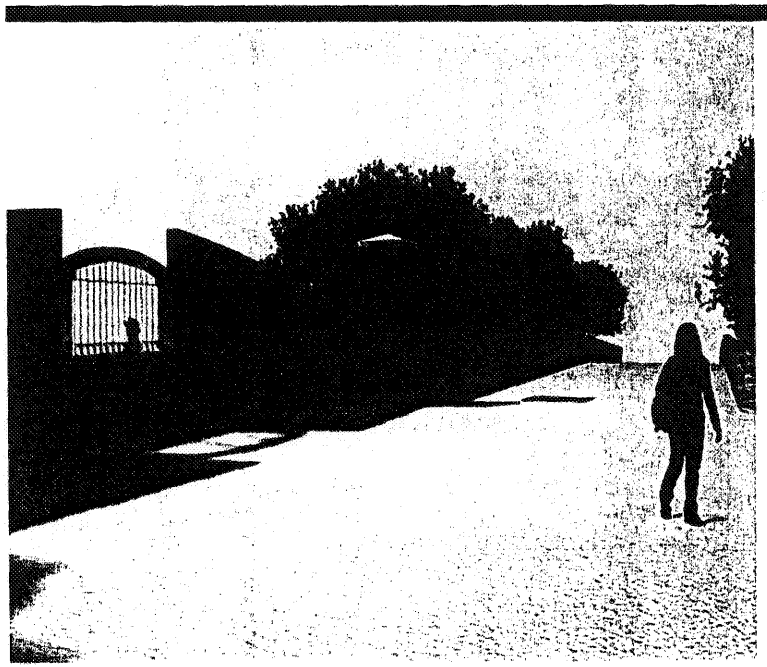
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AR 13562

An Overpass for Animals and Humans

Florida



The bridge's vegetative cover shown in this rendering [left] and computer simulation [next page] will protect wildlife from traffic noise and vehicle headlight-glare when they cross over the bridge at night.

41

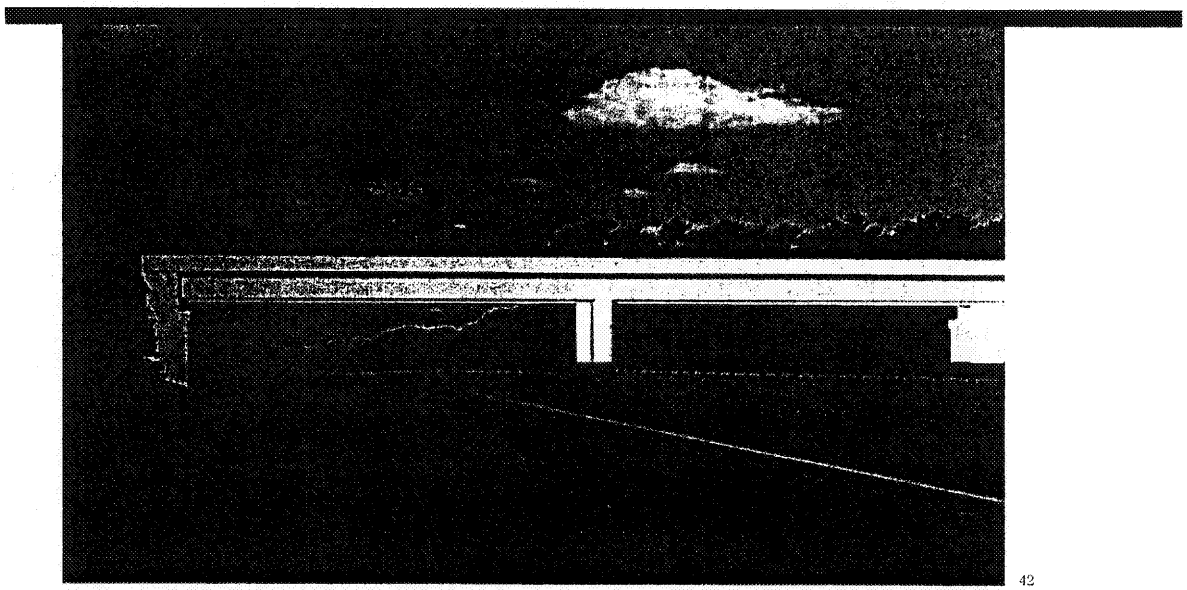
The first-ever "land bridge" in the United States will serve animals by night, humans by day.

This unique 52.5-foot-wide (16-meter-wide) overpass, scheduled to be completed by summer 2000, will lie inside a strip of the Marjorie Harris Carr Cross-Florida Greenway that crosses I-75 just north of County Road 484 in Marion County. Years ago the interstate split the greenway, which stretched across the state, into two halves. Both sides will now be rejoined, thanks to the overpass.

Deer, foxes, coyotes, possums, and other small- to medium-sized mammals will cross the highway through native vegetation and on the sandy soil they're used to. Hikers, cyclists, and horseback riders will enjoy an uninterrupted tour of the greenway.

The approximately 50,000 drivers a day who approach the I-75 overpass are in for a pleasant surprise. They'll see a bridge topped with rows of trees and supported by graceful "U" beams. "The U beams look better than the traditional I-shaped beams," says Mariano Berrios, Florida Department of Transportation project manager, "and they'll allow us to build a longer span."

AR 13563



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The land bridge concept is based on the wildlife overpasses used in the Netherlands and referred to as "ecoducts."

Among the bridge's innovative features are a built-in irrigation system, 18-foot (5.5-m) planters along both sides, a 16-foot-wide (5-meter-wide) trail for bicyclists, pedestrians, and horseback riders, and even an oval "passing area" in the center for horse-and-buggy carriages.

Construction activities will take place mostly on the Interstate–not on greenway trails–so the movements of local wildlife won't be disrupted. Once the bridge is completed, the wildlife that use it at night will not be deterred by humans' use of it during the day, according to Dave Bowman, wildlife biologist at Florida's Department of Environmental Protection (the agency that owns the land and that will maintain the bridge's vegetation). "When animals want to cross the highway, they'll do it," he says.

For more information, contact Mariano Berrios, 850-922-7221 or mariano.berrios@dot.state.fl.us

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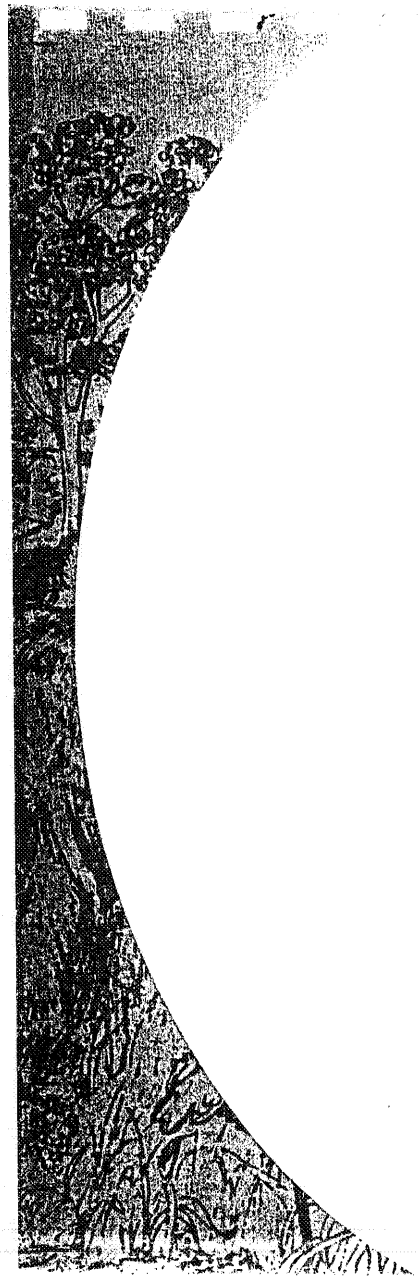


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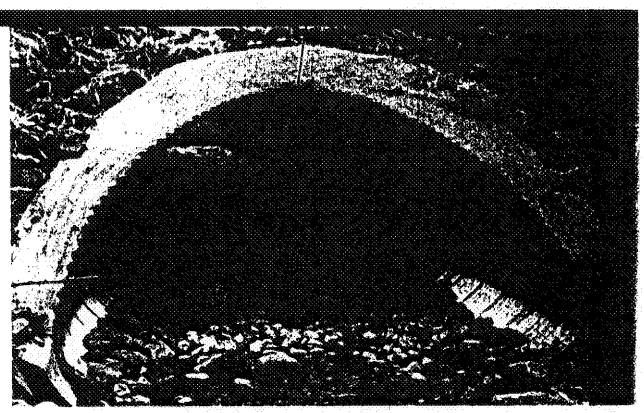
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Wildlife and Highways: An Overview
3. U.S. Forest Service
4. Chuck Bartlebaugh
5. Washington Department of Fish and Wildlife
6. Scott Jackson

Tortoise Underpasses
7. William Boarman
8. William Boarman

Badger Tunnels
9. U.S. Fish and Wildlife Service
10. Ministry of Transport, Public Works and Water Management
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4 Tools to Assess Wildlife Linkage Areas
12. Jeffrey C. Lewis
13. John Applegarth



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14. I-90 Snoqualmie Pass Wildlife Habitat Linkage Assessment
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Programs to Remove Fish Passage Barriers
16. Washington Department of Fish and Wildlife
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Bear Underpasses
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Passages for Large Mammals
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30. Tony Clevenger

Goat Underpasses
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33. Chris Peterson

A Computer Model...
34. Daniel J. Smith
35. U.S. Fish and Wildlife Service

Amphibian-Reptile Wall & Culverts
36. Liz Domingue
37. Liz Domingue
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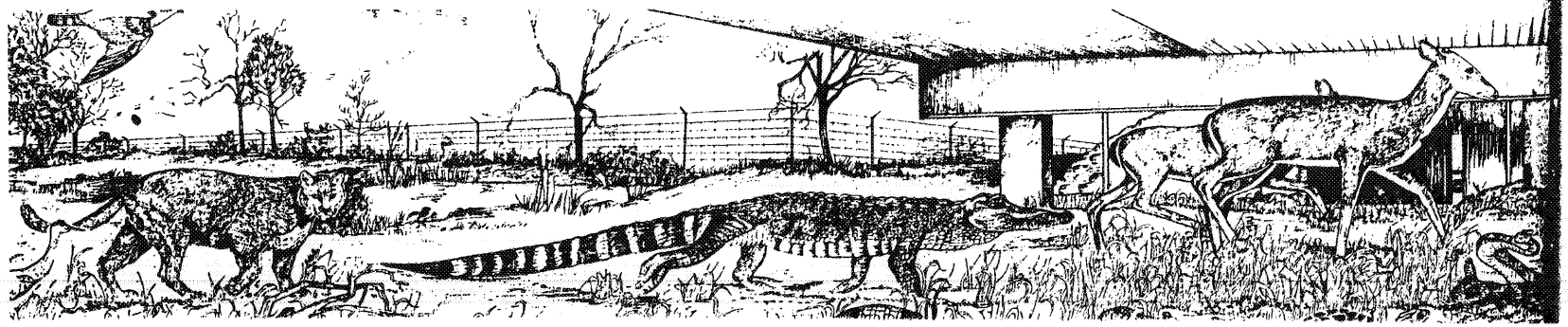
AR 13566

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For More Information...

For more information on *Critter Crossings: Linking Habitats and Reducing Roadkill*, write to us at our e-mail address: environment@fhwa.dot.gov. Or send your questions to our mailing address: Federal Highway Administration (HEPN), 400 Seventh St., S.W., Washington, D.C. 20590.

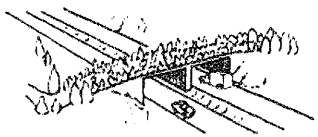
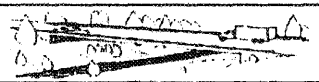
For an on-line version of the brochure, plus links to related Web sites, please refer to www.fhwa.dot.gov/environment.



http://www.wildlifecrossings.info/printall4.htm

Common Types of Wildlife Crossing Structures

www.wildlifecrossings.info

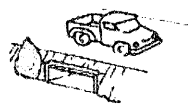
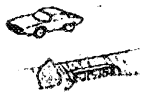
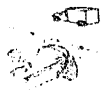
Category	Definition	Shape	Typical Material
Wildlife crosses *OVER* the traffic.			
Wildlife Overcrossing	A grade separation structure designed to allow wildlife to cross over an intersecting roadway. It is usually covered with vegetation. Also called *ecoduct, wildlife bridge, green bridge, biobridge,* or *wildlife overpass.* The largest overcrossings may be called *landscape connectors.*		
Tunnel	The roadway bores through a substantial amount of earth, allowing undisturbed vegetation and soil on top.		
Wildlife crosses *UNDER* the traffic.			
Wildlife Under pass: ***Bridge***	Animals pass under an intersecting roadway through a bridge. A bridge forms part of the roadway and is usually at least 20' long.		
Single span bridge	The structure rests on abutments with no intermediate support columns. Also called *open span bridge.*		
Multiple span bridge	One or more intermediate support columns between abutments.		
Viaduct	Long, multiple-span bridge		
Causeway	Same as viaduct, only often over wetlands.		

Summary of Structure Types

AR 13568

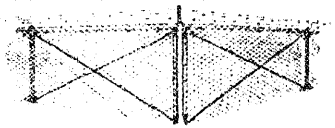
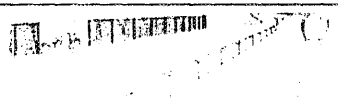
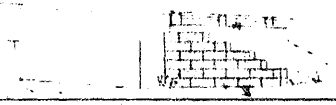
Common Types of Wildlife Crossing Structures

www.wildlifecrossings.info

Category	Definition	Shape	Typical Material
Wildlife crosses *UNDER* the traffic.			
Wildlife Underpass: ***Culvert***	Animals pass under an intersecting roadway through a culvert. A culvert is a conduit covered with embankment around the entire perimeter. It may or may not convey water. Small conduits for amphibians are sometimes called *tunnels*.		
Box Culvert	Culvert has four sides, including bottom. Sometimes square or rectangular corrugated metal pipe culverts without bottoms are called box culverts, but in this toolkit they are referred to as bottomless culverts. Box culverts maybe be arranged in a horizontal series of small culverts to form multiple chambers.	 Square or Rectangular  Multiple Chamber	Precast concrete cast-in-place concrete wood
Culvert (Continuous)	Culvert is continuous in circumference. The lower portion may or may not be buried. Sometimes simply called *pipe*. European badger culverts are sometimes called *ecopipes*. Slotted drain culverts are continuous except for a break in the upper portion.	 Slotted Drain  Circular  Pipe-Arch  Elliptical (Squash Pipe)	Corrugated metal pipe Metal plate Cast-in-place concrete Precast concrete Wood
Bottomless Culvert	Culvert is discontinuous in circumference with rounded or square top and natural surface bottom. Also called *open-bottom culvert*.	 Square or Rectangular  Arch (low Profile)  Arch (high profile)	Corrugated metal pipe Metal plate Precast concrete Cast-in-place concrete Wood

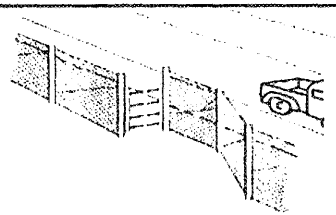
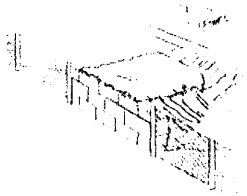
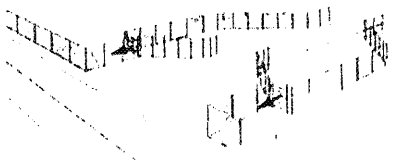
Common Types of Wildlife Crossing Structures

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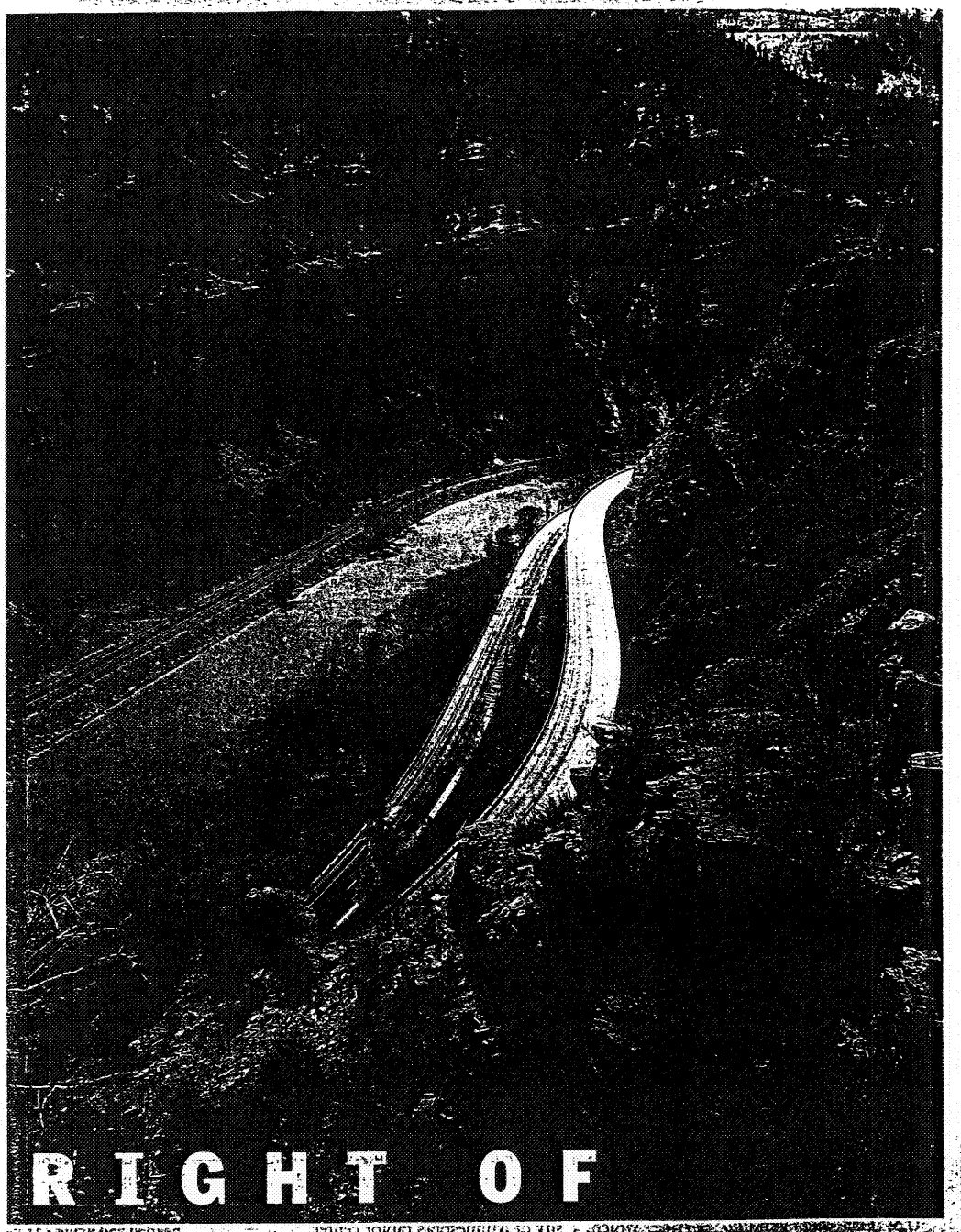
Category	Definition	Shape	Typical Material
Barrier	Structures designed to stop movement in a given direction.		
Fence	A barrier or diversion structure usually with some type of material between support structures. Often defined by the material between the support structures. Diversion fences are sometimes called *drift* or *guide* fences.		Wire Barbed wire Woven wire Chain link Rail Plastic mesh
Electric	Electrified strands that give grounded organisms a shock when touched. Shock is typically intense, but not physiologically damaging.		Braided Rope High-tensile wire
Jersey Barrier	Structures used primarily to affect vehicles direction. Solid or solid with openings.		Concrete
Wall	Solid wall		Concrete Brick Wood
Sound Wall	A solid wall used for absorbing or deflecting sound produced from the highway.		Brick Wood Concrete Sheet Piling
In-roadway Barrier	Support structures for vehicles built over a pit and used to prevent wildlife access across a break in fencing or other barrier. Similar to a cattle guard, but designed for wildlife. Also called *deer guard*.		

Common Types of Wildlife Crossing Structures

www.wildlifecrossings.info

Category	Definition	Shape	Typical Material
Escape Structure	Atructure designed to allow an animal trapped on the roadway by a diversion fence to exit. They allow passage in only ce direction to make it easy to escape the roadway, but difficult to enter it.		
One-way Gate	Aate designed to allow passage for the esign species in only one direction.		
Ramp			
Funnel Fence			

Drawn by: [illegible]



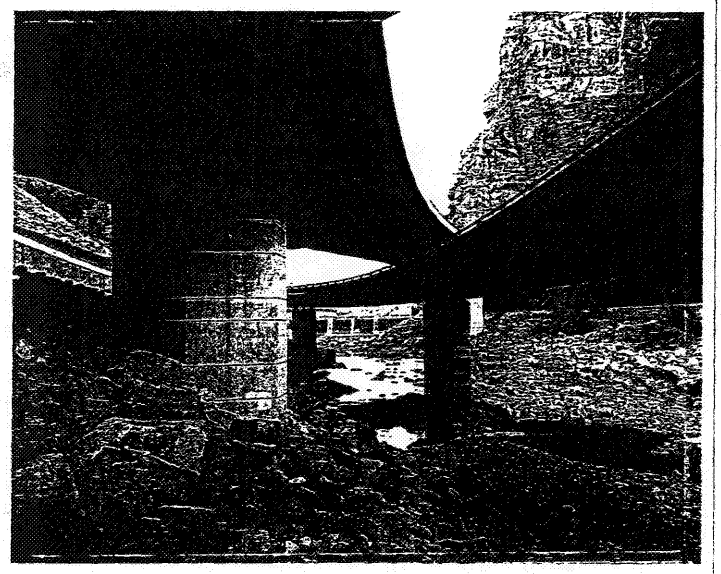
RIGHT OF

Every year, all kinds of wildlife, including many endangered species, are killed crossing America's highways. Now biologists and land planners are teaming up to design ecofriendly roads that animals can traverse without having to risk life and limb. BY PETER CHIESON

PHOTOGRAPHY BY KEN REDDING

NINETEEN FEET OF SNOW FELL ON NORTHERN IDAHO IN THE winter of 1996, resulting in an unusual slaughter of wildlife. Heavy snows in an area known as the McArthur Lake wildlife corridor forced deer, elk, and moose down from the mountains and onto U.S. Route 95. Although the animals managed to cross the two-foot snowbanks without much problem, when they reached the icy road they became disoriented and vulnerable. Forest Service and Idaho Transportation Department officials estimate that at least 200 deer, along with a handful of moose and elk, died after being hit by cars. As Forest Service biologist Sandra Jacobson says, "They tend to concentrate in the lower elevations... the deeper the snow, the lower they try to range. The death rates show that this is winter range."

(cuttingedge)



Reconstruction on this elevated stretch of Colorado's Interstate 70 (opposite) preserves Glenwood Canyon's geology and habitat while also keeping on-the-move wildlife off the roads (above).

After nearly four years of talks, Jacobson has convinced Idaho highway engineers to include three wildlife underpasses in phase one of a 17-mile reconstruction project in another section on the northernmost stretch of Route 95. The concrete underpasses—13 feet high, 23 feet wide, and 80 feet long—cost $400,000 apiece, not including fencing to keep the animals off the road and to guide them to the structures. Jacobson, who worked on wildlife and transportation issues for the national forests in the Idaho panhandle (she now keeps an eye on the Route 95 project from her new job as a biologist with the Forest Service Pacific Southwest Research Station in Arcata, California), expects that "punching holes" in Route 95 will make it safer for both wildlife and drivers.

Don Davis, an engineer and leader of the highway project, expects work to begin this summer. He concedes that road designers have long been guilty of laying down asphalt with no consideration for beings other than humans. But now, he says, engineers are under more pressure from federal agencies like the U.S. Forest Service to change their ways. "We need to show more sensitivity to the surrounding area rather than having a sterile highway going down the middle," Davis says.

Every year, collisions with deer alone cause millions of dollars in vehicle damage and 12,000 human injuries nationwide, according to the American Automobile Association. The impact on wildlife is, if anything, harsher. The nation's 4 million miles of roads fragment habitat and threaten species. For example, roads have helped reduce the population of the ocelot, an extremely endangered cat native to the Southwest, to 80 individuals. Roads have devastated amphibian populations and the wetlands where they live, including most of the habitat of California's red-legged frog.

Wildlife crossings have proven successful in Europe, where the loss of wildlife and habitat is a centuries-old issue. Europeans have been trying to protect animals from roads since the 1950s, and they are now sharing what they've learned with U.S. biologists and engineers. Richard Foreman, a landscape ecologist at Harvard University, says the country needs a broad national policy covering roads and the environment. "The overall goal of transportation is safe and efficient mobility, and the secondary goal is to minimize the environmental devastation," he says. "[The United States] has done the first brilliantly and the second very poorly."

Since the early 1980s hundreds of millions of state and federal dollars have gone into improving roads for wildlife, but in piecemeal fashion, with no broad policy to define how and where to spend the money. The Federal Highway Administration (FHWA) doesn't track the spending or the number of undertakings, although officials say that at least 15 current road projects around the country include wildlife protection in their designs.

One of the biggest projects to be completed was the $498 million reconstruction of Interstate 70 through Colorado's Glenwood Canyon, along the Colorado River. This 12-mile stretch of

PETER CHILSON *teaches creative writing at Washington State University. He has written for* The American Scholar *and* North American Review.

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Many consider Holland a model for what the United States should do to protect wildlife and habitat from roads. In the 1980s Dutch legislators required the Ministry of Transport to map all large green areas, to reveal where roads posed the greatest threats.

road had been two lanes of tortuous and dangerous driving, but in 1984 work began on a terraced four-lane structure, the westbound lanes above the eastbound lanes in a system of 40 bridges and viaducts. The aim was to build a wider and safer road while preserving the canyon's geology and riparian habitat. Guardrails were designed so that the natural slopes reached their tops, creating a dropoff that kept bighorn sheep and other ungulates off the road. The native sheep had been evacuated from the canyon in the early 1970s to save them from death on the highway, but once the road was rebuilt, in 1992, the state approved their return.

Most wildlife-crossing structures, however, were actually built for some other purpose. In California's San Bernardino County, for example, biologists discovered that certain desert tortoises were profiting from stormwater culverts. From 1994 to 1999 the biologists outfitted 200 desert tortoises—a threatened species in California—with microchip tracking devices to study their movements along state Route 58. A dozen of the creatures were dying each year, imperiling a species with a long lifespan—20 to 25 years—but a low reproductive rate. The researchers found that some tortoises were crossing through culverts beneath the highway, a journey that averaged seven hours. So the state put up fences to keep the tortoises off the road and guide them to the culverts. Tortoise deaths on the highway fell by 93 percent over four years, says William Boarman, the U.S. Geological Survey biologist who led the study. "That's a reduced mortality just because of fencing."

Thousands of wildlife crossings now exist in the United States, from culverts to bridges and elevated roadways. Besides desert tortoises in California, they protect mountain goats in Montana, spotted salamanders in Massachusetts, steelhead trout in Oregon, bighorn sheep in Colorado, and panthers in Florida. In western Montana, plans to rebuild a 55-mile section of U.S. Route 93 include 42 crossing structures, such as culverts for ungulates, a wildlife overpass, and nearly 15 miles of fencing to keep the animals off the road surface. Work on the $125 million project will begin next year.

(cuttingedge)

MANY BIOLOGISTS ARE LESS concerned with wildlife dying on highways than with how roads chew up habitat and isolate species. Terry Gilbert, a biologist with the Florida Fish and Wildlife Conservation Commission, has helped put in about a dozen crossing structures for Florida panthers and black bears. Still, he says, the structures can't work unless the roadside habitat is also protected. "If you expand a road and its capacity to carry people," says Gilbert, "you create an excellent climate for commercial development and you essentially fragment that habitat. [In Florida] we're trying to acquire large blocks of habitat to create large contiguous core areas."

A clutter of commercial and residential development is just the challenge Sandra Jacobson faced with Idaho's McArthur Lake corridor, a glacial plain between the Selkirk Mountains to the west and the Cabinet Mountains to the east. The pale asphalt of Route 95 runs north to south like a dirty shoelace through this flat, open land—a natural travel path for black bears, deer, elk, and moose moving between mountain habitats. Unfortunately, the animals share the corridor with 4,600 cars and trucks daily. To further complicate matters, wildlife must also contend with 40 trains a day, since the corridor also contains the Union Pacific and Burlington Northern Santa Fe railways. Private land—full of roads, driveways, fencing, cars, and buildings—extends a mile or more on either side of the highway before bumping up against national forest land.

For years Jacobson had been pushing for the construction of three underpasses on this 11-mile section of highway. Just before she transferred to California last summer, Jacobson's lobbying for road improvements in the corridor began to pay off. She secured a $300,000 FHWA grant to build a wildlife underpass on Route 95 near the McArthur Lake corridor. The Forest Service is now working with businesses along the road, and with state agencies and environmental groups—including the Kootenai Tribe of Idaho, the Idaho Department of Fish and Game, and American Wildlands—to gather information about heavily traveled animal crossings. Meanwhile, the Idaho Transportation Department has announced it will straighten out a long, dangerous curve near the lake where vehicle-wildlife collisions are especially common.

Tom Perlic, regional representative for American Wildlands, has high hopes for road improvements in the McArthur Lake corridor. "This is a chance for a bunch of groups to sit down and try to manage an area and do some

WHAT YOU CAN DO

For more information on Federal Highway Administration (FHWA) activities and on workshops about roads and wildlife, visit the web site of the International Conference on Ecology and Transportation (www.itre.ncsu.edu/cte/ICOET/ICOET2001.html). Also visit the FHWA's "Critter Crossings" web site, at www.fhwa.dot.gov/environment/wildlifecrossings/. Additionally, Sandra Jacobson has spearheaded the design of www.wildlifecrossings.info/, a Forest Service web site that monitors the effectiveness of wildlife-protection efforts on highways across the country. To learn about additional studies on roads and wildlife and about restoration practices, read Richard Forman's *Road Ecology* (Island Press, 2002).

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good. That bodes well for the future."

Still, no one can be sure how a particular animal population will react to a wildlife crossing. The best biologists can do, Jacobson concedes, is to study travel corridors and make predictions.

Some studies show that it takes years for animals to adjust to using crossing structures. In the 1980s, 11 underpasses were built on the Trans-Canada Highway through Banff National Park. Park wardens had confirmed that elk and deer used the underpasses, but it wasn't until a research team began a monitoring effort in the fall of 1996 that large carnivores such as gray wolves, cougars, and black and grizzly bears were documented making use of the crossings.

"It takes four years or longer for individuals to adapt," says Parks Canada's Tony Clevenger, the lead biologist on the long-term study of the Banff project. He and his team found that since the first underpasses were built and new fencing was added in 1997 (there are now 24 structures), roadkill has dropped 80 percent.

Nonetheless, poor understanding of animal behavior dooms some projects. "A lot of problems stem from sticking a small culvert in a road and hoping for the best," says Bill Ruediger, a Forest Service ecologist and an authority on transportation ecology. There are too many unknowns about animal behavior, he adds, which means that trial and error must be part of planning for crossing structures.

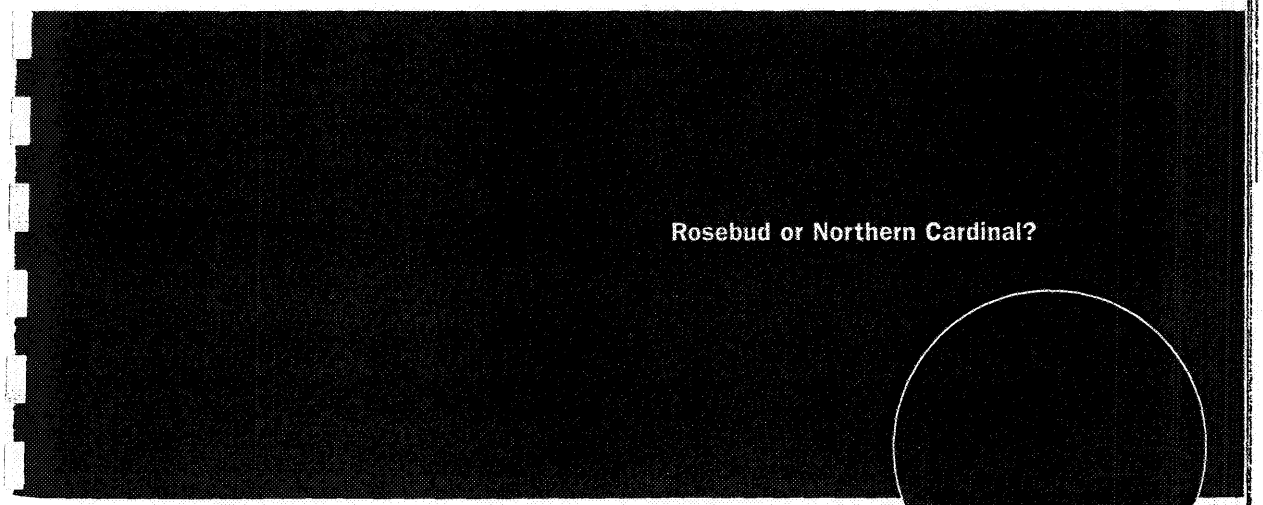
RICHARD FOREMAN, THE Harvard landscape ecologist, points to Holland as a model for what the United States should do to protect wildlife and habitat from roads. In the 1980s the Dutch parliament required the Ministry of Transport to map the national ecological network, including all large green areas, to reveal where roads posed the greatest threats to wildlife.

But Holland is roughly the size of Massachusetts, with less than 100,000 miles of roads. The United States, by contrast, has a vastly more complex ecology and transport system. The FHWA's Fred Bank, an ecologist, says the country is slowly moving toward the Dutch model. Bank is part of an FHWA team holding workshops around the country to show state and local officials how to use federal aid to benefit wildlife. The agency is also funding a National Academy of Sciences study on the impact of highways on ecosystems.

"That's how a policy is going to happen," says Bank, "by education, encouragement, and sharing the benefits."

Meanwhile, in Idaho, Tom Perlic has picked up Jacobson's work of building the case for more underpasses through the McArthur Lake corridor. With Jacobson's help, he has assembled volunteers and road-maintenance workers to monitor and count roadkill, and both Jacobson and Perlic are looking for project money from government and private sources.

"What we really need," Jacobson says, "is something akin to the interstate highway system—a highway system for critters."



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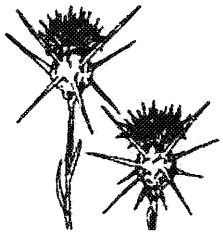
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County of El Dorado Department of Agriculture
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Placerville, CA 95667
(530) 621-5520
FAX (530) 626-4756



MEMORANDUM OF UNDERSTANDING

El Dorado County Noxious Weeds Management Group
Prevention of Noxious Weeds Exclusion, Detection, Eradication and Suppression of Noxious Weeds

I. AUTHORITY

This Memorandum of Understanding is made and entered into by El Dorado County Department of Agriculture, El Dorado County U.C. Cooperative Extension, U.S. Forest Service Eldorado National Forest, California Native Plant Society, El Dorado County Resource Conservation District, Georgetown Divide Resource Conservation District, USDA Natural Resources Conservation Service, El Dorado County Department of Transportation, Amador-El Dorado-Sacramento Cattlemen's Association, Sierra Pacific Industries, El Dorado County Board of Supervisors, California Department of Fish and Game, California Department of Food and Agriculture, Sierra Consulting, California Department of Transportation, Placerville Pest Control Center, El Dorado County Farm Bureau, Bureau of Land Management, High Sierra Resource Conservation and Development Council and California Department of Forestry and Fire Protection, hereinafter referred to as Principal Parties, Parties or Party.

II. PURPOSE

The purpose of this Memorandum of Understanding is to establish a Noxious Weed Management Area within the boundaries of El Dorado County to be known as the El Dorado County Noxious Weeds Management Group and define the terms and conditions under which the El Dorado County Noxious Weeds Management Group will cooperate and coordinate activities necessary for the prevention and control of noxious weeds in El Dorado County. The emphasis of these activities shall be focused upon the exclusion, detection, eradication and suppression of noxious weeds. The priority of control and eradication efforts shall concentrate on the species listed as noxious weeds by the California Department of Food and Agriculture and other species of local significance as they are identified. This effort will not include any species that are native to California without prior agreement by the signatory agencies and organizations. The signatory agencies and organizations will cooperate in seeking funding to support the activities of the El Dorado Noxious Weed Management Group. In addition, public education on noxious weed identification and control will be a primary goal of the Group.

III. INTRODUCTION

Whereas, noxious weed infestations occur within El Dorado County that reduce the biological, agricultural, silvicultural, recreational and economical value of the land and have negative impact upon the environment by suppressing native plant species; and

Whereas, a coordinated approach to identifying sites, developing

responses and educating the public will result in a more effective effort to reduce or eliminate noxious weed infestations; and

Whereas, responses to noxious weed infestations may include mechanical, biological control, chemical and/or cultural control methods that could minimize further noxious weed infestations in El Dorado County.

IV. CONDITIONS

Now, therefore, in consideration of the above premises the parties agree as follows:

A. El Dorado County Department of Agriculture:

1. Release of biological control agents and manage of their distribution throughout the county.
2. Work with private land owners to address noxious weed infestations on their properties.
3. Identify all noxious weed infestations on county property.
4. Educate the public about noxious weeds, their identification and methods of control and prevention.
5. Work with city, county, state and federal land managers to address noxious weed infestations on the property they manage.
6. Provide information about safe use of pesticides.
7. Map noxious weed infestations utilizing GIS.
8. The Administrator for all El Dorado County Government agencies shall be Bill Snodgrass, El Dorado County Agricultural Commissioner.

B. El Dorado County U.C. Cooperative Extension Service:

1. Educate the public about noxious weeds, their identification and methods of control through distribution of UC publications, conducting educational workshops, and field consultations with land managers.
2. Promote the control and prevention of noxious weeds on private land through extending of research based information on noxious weed control.
3. Conduct and/or report upon applied research on noxious weed control to test management strategies including prescribed burning, approved herbicides, grazing, mowing, hand removal, and vegetation competition.

C. California Department of Food and Agriculture:

1. Supply biological control agents to suppress noxious weeds.
2. Provide technical and resource support to the El Dorado County Department of Agriculture towards the eradication of "A" rated

noxious weeds.

3. Control and suppression of noxious weeds.
4. Review, evaluate and report the results of "A" rated noxious weeds eradication activities.

D. California Department of Forestry and Fire Protection

1. Educate the public and California Department of Forestry and Fire Protection employees about noxious weeds, their identification and methods of prevention.
2. Promote the control and prevention of noxious weeds on private and public lands.

E. Amador/El Dorado/Sacramento Cattlemen's Association

1. Educate the public about noxious weeds, their identification and methods of prevention.
2. Promote the control and prevention of noxious weeds on private land and coordinate weed control methods and successes with producers.
3. Pursue state and federal legislative measures that include funding for educational programs, weed control cost-sharing programs and/or other incentive programs.
4. Assist in setting up a test plot/demonstration site in El Dorado County.

F. El Dorado Chapter California Native Plant Society

1. Educate the public about noxious weeds and their impacts on native plant communities.
2. Participate in efforts to identify and map noxious weed infestations throughout the county.
3. Promote methods to control noxious weeds that avoid negative impacts on natural communities.

G. California Department of Transportation

1. Provide no fee encroachment permits to allow for control of noxious weeds along State highway right of ways.
2. Coordinate with El Dorado County Department of Agriculture on noxious weed control projects within the State highway right of way boundaries.
3. Educate the public and Department of Transportation employees about noxious weeds, their identification and methods of prevention.

H. El Dorado County Board of Supervisors

1. Support the El Dorado County Noxious Weeds Management

Groups efforts to exclude, detect, eradicate and suppress noxious weeds in El Dorado County.

2. Promote noxious weed educational weed programs.
3. Promote the control and prevention of noxious weeds on private and public lands.
4. Support efforts to obtain funding for the El Dorado County Noxious Weeds Management Group programs.

I. El Dorado County Farm Bureau

1. Educate the public about noxious weeds, their identification and methods of prevention and control.
2. Promote the control and prevention of noxious weeds on private land.

J. El Dorado County Department of Transportation

1. Use maintenance practices that will limit the spread of noxious weeds.
2. Educate road Department employees on noxious weeds, their identification and methods of prevention.
3. Control noxious weed infestations on county road right of ways.

K. El Dorado County Resource Conservation District

1. Contribute information regarding research and trials on district's limited roadside vegetation program (RVP). Our RVP is intended to improve upon current vegetation management practices employed by public agencies on public and private roads by promoting strategies which minimize roadside vulnerability to the establishment and spread of noxious weeds.
2. In partnership with the Natural Resources Conservation Service, provide recommendations and planting specifications for the revegetation of disturbed an/or chemically treated areas.
3. Advocate for more sophisticated management strategies by agencies with weed management responsibilities.

L. Georgetown Divide Resource Conservation District

1. Contribute information regarding research and trials on the district's limited roadside vegetation program (RVP). Our RVP is intended to improve upon current vegetation management practices employed by public agencies on public and private roads by promoting strategies which minimize roadside vulnerability to the establishment and spread of noxious weeds.
2. In partnership with the Natural Resources Conservation Service, provide recommendations and planting specifications for the revegetation of disturbed an/or chemically treated areas.

3. Advocate for more sophisticated management strategies by agencies with weed management responsibilities.
4. Support efforts to eradicate Scotch Broom.

M. USDA Natural Resources Conservation Service

1. Work with the local Resources Conservation Districts to educate and assist landowners with the management of sensitive areas that may be prone for noxious weed infestation.
2. Utilize the Soil Survey of El Dorado Area, California in correlating noxious weed areas of El Dorado County with soil series to determine connections.
3. Support the resources Conservation Districts role in providing educational workshops on the management and vegetative control of sensitive areas.

N. Placerville Pest Control Center

1. Be available to work with private land owners on cost and prevention of further spread of infestations of noxious weed.
2. Provide information on timely applications.
3. Involve land owners and residential home owners in the control methods to noxious weeds to reduce the cost.
4. Educate land owners about land preparation (reduce tall vegetation, burning, etc.) before herbicide application.
5. Educate land owners about the seriousness of Yellow Starthistle, provide information about control methods and provide inspection and professional services.

O. U.S. Forest Service, Eldorado National Forest

1. Educate the public about noxious weeds, assist in their identification and methods of control.
2. Promote the control and treatment of noxious weeds on federal lands.
3. Support and assist other agencies and interested parties in noxious weed prevention and control.
4. Identify and map all noxious weed infestations on US Forest Service System Lands.

P. Sierra Pacific Industries

1. Identification: Field Foresters will survey company lands for targeted noxious weeds.
2. Notification: The County Department of Agriculture will be notified of all category "A" rated noxious weeds. Adjacent landowners (private, state and federal) will be notified if noxious weeds are located

adjacent to or on their properties.

3. Control: Where possible, a program to contain, control, and eliminate noxious weeds will be implemented.
4. Monitoring: Treatments will be monitored for effectiveness.
5. Participation in cooperative efforts to control noxious weeds will be encouraged.

Q. California Department of Fish and Game

1. Provide technical support, especially when weed control relates to the management of native wildlife and plants.
2. Practice responsible control of noxious weed infestations on lands managed by California Department of Fish and Game.
3. Permit research on the control of noxious weeds on California Department of Fish and Game lands when proposed research methods are compatible with the management objectives of the subject property.

R. Sierra Consulting

1. Provide technical consulting on Integrated Pest Management (IPM) techniques for noxious weed management.
2. Promote and assist in public education for noxious weed management.
3. Provide research and demonstration for integrated noxious weed management.
4. Provide noxious weed management application and technology.
5. Act as liaison with other California agencies and organizations dealing with noxious weed management, such as; California Exotic Pest Plant Council, Western Weed Science Society, California Agricultural Production Consultants Association IPM Committee.

S. Bureau of Land Management

1. Educate the public about noxious weeds, their identification and methods of control.
2. Identify and map noxious weed infestations on public lands.
3. Promote the prevention and control of noxious weeds on federal lands.
4. Support and assist other agencies and interested parties in noxious weed prevention and control.

T. High Sierra Resource Conservation and Development Council

1. Provide coordination and information on regional issues related to noxious weed control.

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2. Support the El Dorado Noxious Weed Group's efforts in control and prevention of noxious weeds.

V. AGREEMENT

It is mutually agreed upon and understood by and between the said parties that:

A. All partners will meet for the purpose of developing, documenting, and implementing a long range plan to control and suppress or eradicate noxious weed infestations in El Dorado County.

B. During these meetings, annually identify and document a coordinated plan using the agreed upon methods of controlling noxious weeds.

C. Partners will seek and support funding for the Noxious Weed Management Group programs. Resources and other requirements for implementing the collaborative programs and activities are necessary. The represented entities will not have the necessary resources from other sources to support all these activities from their own budgets. Therefore, partners will jointly and individually seek funding and other support form other sources.

D. Termination. Any partner(s), in writing, may terminate their participation in the instrument in whole, or in part, at any time before the date of expiration. This agreement may be terminated by majority and the Group thereby disbanded. In the event of termination, each party will assume financial and other responsibilities for the completion of required and agreed upon activities or such responsibilities must be modified by mutual written agreement.

E. Participation in Similar Activities. This instrument in no way restricts the cooperators from participating in similar activities with other public or private agencies, organizations, and individuals.

F. Effective Date. This instrument is executed as of the last date shown below and expires on December 31, 2004 at which time it will be subject to review, renewal or expiration.

G. PRINCIPAL CONTACTS: The principal contacts for this instrument are:

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H. Non-Fund Obligating Document. This instrument is neither a fiscal nor a funds obligation document. Any endeavor involving reimbursement or contribution of funds between the partners to this instrument will be handled in accordance with applicable laws, regulations, and procedures including those for government procurement and printing. Such endeavors will be outlined in separate agreements that shall be made in writing by representatives of the parties and shall be independently authorized by appropriate statutory authority. Specifically, this instrument does not establish authority for noncompetitive award to the cooperator of any contract or other agreement. Any contract or agreement for training or other services must fully comply with all applicable requirements for competition.

I. Modification. Modifications within the scope of this instrument shall be made by the issuance of a bilaterally executed modification prior to any changes being performed.

J. Each principal party shall defend, indemnify and hold harmless each of the other Principal parties, their officers, employees, and agents from any and all liability, loss, expense (including reasonable attorneys' fees) or claims for injury or damages arising out of the performance of this MOU but only in proportion to and to the extent such liability, loss, expense, attorneys' fees, or claims for injury or damages are caused by or result from the negligent or intentional acts or omissions the indemnifying Principal Parties, their officers, agents, or employees.

AR 13585

VI. Effective Date. This Memorandum of Understanding may be executed in counterparts, all of which together shall constitute a fully executed instrument. In witness thereof, the partners hereto have executed this agreement as of the written date below:

(note: hard copy of original signatures available at the El Dorado County Department of Agriculture (530) 621-5520)

Page last updated: Monday, November 4, 2002 9:16 AM

AR 13586

5/4/2003

Weeds at home on our roadsides

By Edie Lau
BEE SCIENCE WRITER

Jonathan Gelbard likes to drive into the countryside west of Davis to point out some of the plants he studies, but really, he could pull over just about anywhere.

Roadside weeds are the focus of this doctoral student's research – specifically, the role of roads in the spread of invasive, non-native plants.

Roads, it seems, not only take people where they want or need to go, they carry and support certain botanical hitchhikers, too.

You've seen them: The brushy blades of a wild barley locally known as foxtail. The tall, coarse stalks of Italian thistle. The thorny stems of yellowstar thistle that prick so many ankles in summertime.

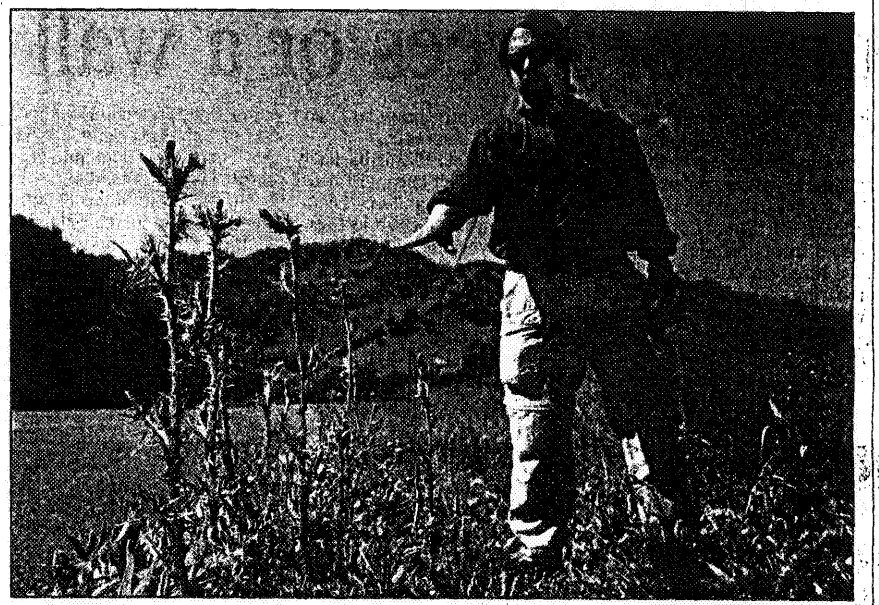
Looking at almost any stretch

▶ WEEDS, page B6



Sacramento Bee/Hector Amezcua

Dried-up musk thistle stands as a reminder of a new generation of weeds coming soon to Highway 128 near Winters.



Sacramento Bee/Hector Amezcua

UC Davis doctoral student Jonathan Gelbard explains how Italian thistle has come to call a Yolo County roadside its home, and how easy it is for cars and roads to aid in the spread of noxious weeds.

Weeds: Becoming policy issue

▶ CONTINUED FROM B1

of highway, it's plain to see that weeds flourish and predominate.

This and similar observations have seeded a rising field of research called road ecology, which explores how roads alter the environment. As Americans drive more miles than ever, the subject is starting to spread beyond academia into government policy discussions.

On Monday, the UC Davis Institute of Transportation Studies is to co-host a workshop on

road ecology that includes a talk by Jeff Morales, chief of the state Department of Transportation. The gathering is organized by Dan Sperling, transportation studies institute director and co-author of a new book, "Road Ecology: Science and Solutions," which is proving popular in transportation circles.

"Roads are a hot topic right now," said student Gelbard, who began seven years ago to examine the relationship between roads and invasive plant species. Working as an environmental consultant in Oregon, he surveyed noxious weeds in national forest areas.

"It became clear that noxious plants were mostly along roads, in clear-cuts and in power line corridors," he said.

While any unwanted plant may be deemed a weed, noxious weeds are those that tend to take over. These are foreign plants that haven't evolved to coexist with local flora, and for which few or no natural predators or competitors exist here.

Roads promote their spread in assorted ways:

- Seeds in dirt or mud get picked up in the cracks of tires, in radiator grilles and in the undercarriages of vehicles, later to be deposited far from the parent plant.
- Vehicles driven off the pavement disturb the soil, providing an entree for invading plants.
- The earthen material under the pavement may have come from another area, changing the soil chemistry, making it less-suited for locals and more welcoming to outsiders.
- The roadsides have their own environment. They are bathed in runoff – water and chemicals, whether herbicides, salt for de-icing or hydrocarbons and heavy metals found in automotive fuels and fluids – that is better tolerated by some plants than others.
- Passing traffic creates gusts that help push wind-borne seeds along.

While the seeds of any plant in theory may be distributed widely by roads, plants from Europe and Asia – typical sources of imported weeds – tend to do better than natives in disturbed environments, Gelbard said, because they have evolved over centuries alongside human activity.

Scientists around the world are documenting the role of roads and vehicles in disseminating plants. Richard Forman, a landscape ecologist at Harvard University and a pioneer in the study of road ecology, said one researcher in Nigeria collected mud samples from 75 vehicles, from which he managed to germinate 40 plants.

In the same vein, a researcher in Australia collected wastewater from a carwash, from which he retrieved 18,500 seedlings, which yielded 259 species of plants.

"The bulk of the seedlings were from the city and surrounding croplands and woodlands, but there were 20 species not even known from the region," said Forman, who co-authored the new road ecology book with UC Davis' Sperling.

Given the ease of world travel, is it even possible to impede the spread of exotic plants?

Many scientists and government agencies think it's important to try.

"They're displacing native plants, threatening threatened and endangered species, they upset biodiversity; some weeds are toxic to livestock and wildlife," said Dave Thomas, a U.S. Forest Service vegetation management specialist.

The agency is poised to place greater emphasis on exotic species. Forest Service Chief Dale Bosworth, in a speech at UC Berkeley last month, identified invasive species as one of his four top priorities.

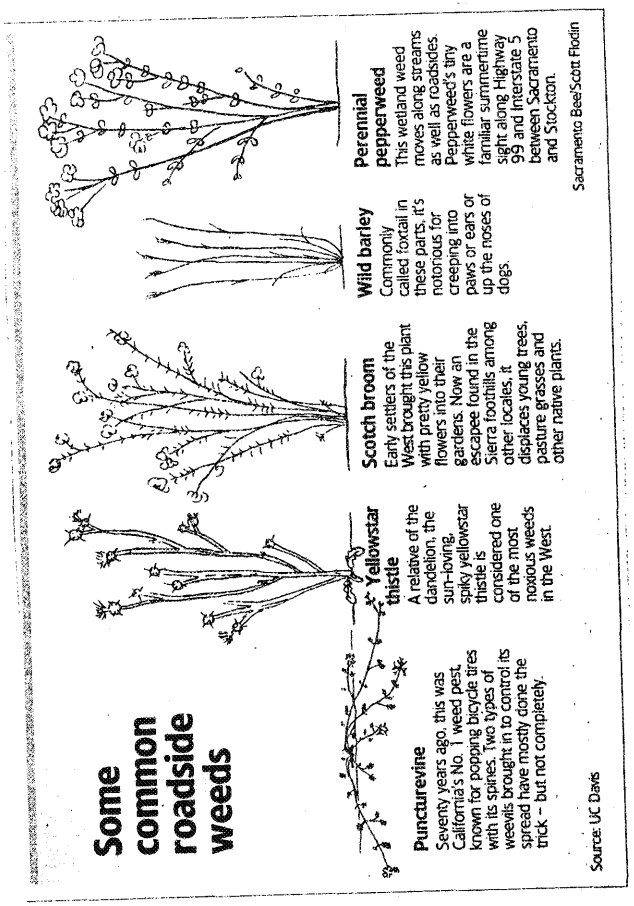
Thomas said the weed issue will influence a national debate on road-building in forestland, though it will not be a deciding factor. "Invasive species will not be ... forcing roads closed," he said.

The agency will tackle the problem in other ways. For example, Thomas said, contractors entering forests will be required to do things such as set up wash stations to clean their equipment to stem the spread of seeds.

Thomas said public education is needed, too, since problem weeds can be carried in hikers' socks, shoes and pants cuffs.

Vehicles, which can go much farther than pedestrians, magnify the effect. And the better the road they travel, the greater the impact. Gelbard, working in Utah's Canyonlands National Park, found that the more improved the road, the weedier the roadside. So graded surfaces promoted weed growth more than four-wheel drive tracks, and paved roads more still.

In Davis, where Gelbard is wrapping up his doctoral work, roadsides offer plenty more fodder on the topic. On a recent drive around Yolo County, Gelbard talked about how road maintenance can unintentionally support the growth of noxious plants. He got out of the car on the broad



over

AR 13588

median strip of Highway 113 to explain.

Gelbard leaned over the freshly mowed grass, rummaging in the thatch. "Here we go," he said, revealing a low-lying rosette of leaves. "Here's a yellowstar thistle."

A cousin of the dandelion, yellowstar thistle begins the season hugging the soil. Later, it bolts up, forming spindly, thorny stems bearing yellow flowers that later turn to seed. The thistle's growing pattern is such that it tends to be small when the grass is long and lush, and to bolt when the grass goes dry, Gelbard said.

Since road crews mow when the grass is long, the thistle doesn't get cut. By summer, Gelbard predicted, the median will be covered with it.

The state Department of Transportation is aware of the problem. But reducing highway fire hazards must come first, said Caltrans spokesman David Anderson. "Public safety has to be our top concern," he said.

The department hopes eventually to solve both problems by planting along highways low-growing, drought- and fire-resistant species that are stronger competitors against weeds.

Not every alien weed is a problem, and not every road brings invasive weeds. Gelbard said roads going through highly infertile soils – such as serpentine soils found in California – tend not to promote weeds.

Gelbard's attention these days is on the inner coast range, from St. Helena to Bear Valley. His research examines the flip side of roads – how roadless habitats provide refuges for native grasses – and the ways in which roads influence plant communities.

"What I'm trying to say is not just that roads are bad ..." Gelbard said. "I'm trying to take a more constructive approach. I'm trying to say, 'Under what conditions is it bad and under what conditions is it not bad?' "

□ □ □

Bee staff writer Edie Lau can be reached at (916) [illegible] elau@sacbee.com.

Transline*

Specialty Herbicide

For selective control of broadleaf weeds in non-cropland areas, industrial manufacturing and storage sites, rights-of-way, and wildlife openings, including grazed areas on these sites, tree plantations, and rangeland and permanent grass pastures.

Active Ingredient:	
clopyralid:	
3,6-dichloro-2-pyridinecarboxylic acid, monoethanolamine salt	40.9%
Inert Ingredients	59.1%
Total	100.0%

Acid Equivalent:
3,6-dichloro-2-pyridinecarboxylic acid—31% (3 lb/gal)

*Trademark of Dow AgroSciences LLC

EPA Reg. No. 62719-259

KEEP OUT OF REACH OF CHILDREN
CAUTION/PRECAUCION

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

Causes Eye Injury • Harmful If Inhaled Or Absorbed Through Skin

Avoid contact with eyes, skin or clothing. Avoid breathing spray mist.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.

First Aid

If in eyes: Flush with plenty of water. Get medical attention if irritation persists.

If on skin: Wash with plenty of soap and water. Get medical attention.

Environmental Hazards

Do not contaminate water when disposing of equipment washwaters. Do not contaminate water used for irrigation or domestic purposes. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.

Clopyralid is a chemical which can travel (seep or leach) through soil and under certain conditions contaminate groundwater which may be used for irrigation or drinking purposes. Users are advised not to apply clopyralid where soils have a rapid to very rapid permeability throughout the profile (such as loamy sand to sand) and the water table of an underlying aquifer is shallow, or to soils that would allow direct introduction into an aquifer. Your local agricultural agencies can provide further information on the type of soil in your area and the location of groundwater.

Physical or Chemical Hazards

Do not use or store near heat or open flame.

Notice: Read the entire label. Use only according to label directions. **Before buying or using this product, read "Warranty Disclaimer" and "Limitation of Remedies" elsewhere on this label.**

In case of emergency endangering health or the environment involving this product, call 1-800-992-5994. If you wish to obtain additional product information, visit our web site at www.dowagro.com.

Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Read all Directions for Use carefully before applying.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Waterproof gloves
- Shoes plus socks

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

Storage: Store above 28°F or warm to 40°F and agitate before use.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Plastic Container Disposal: Do not reuse container. Triple rinse (or equivalent). Puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Metal Container Disposal: Do not reuse container. Triple rinse (or equivalent). Puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

GENERAL INFORMATION

Transline* herbicide is recommended for selective, postemergence control of broadleaf weeds in non-cropland areas including equipment pathways, industrial manufacturing and storage sites and rights-of-way such as along roadsides, electrical lines and railroads. Use on these sites may include application to grazed areas as well as establishment and maintenance of wildlife openings, wild parkland and wildlife management areas, and forest spot application adjacent to these sites. Transline is labeled for control of broadleaf weeds in cottonwood/poplar and eucalyptus tree plantations; and in rangeland and permanent grass pastures in certain western states.

Advisory: In California, the maximum application rate is ⅔ pint/acre per annual use season.

General Use Precautions

Use directions in Dow AgroSciences supplemental labeling may modify directions or limitations in this labeling.

Do not contaminate irrigation ditches or water used for irrigation or domestic purposes.

Do not use in greenhouses.

Rotation to Broadleaf Crops: Do not plant broadleaf crops in treated areas until an adequately sensitive bioassay shows that no detectable clopyralid is present in the soil.

Field Bioassay Instructions: In fields previously treated with this product, plant short test rows of the intended rotational crop across the original direction of application in a manner to sample field conditions such as soil texture, soil pH, drainage, and any other variable that could affect the seed bed of the new crop. Field bioassay at any time between harvest of the treated crop and the planting of the rotational crop. Observe the test crop for herbicidal activity, such as poor stand (effect on seed germination) chlorosis (yellowing), and necrosis (dead leaves or shoots), or stunting (reduced growth). If herbicidal symptoms do not occur, the test crop can be grown. If there is apparent herbicidal activity, wait one year before repeating bioassay or plant a crop tolerant to clopyralid such as barley, canola (rapeseed), grasses, field corn, oats, sugar beets, or wheat.

Chemigation: Do not apply this product through any type of irrigation system.

Grazing/Haying: There are no restrictions on grazing or hay harvest following application of Transline at labeled rates.

Do not transfer livestock from treated grazing areas to sensitive broadleaf crop areas without first allowing 7 days of grazing on an untreated pasture. Otherwise, urine may contain enough clopyralid to cause injury to sensitive broadleaf plants.

Residues in Plants or Manure: Do not use plant residues, including hay or straw from treated areas, or manure from animals that have grazed or consumed forage from treated areas for composting or mulching where susceptible plants may be grown the following season. Do not spread manure from animals that have grazed or consumed forage or hay from treated areas on land used for growing susceptible broadleaf crops. To promote herbicidal decomposition, plant residues should be evenly incorporated or burned. Breakdown of clopyralid in crop residues or manure is more rapid under warm, moist soil conditions and may be enhanced by supplemental irrigation.

Advisory Statements

Avoiding Injury to Non-target Plants

This product can affect susceptible broadleaf plants directly through foliage and indirectly by root uptake from treated soil. Therefore, do not apply Transline directly to or allow spray drift to come in contact with vegetables, flowers, grapes, tomatoes, potatoes, beans, lentils, peas, alfalfa, sunflowers, soybeans,

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safflower, or other desirable broadleaf crops and ornamental plants or soil where these sensitive crops will be planted the same season.

Avoid Spray Drift: Avoid spray drift since very small quantities of the spray, which may not be visible, may severely injure susceptible broadleaf plants during active growth or dormant periods. Use coarse sprays to minimize drift. A drift control or deposition agent suitable for agricultural use may be used with this product to aid in reducing spray drift. If used, follow all use recommendations and precautions on the product label.

Ground Application: To minimize spray drift, apply Transline in a total spray volume of 10 or more gallons per acre as large-droplet, low-pressure spray. Refer to spray equipment manufacturer's recommendations for additional information on spray volume, spray pressure, sprayer speed, type and arrangement of nozzles, height of nozzles above the target canopy, etc. Spray drift can be lessened by keeping the spray boom as low as possible; by using no more than 30 pounds per square inch (psi) spraying pressure with large droplet-producing nozzle tips, by using larger nozzle tips rather than increasing pressure to increase spray volume; and by spraying when wind velocity is low. Do not apply with hollow cone-type insecticide or other nozzles that produce a fine-droplet spray. Keep operating spray pressures at the lower end of the manufacturer's recommended pressure range for the specific nozzle type used. Low pressure nozzles are available from spray equipment manufacturers. Select nozzles and pressures that provide adequate plant coverage but minimize the production of fine spray particles.

Aerial Application: Drift can be lessened by using straight stream nozzles directed straight back; by using drift control systems or use of drift control additives; and by keeping spray pressures low enough to provide coarse spray droplets. Do not use a thickening agent with the Microfoil or Thru-Valve booms, or other systems which cannot accommodate thick sprays. Spray only when wind velocity is low (follow state regulations).

Avoid application by aircraft when an air temperature inversion exists. Such a condition is characterized by little or no wind and lower air temperature near the ground than at higher levels. The use of a smoke device on the aircraft or continuous smoke column at or near site of application will indicate air direction and velocity, and whether a temperature inversion is present, as indicated by horizontal layering of the smoke.

Sprayer Clean-Out

To avoid injury to desirable plants, equipment used to apply Transline herbicide should be thoroughly cleaned before reusing to apply any other chemicals.

1. Rinse and flush application equipment thoroughly after use at least three times with water. Dispose of rinse water in non-cropland area away from water supplies.
2. During the second rinse, add 1 qt of household ammonia for every 25 gallons of water. Circulate the solution through the entire system so that all internal surfaces are contacted (15-20 min.). Let the solution stand for several hours, preferably overnight.
3. Flush the solution out of the spray tank through the boom.
4. Rinse the system twice with clean water, recirculating and draining each time.
5. Nozzles and screens should be removed and cleaned separately.

Mixing Instructions

1. Add ½ of the required spray volume to the spray tank and start agitation.
2. Add the required amount of Transline.
3. Add any surfactants, adjuvants or drift control agents according to manufacturer's label.
4. Agitate during final filling of the spray tank and maintain sufficient agitation during application to ensure uniformity of the spray mixture.

Tank Mixing: This product may be applied in tank mix combination with labeled rates of other products provided (1) the tank mix product is labeled for the timing and method of application for the use site to be treated; and (2) tank mixing is not prohibited by the label of the tank mix product.

Tank Mixing Precautions:

- Read carefully and follow all applicable use directions, precautions, and limitations on the respective product labels.
- Do not exceed recommended application rates. Do not tank mix with another pesticide product that contains the same active ingredient as this product unless the label of either tank mix partner specifies the maximum dosages that may be used.
- For products packaged in water soluble packaging, do not tank mix with products containing boron or mix in equipment previously used to apply a product mixture containing boron unless the tank and spray equipment has been adequately cleaned. (See instructions for Sprayer Clean-Out.)
- Always perform a (jar) test to ensure the compatibility of products to be used in tank mixture.

Tank Mix Compatibility Testing: A jar test is recommended prior to tank mixing to ensure compatibility of Transline and other pesticides. Use a clear glass quart jar with lid and mix the tank mix ingredients in their relative proportions. Invert the jar containing the mixture several times and observe the mixture for approximately ½ hour. If the mixture balls-up, forms flakes, sludges, jels, oily films or layers, or other precipitates, it is not compatible and the tank mix combination should not be used.

Application

Timing: Apply to actively growing weeds. Extreme growing conditions such as drought or near freezing temperatures prior to, at, and following time of application may reduce weed control. **Only weeds that have emerged at the time of application will be affected.** Wet foliage at the time of application may decrease control. The treatment with Transline will be rainfast within 2 hours after application.

Application Rate Ranges: Generally, lower labeled application rates will be satisfactory for young, succulent growth of susceptible weed species. Higher labeled rates will generally be required for more tolerant species, perennials, weeds in dense stands or in advanced stages of growth, or under conditions of plant stress such as drought or extreme temperatures.

Spray Coverage: Use sufficient spray volume to provide thorough and uniform spray coverage of target weeds. Do not broadcast apply in less than 2 gallons of total spray volume per acre. For best results and to minimize spray drift, apply in a spray volume of 10 or more gallons per acre. In general, spray volume must be increased as crop canopy, height and weed density increase in order to obtain equivalent weed control. Use only nozzle types and spray equipment designed for herbicide application. To reduce spray drift, follow precautions under "Avoiding Injury to Non-target Plants" in "Advisory Statements" section of this label.

Use of Adjuvants: Addition of surfactants, crop oils, or other adjuvants may increase effectiveness of Transline herbicide. If an adjuvant is added to the spray solution, follow all manufacturer use guidelines.

Broadleaf Weeds Controlled

acacias	hawksbeard, narrowleaf	ragweed, common
artichoke, Jerusalem	hawkweed, orange	ragweed, giant
buckwheat, wild	hawkweed, yellow	salsify, meadow (goatsbeard)
buffaloburr†	horseweed	sicklepod
burdock, common	jimsonweed	smartweed, green†
chamomile, false (scentless)	knapweed, diffuse	sorrel, red
chamomile, mayweed (dogfennel)	knapweed, Russian†	sowthistle, annual
clover, black medic	knapweed, spotted	sowthistle, perennial†
clover, hop	kudzu	starthistle, yellow
clover, red	ladysthumb†	sunflower (common and wild)
clover, white	lettuce, prickly	teasel, common
cocklebur, common	locoweed, white	thistle, bull
coffeeweed	locoweed, lambert	thistle, Canada (rosette to bud)
cornflower (bachelor button)	marshelder	thistle, musk (rosette to bud)
dandelion	mesquite	vetch
dock, curly	nightshade, eastern black	
groundsel, common	nightshade, cutleaf	
	nightshade, hairy	
	oxeye daisy	
	pineappleweed	

†These weeds may only be suppressed. Suppression is a visual reduction in weed competition (reduced population or vigor) as compared to untreated areas. The degree and duration of weed control will vary with weed size and density, application rate and coverage, and growing conditions before, during, and after the time of treatment. For perennial weeds such as Russian knapweed, and perennial sowthistle, Transline will control the initial top growth and inhibit regrowth during the season of application (season-long control). At higher use rates shown on this label, Transline may cause a reduction in shoot regrowth in the season following application; however, plant response may be inconsistent due to inherent variability in shoot regrowth from perennial root systems.

Non-Cropland Use (All States Except California)

Use Requirements for Non-cropland Areas: No Worker Protection Standard worker entry restrictions or worker notification requirements apply when this product is applied to non-cropland.

For use on non-cropland areas such as industrial manufacturing and storage sites and rights-of-way such as along roadsides, electrical power lines, communication lines, pipelines and railroads, including grazed areas on these sites and forest spot application adjacent to these sites.

Broadcast Application (Ground or Aerial)

For control of broadleaf weeds, apply ¼ to 1 ⅓ pints per acre of Transline (equivalent to 0.09 to 0.5 lb acid equivalent per acre). Non-ionic surfactant should be used in spray mixtures at 1 to 2 quarts per 100 gallons of spray mixture. The lower rate of ¼ pint per acre provides acceptable control of weeds only under highly favorable plant growing conditions and when plants are no larger than 3 to 6 inches tall. Where Canada thistle or knapweed is the primary pest, best results are obtained by applying ⅔ to 1 ⅓ pints per acre of Transline after basal leaves are produced. Transline can be applied in an invert emulsion using oil and an appropriate inverting agent. Follow label directions of the inverting agent. Established grasses are tolerant to Transline but new grass seedlings may be injured to varying degrees until the grass has become well established as indicated by vigorous growth and development of tillers and secondary roots.

High-Volume Leaf Stem Treatment (Ground Application)

For control of broadleaves and certain woody plants (e.g., mesquite), use 1 to 3 quarts of Transline per 100 gallons of total spray. Thorough coverage is necessary for good results, therefore, apply as a complete spray-to-wet foliar application, including all leaves, stems, and root collars but not to exceed a total application rate of more than 1 ⅓ pints per acre of Transline. To minimize drift, use low spray pressure and keep sprays no higher than the tree crowns. Trees taller than 8 feet in height may be difficult to treat efficiently and obtain thorough coverage.

Unsatisfactory control may result if application is made when brush and weeds are under severe drought stress or other adverse conditions that inhibit plant growth. Environmental conditions may significantly influence results. For best results on mesquite, apply in the spring or early summer, 40 to 90 days after the first green growth appears and when soil moisture is adequate for active growth. A soil temperature of 75° to 83°F at a depth of 12 to 18 inches is optimal for good plant

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kills. Soil temperature of less than 75°F at this depth will reduce the ultimate root kill of mesquite.

Non-Cropland Use (California Only)

Use Requirements for Non-cropland Areas: No Worker Protection Standard worker entry restrictions or worker notification requirements apply when this product is applied to non-cropland, rangeland, and permanent grass pastures not harvested for hay.

For use on non-cropland areas such as industrial manufacturing and storage sites and rights-of-way such as along roadsides, electrical power lines, communication lines, pipelines and railroads, including grazed areas on these sites and forest spot application adjacent to these sites.

Weeds Controlled

knapweed, diffuse	starthistle, yellow	thistle, musk
knapweed, Russian†	thistle, Canada	(rosette to bud)
knapweed, spotted	(rosette to bud)	

†These weeds may only be suppressed. Suppression is a visual reduction in weed competition (reduced population or vigor) as compared to untreated areas. The degree of weed control and duration of effect will vary with weed size and density, spray rate and coverage, and growing conditions before, during, and after the time of treatment.

Broadcast Application (Ground or Aerial)

For control of broadleaf weeds, apply ½ to ⅔ pint per acre of Transline (equivalent to 0.09 to 0.25 lb a.e. per acre). Non-ionic surfactant should be used in spray mixtures at 1 to 2 quarts per 100 gallons of spray mixture. The lower rate of ½ pint per acre provides acceptable control of weeds only under highly favorable plant growing conditions and when plants are no larger than 3 to 6 inches tall. Where Canada thistle or knapweeds are the primary pest, best results are obtained by applying ⅔ pint per acre of Transline after basal leaves are produced. Spray volumes of 20 gallons or more per acre for ground roadside and rights-of-way applications and spray volumes 5 gallons or more per acre or more for aerial applications will ensure adequate coverage. Transline can be applied in an invert emulsion using oil and an appropriate inverting agent. Follow label directions of the inverting agent. Established grasses are tolerant but new grass seedlings may be injured to varying degrees until the grass has become well established.

Broadleaf Weed Control in Rangeland and Permanent Grass Pastures (For use in Western States, Including California, Colorado, Idaho, Montana, Nebraska, Nevada, North Dakota, South Dakota, Utah, Washington and Wyoming)

Use Transline to control susceptible broadleaf weeds on rangeland areas or established forage grasses in permanent grass pastures. Best results on most weeds are obtained when weeds are small and actively growing (see specific information below) and application is made in 10 or more gallons per acre of water using ground equipment.

There are no grazing or haying restrictions following Transline applications when used at labeled rates.

Application Rates

Apply Transline at a rate of ⅓ to 1⅓ pint per acre when weeds are young and actively growing. Transline may be applied as described below for control of spotted and diffuse knapweed, Canada thistle, musk thistle, yellow starthistle and suppression of Russian knapweed. Use the lower labeled application rate for young, actively growing weeds. The higher rate should be used under less favorable growing conditions, or on dense weed stands and/or larger weeds. Transline may also be tank mixed with 2,4-D at ½ to 1 lb acid equivalent per acre where weed species present are susceptible to 2,4-D.

Advisory: In California, the maximum application rate is ⅔ pint per acre per annual use season.

Weed Species	Rate per Acre	Application Timing
Spotted & Diffuse Knapweed	⅔ - 1 pint	Apply any time plants are actively growing, including fall regrowth. Optimum time is from mid bolt to late bud stage of growth.
Russian Knapweed (suppression)	⅓ - 1⅓ pint	Apply from bud to mid-flower growth stage or treat fall regrowth.
Canada Thistle	⅔ - 1⅓ pint	Apply after the majority of basal leaves have emerged through the beginning of the bud stage. Treatment may also be applied to fall regrowth
Musk Thistle	⅓ - 1 pint[1]	Apply from rosette to early bolt growth stage.
Yellow Starthistle	½ - 1 pint	Apply from rosette to mid-bolt growth stage

[1]Transline may be applied to musk thistle in the rosette stage at ⅓ pint per acre only when applied in tank mixture with 2,4-D at ½ to 1 lb acid equivalent per acre. Otherwise, apply Transline to musk thistle at ⅔ to 1 pint per acre.

Precautions:

- Some desirable broadleaf plants (forbs) are susceptible to Transline. Do not spray pastures containing desirable forbs, especially legumes, unless injury can be tolerated. However, the stand and growth of established perennial grasses is usually improved after treatment, especially if rainfall is adequate for active plant growth and grazing is deferred.
- Grasses are tolerant to Transline, but new grass seedlings may be injured to varying degrees until well established as evidenced by development of secondary roots and tillering (multiple stems).
- Do not use hay or straw from treated areas for composting or mulching on susceptible broadleaf crops.
- **Rotation to Broadleaf Crops:** Do not plant broadleaf crops in treated areas until an adequately sensitive bioassay crop such as soybean or other legume shows that no detectable clopyralid is present in the soil.

Crop Use

Agricultural Use Requirements for Crop Uses: For use of this product in tree plantations, follow PPE and Reentry restrictions in the Agricultural Use Requirements section of this label.

Cottonwood/Poplar and Eucalyptus Tree Plantations

Transline may be used for selective postemergence control of labeled broadleaf weeds in new and established plantings of cottonwood/poplar and eucalyptus tree plantations. Apply as a broadcast foliar spray over trees or as a banded or directed spray at a rate of ⅓ to ⅔ pints/acre. Apply in 10 or more gallons per acre total spray volume using ground equipment only. Multiple applications may be made as long as the total rate per annual use season does not exceed 1⅓ pints/acre. Apply to new plantings only after they are well-established as indicated by several inches of new healthy growth.

Advisory: In California, the maximum use rate is ⅔ pint per acre per annual use season.

Hand-Held Sprayers: Spot applications using hand held equipment are also allowed, but contact with tree foliage should be avoided or limited to lower branches. Apply to weeds on a spray-to-wet basis with spray coverage uniform and complete. Do not spray to the point of run-off. Prepare a spray solution by adding ¼ fl oz Transline per gallon of water. When applied at 1 gallon of spray per 1000 sq ft, this spray concentration is equivalent to a broadcast rate of ⅔ pt/acre.

Use Precautions:

- Do not tank mix Transline with other herbicides labeled for this use unless spray avoids all contact with tree foliage.
- Transline will not control certain broadleaf weeds, including mustards, henbit, chickweed, kochia, lambsquarters, pigweed, Russian thistle and bindweed.

WARRANTY DISCLAIMER

Dow AgroSciences warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. Dow AgroSciences MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

Inherent Risks of Use

It is impossible to eliminate all risks associated with use of this product. Plant injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperature, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of Dow AgroSciences or the seller. All such risks shall be assumed by buyer.

Limitation of Remedies

The exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at Dow AgroSciences' election, one of the following:

1. Refund of purchase price paid by buyer or user for product bought, or
2. Replacement of amount of product used

Dow AgroSciences shall not be liable for losses or damages resulting from handling or use of this product unless Dow AgroSciences is promptly notified of such loss or damage in writing. In no case shall Dow AgroSciences be liable for consequential or incidental damages or losses.

The terms of the "Warranty Disclaimer" above and this "Limitation of Remedies" cannot be varied by any written or verbal statements or agreements. No employee or sales agent of Dow AgroSciences or the seller is authorized to vary or exceed the terms of the "Warranty Disclaimer" or this "Limitation of Remedies" in any manner.

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Field Monitoring and Treatment of Herbicide Runoff from Highway Roadsides

Xinjiang Huang*, Michael Fischer, Richard White, Yun Lu, and Thomas Young, Department of Civil & Environmental Engineering, University of California, Davis

Introduction

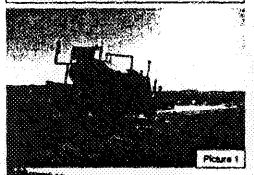
To reduce weed growth along the highway roadside, herbicides are applied along many California highways by Caltrans (the California Transportation Department). This practice has been successful as a highway vegetation management program. However, Environmental regulatory agencies recently have focused attention on nonpoint sources of pollution such as highway runoff, and previous research has suggested that storm runoff water could be a source for surface water contamination. The public is concerned that herbicides sprayed by Caltrans could negatively impact the environment, in particular aquatic life. In order to address these concerns, this project is designed to determine whether best management practices currently employed by Caltrans adequately protect adjacent surface waters from herbicide runoff.

Herbicide Application

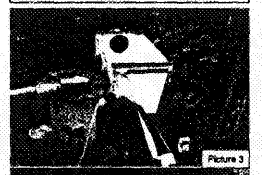
Two geographically separated sites were selected in the northern California. Different herbicides were applied in these two sites. Glyphosate, Oryzalin, and Isoxaben were applied along 1.3-meter wide roadside strip adjacent to the highway shoulder located on U.S. 101, at the north end of the Eel River Bridge, Rio Dell, California (Picture 2, Eel River sampling station). Oryzalin, Isoxaben, Transline, Diuron were applied at another site located at the north bank of highway 37 in Sonoma County, California (Picture 1, Tolay Creek sampling station). The herbicides were applied by a Caltrans' truck and the application rates ranged from 0.1 kg to 4.8 kg per ha.

Runoff Sampling

Storm water flowed through a 0.75 H flume and then into a catchment where the water was sampled by an automatic sampler through a suction strainer. A stilling well was used to detect the runoff level which was used to trigger the sampler and measure runoff volume. The automatic sampler (ISCO 6700) was powered by a 12-volt battery which was charged by a solar panel (Picture 3 and 4). A rain gauge (ISCO 674) and a bubbler flow module (ISCO 730), which measured the level in the stilling well, were connected to the sampler. The automatic sampler recorded rainfall, sampling time, runoff flow rate, and runoff volume (Figure 1).


Picture 1


Picture 2


Picture 3


Picture 4

Herbicide Attenuation by Vegetation and Mulch

As shown in Table 1, herbicides were highly attenuated when runoff water ran along the bio-strip roadside slope (Picture 5) during the first storm event.

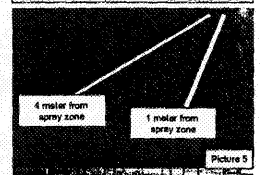
Table 1 Herbicides attenuation by bio-strip roadside

Distance from the spray zone	Oryzalin ug/L	Isoxaben ug/L	Diuron ug/L	Transline ug/L
1 meter	26.88	3.75	1.98	10.42
4 meter	4.16	1.61	0.71	5.32

A biomaterial treatment system (Picture 6), built downstream of the auto-sampler, consisted of a cell 6m x 1.5m x 0.3m filled with mulch followed by a wheat straw hay bale for filtration of mulch particles. As presented in Table 2, the herbicide concentration in the initial runoff sample from the outlet of the treatment cell was greatly reduced compared to those from the inlet. However, the event mean concentrations for the entire storm event were unchanged showing that the herbicide transport was retarded, reducing the peak concentrations at the outlet.

Table 2 Herbicide concentration at inlet and outlet

Sampling point	Oryzalin ug/L	Isoxaben ug/L	Diuron ug/L	Transline ug/L
inlet	8.85	4.16	3.61	17.91
outlet	1.26	1.24	1.99	4.84



Picture 5

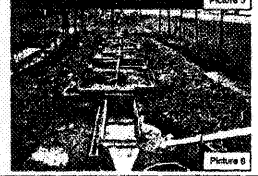

Picture 6

Figure 1 Rainfall, flow rate, runoff and sampling time for a typical storm event at Tolay Creek sampling station (2001-2002)

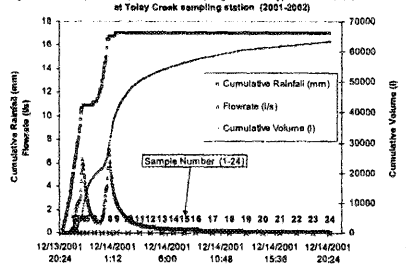
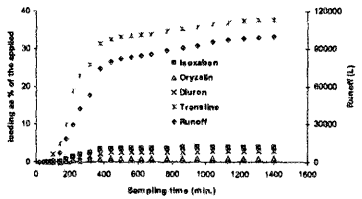


Figure 2 Herbicide loading as % of the applied vs. runoff at Tolay Creek sampling station (2001-2002)



As shown in Figure 2, the herbicide loading was highly related to runoff volume. The loading differences among the herbicides were mainly caused by the herbicide properties. Transline has a much higher loading in runoff compared to the others since it has a very high water solubility.

Herbicide Analysis in Lab

Runoff water were transported to the lab. Oryzalin, Isoxaben, Diuron, Transline were analyzed by HPLC, and Glyphosate by GC-MS (Picture 7).

Picture 7 GC-MS used for detecting Glyphosate

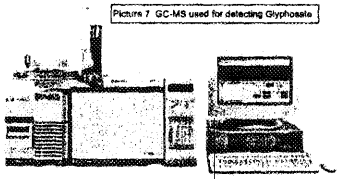


Table 3 Summary of herbicide EMC and loading as% of the applied from the two sampling stations (1999-2002)

Herbicides	EMC (ug/L)	Loading as % of the applied
Oryzalin	0.1 – 42.4	0.05-5.43
Isoxaben	0.1 – 14.4	0.12-15.02
Diuron	0.1 – 10.2	0.57-4.44
Transline	0.5 – 7.1	43.53
Glyphosate	0.1 –21.5	< 1.0

Summary

Herbicides were detected in runoff water from all storm events at both sites. The Event Mean Concentration (EMC) and loading percentage had large ranges among different herbicides at the two sampling locations for the past three years. Transline has a highest loading percentage among the five herbicides tested.

The Bio-strip along the highway roadside slope can significantly attenuate herbicide concentrations from storm runoff water. Herbicide concentrations were greatly reduced by mulch in the treatment cell, but only during the initial flush of runoff water.

Acknowledgments This research is being funded by the California Transportation Department (Caltrans) under contract No. 43A0014. We thank the staff from Caltrans District 1 and 4 and the Larry Walker Associates Consultants at Davis, California. We thank John Allen, Heidi Gehlhaar, and Neil Mock from Humboldt State University for helping sampling from Eel River station. We also thank Kimberly Peterson, Claudia Alvarado, Jonathon Leong, Matt Carlson, Sam Carlson, and Peter Green from University of California At Davis for helping lab analysis. We especially would like to express our sincere appreciation to Therese Pedersen and Suzan Glyen for their first two years' work on this project.

AR 13593

Natural Community Conservation Planning

- NEW! Local Assistance Grant application deadline June 30
- NEW! MHCP approved by SANDAG
- NEW! Report on the roles of consultants in NCCP plans
- NCCP Update
- Status of Plans
- Scientific Input
- Southern California NCCP Area Map
- Publications
- News Releases
- Related Links
- Grants

The Natural Community Conservation Planning (NCCP) program of the Department of Fish and Game is an unprecedented effort by the State of California, and numerous private and public partners, that takes a broad-based ecosystem approach to planning for the protection and perpetuation of biological diversity. An NCCP identifies and provides for the regional or areawide protection of plants, animals, and their habitats, while allowing compatible and appropriate economic activity.



The NCCP program is a cooperative effort to protect habitats and species. The program, which began in 1991 under the State's Natural Community Conservation Planning Act, is broader in its orientation and objectives than the California and Federal Endangered Species Acts. These laws are designed to identify and protect individual species that have already declined in number significantly. The primary objective of the NCCP program is to conserve natural communities at the ecosystem scale while accommodating compatible land use. The program seeks to anticipate and prevent the controversies and gridlock caused by species' listings by focusing on the long-term stability of wildlife and plant communities and including key interests in the process.

The focus of the initial effort was the coastal sage scrub habitat of Southern California, home to the California gnatcatcher and approximately 100 other potentially threatened or endangered species. This much-fragmented habitat is scattered over more than 6,000 square miles and encompasses large parts of three counties - Orange, San Diego, and Riverside - and smaller portions of two others - Los Angeles and San Bernardino. Fifty-nine (59) local government jurisdictions, scores of landowners from across these counties, federal wildlife authorities, and the environmental community are actively participating in the program.



The southern California coastal sage scrub NCCP region is organized into 11 planning "Subregions". For planning purposes, some of the Subregions are organized into "Subareas" that correspond to the geographic boundaries of participating jurisdictions or landowners. In each subregion and subarea, a local lead agency coordinates the collaborative planning process. Working with landowners, environmental organizations, and other interested parties, the local agency oversees the numerous activities that compose the development of a conservation plan. The Department of Fish and Game and the U.S. Fish and Wildlife Service provide the necessary support, direction, and guidance to NCCP participants in these functions.

The NCCP approach to conservation is available statewide and planning efforts have begun in Merced and Placer Counties. Plans are being considered in several other northern California areas including Contra Costa, Shasta, Solano, and Yolo Counties.

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merced county
natural community conservation plan

new information

stakeholder groups

advisory committee

science advisors

background information

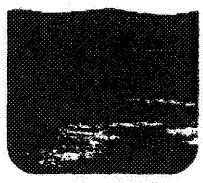
questions & answers

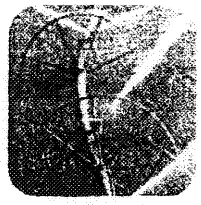
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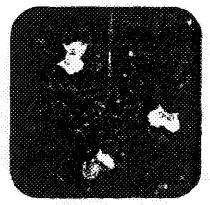
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Collaboration is Key to Proposed Habitat Plan

The Merced County Board of Supervisors voted on December 18, 2001, to begin developing a plan that, if approved, could both protect eastern Merced County's important natural resources, agricultural lands and open space, and streamline permitting processes that support development and agricultural productivity. Development of the Natural Community Conservation Plan (NCCP) and Habitat Conservation Plan (HCP) will begin in early January 2002, with a goal of completion in late 2004.

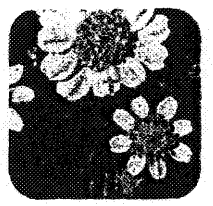

Merced Vernal Pool

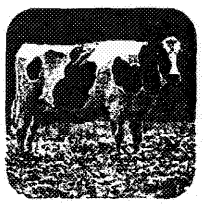

Crop Irrigation


Doublehorn Calicoflower

"The County is committed to a collaborative, systematic approach," said Bob Smith, head of the NCCP/HCP planning team and Planning Director for the Merced County's UC Development office. "Our goal is to protect eastern Merced County's ecologically significant resources, open space and agricultural lands; to support the County's General Plan; to enhance the economic vitality of the County and to ensure that development under the General Plan complies with federal and state environmental laws."

Related activities include developing an inventory of eastern Merced County's plants and animals protected by law, strategies to preserve those species, financing options and the final environmental impact analysis. Public participation will be an essential element of the Plan development. That participation will include "stakeholder" and advisory committees formed to advise the Board, County staff and its consultants, as well as outreach and education to the community at large. The interests of farmers and ranchers, business and development interests, community interest groups, environmental groups, local government and special districts, and state and federal agencies will be discussed throughout the planning process.


Fremont's Goldfields


The Dairy Industry


Vernal Pool Fairy Shrimp

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- NCCP Home
- NCCP Update
- Scientific Input
- Southern California NCCP Area Map
- Publications
- News Releases
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- Grants

Status of NCCP Planning Efforts:

Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP). The CVMSHCP covers the central portion of Riverside County which is the westernmost edge of the Sonoran Desert. The plan area covers 1,136,261 acres, a diverse mixture of desert and mountain habitats. The Coachella Valley Association of Governments has prepared an Administrative Review Draft which reflects the work of the Scientific Advisory Committee, the Implementation Subcommittee, and the Project Advisory Group. After receiving comments from the local, state and federal agencies, a Public Review Draft and Draft EIR/EIS is scheduled for release in early 2003. An independent scientific advisory group was convened to provide additional scientific guidance on the plan, and their report was released in April, 2001.

Mendocino Redwood Company Plan. Mendocino Redwood Company is transforming its landscape approach to sustainable yield timber harvesting into a Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP) intended to conserve certain listed and unlisted species and important natural communities on its lands. Although the HCP/NCCP is still being drafted, it will propose to cover approximately 232,000 acres of private lands within the timber harvest zones of Mendocino and Sonoma Counties that the company currently owns or holds timber rights to. The draft planning agreement was available for public review in December 2002. The plan is being designed with the input of independent scientific advisors. More details about the HCP/NCCP and the planning process are at MRC's website at http://www.mrc.com.

Merced County and University of California at Merced Plan. The Merced Plan covers the eastern portion of the county near the town of Merced. The County of Merced and the University of California are working together to develop an NCCP plan that will address conservation of the grassland, vernal pool ecosystem while accommodating a new UC campus and additional growth and development in the adjacent urban areas. Biological data has been collected and is available in a report entitled "The Wildlife and Rare Plant Ecology of Eastern Merced County's Vernal Pool Grasslands". The team of independent scientific advisors have completed their report.



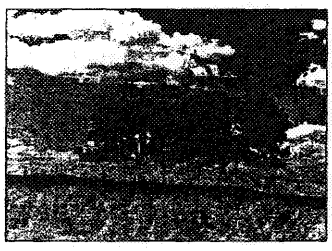
Orange County Central-Coastal NCCP Subregional Plan. (Approved). This subregional NCCP, approved in July 1996, establishes a 37,380 acre reserve system that includes significant areas of 12 major habitat types and covers 39 sensitive plant and animal species.

Orange County Northern Subregion. A Chevron USA 4(d) permit concurrence letter was issued by the wildlife agencies that will allow Chevron to complete oil field abandonment operations. The permit also commits Chevron to setting aside and managing a 28 acre preserve area for California gnatcatchers and funding cowbird control efforts.

Orange County Southern Subregion. The County and major landowners are preparing a subregional plan (NCCP/HCP) and special area management plan/master streambed alteration agreement that will integrate wetlands and endangered species permits. An update to the County's General Plan and Zoning Ordinance is also underway. A series of public workshops were held over the last several months to discuss alternatives that should be addressed for each of the three planning efforts in southern

Orange County. For additional information on the planning efforts please visit the County of Orange's website.

Palos Verdes Peninsula Subregional Plan. The City of Rancho Palos Verdes has signed a Planning Agreement that will address most of the coastal sage scrub habitat on the Palos Verdes Peninsula. A final plan is anticipated to be completed in 2003.



Placer County Legacy. Placer County, the Department, and U.S. Fish and Wildlife Service finalized an NCCP planning agreement. A Biological Working Group is meeting to prepare the plan. Several draft species accounts are nearing completion. These draft accounts have been posted on the HCP/NCCP data website. Additional accounts will be posted as they are completed. Meeting minutes and other plan information are posted on the County's HCP/NCCP website.

Western Riverside County Multi-Species Habitat Conservation Plan (MSHCP). Riverside County is taking an integrated approach to land use planning. The MSHCP is being developed in coordination with an update of the County General Plan and a transportation corridor plan. The public review period for the draft MSCHP closed on January 15, 2003. The draft MSHCP will build upon the previously approved Stephens' kangaroo rat Habitat Conservation Plan. The project area is 1.2 million acres and the proposed conservation area, including public lands, is approximately 500,000 acres. The core area reserves include habitats such as riparian, oak woodland, and 15,000 acres of coastal sage scrub. Species and habitats information is available from the University of California at Riverside, Department of Conservation Biology website.

San Bernardino Valley-wide Multi Species Habitat Conservation Plan (MSHCP). The MSHCP encompasses approximately 500 square miles containing six unique habitat types, six state endangered or threatened species, 13 federally endangered or threatened species, and over 53 species of special concern. San Bernardino County, through their Natural History Museum staff, has been conducting biological and botanical surveys for the past several years in order to identify habitat needs and requirements for the various sensitive species.

San Diego Multiple Species Conservation Program (MSCP). (Approved). In December 1996, the Department of Fish and Game and the U.S. Fish and Wildlife Service approved a habitat plan that encompasses 582,000 acres and establishes a 172,000 acre preserve system in southwestern San Diego County. This subregional plan covers 85 species of plants and animals and 23 vegetation types. The MSCP area encompasses the following eleven planning Subareas in various stages of plan development. Other jurisdictions within the MSCP Subregion include Imperial Beach, Lemon Grove, and National City. These cities have not initiated the development of subarea plans. Approved Subarea Plans to date include the La Mesa Subarea Plan, Poway Subarea Plan, City of San Diego Subarea Plan, and the County of San Diego Subarea Plan.

City of Chula Vista MSCP Subarea Plan. The public review draft subarea plan was published in the Federal Register on October 10, 2002. The public review draft includes the MSCP Subarea Plan and appendices, the Draft Implementing Agreement, the Draft Implementing Ordinances, and the Draft Supplemental EIR and EA. The 60 day public comment period closed on December 9, 2002. This subarea covers approximately 57,828 acres, 56 percent of which is presently located within the City's incorporated boundaries. The remaining acres are located in the unincorporated area of San Diego County. This approach has been used in anticipation of annexation of large segments of Otay Ranch and San Miguel Ranch into the City. The Plan will preserve an approximate 9,201 total acres. Completion of the Subarea Plan is anticipated to occur in 2003.

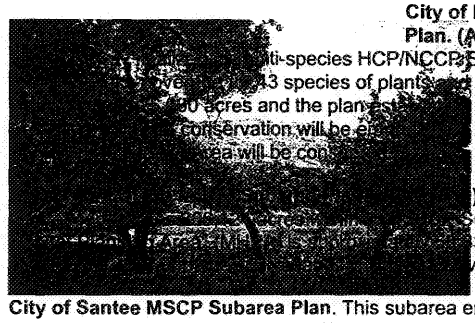
City of Coronado MSCP Subarea Plan. The plan addresses coastal lands and

biological communities along the Silver Strand Peninsula. Roughly 250 acres will be preserved. The City Council adopted the Coronado Subarea Plan in July 1995; however, no permits have been requested from the wildlife agencies.

City of Del Mar MSCP Subarea Plan. The plan focuses on six areas with significant resources in the mostly built-out city. The primary consideration is the southern area of the city, which includes a portion of the San Dieguito Lagoon. A draft plan has not yet been submitted.

City of El Cajon MSCP Subarea Plan. A draft subarea plan has been prepared, but has not been submitted to the wildlife agencies for final review and approval.

City of La Mesa MSCP Subarea Plan. (Approved). The City of La Mesa Subarea Plan was approved by the wildlife agencies in November 1999. La Mesa's remaining habitat area consists largely of coastal sage scrub, however all losses will be mitigated elsewhere within the MSCP Subregion.



City of Poway MSCP Subarea Plan. (Approved). In July 1996, the ...ti-species HCP/NCCP Subarea Plan, which provides ...ve ...3 species of plants ... animals. The City of Poway ...0 acres and the plan ... a 13,300 acre Mitigation ... conservation will be ... A minimum of 78% of habitat ...ea will be co...). This approved subarea ...Subregion. The City's "Multiple ...31 acres. Approximately ...ved for biological purposes.

City of Santee MSCP Subarea Plan. This subarea encompasses 10,650 acres of which 57 percent is developed and 43 percent (4,600 acres) is undeveloped. The subarea plan seeks to conserve at least 2,300 acres of primary biological core areas. A draft plan has not been submitted for wildlife agency review and approval.

County of San Diego MSCP Subarea Plan. (Approved). The County subarea is located in the eastern part of the MSCP Subregion. The subarea encompasses 252,132 acres (184,248 acres is habitat), of which 101,268 acres will be conserved. The County Subarea Plan was approved by the wildlife agencies in March 1998. The County's MSCP Portal offers detailed information.

North County MSCP Subarea Plan. County of San Diego lands formerly within the MHCP area have been redefined as part of the North County Subarea of the San Diego MSCP and will be amended into the MSCP. Additional biological information has been collected and a science advisory process is underway. A habitat evaluation results map is posted on the County's website.

Otay Water District MSCP Subarea Plan. The Otay Water District is preparing revisions to its Subarea Plan and developing a draft Implementing Agreement for agency review. The District maintains a biological reserve of 230 acres known as the San Miguel Habitat Management Area, which serves as a mitigation bank for District project impacts. Conserved lands will function as components of the MSCP preserve system.

Cities of Imperial Beach, Lemon Grove, and National City. At this time, these jurisdictions have elected not to participate in the San Diego MSCP.

San Diego Multiple Habitat Conservation Program (MHCP). (Approved). The subregional plan for the northwestern portion of the County (cities of Carsibad, Encinitas, Escondido, Oceanside, San Marcos, Solana Beach and Vista) was approved by the San Diego Association of Governments Board of Directors on March 28, 2003. NCCP permits will

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be issued to participating cities upon completion and Department approval of their individual subarea plans.

City of Carlsbad MHCP Subarea Plan. The subarea encompasses 24,570 acres (8,758 acres is habitat), of which 6,400 acres will be conserved. The City has completed preparation of the Habitat Management Plan, and submitted it to the wildlife agencies for approval. The public review comment period closed in July 2000. The subarea plan is analyzed in the MHCP EIR/S.

City of Encinitas MHCP Subarea Plan. The City has delineated a preliminary preserve planning area and released its draft subarea plan for public review in June 2001. The subarea plan is analyzed in the MHCP EIR/S.

City of Escondido MHCP Subarea Plan. The City has acquired the 3,058 acre Daley Ranch, a cornerstone open space conservation area within the City. A subarea plan was released for public review in June 2001. The subarea plan is analyzed in the MHCP EIR/S.

City of Oceanside MHCP Subarea Plan. The City released its subarea plan for public review in June 2001. The subarea plan is analyzed in the MHCP EIR/S.

City of San Marcos MHCP Subarea Plan. The City released its subarea plan for public review in June 2001. The subarea plan is analyzed in the MHCP EIR/S.

City of Vista MHCP Subarea Plan. The City area will be covered by the MHCP subregional plan, but a draft subarea plan has not yet been submitted.

County of San Diego Multiple Habitat Conservation and Open Space Program (MHCOSP). The County of San Diego has deferred planning for this subregion until it completes its North County Subarea Plan MSCP amendment.

San Diego Gas & Electric (SDG&E) Company Subregional Plan. (Approved). The NCCP Plan for SDG&E, a linear NCCP extending from southern Orange County south to the Mexican border, was the first plan approved in San Diego County (1995). The project covers 110 plant and animal species and emphasizes avoidance of impacts. The plan establishes mitigation requirements, which may include revegetation or use of up to 240 acres of mitigation credits set aside in several land parcels purchased by SDG&E as mitigation banks. SDG&E's properties and easements play an important role in the NCCP Region in providing habitat connectivity in areas where little natural habitat remains. An amendment is being prepared for wildlife agency review and approval.

San Diego Joint Water Agencies Subregional Plan. The JWA Subregional Plan describes how certain water districts in San Diego County will manage their lands to conserve natural habitats and species while continuing to provide their mandated water services. The subregional plan will serve as an umbrella document for the subarea plans of four water districts: Helix Water District, Padre Dam Municipal Water District, Sweetwater Authority, and Santa Fe Irrigation District.



Solano County HCP/NCCP. The Solano County HCP/NCCP would establish a county-wide comprehensive program for species and habitat protection on undeveloped and agricultural land in response to existing and projected water delivery service needs. The activities of five cities, two water agencies and a reclamation district will be addressed in the plan. These include urban development, operation and maintenance of irrigation, flood control and drainage systems, and certain agricultural and habitat management activities associated with

the management of habitat reserves that may be established under the HCP/NCCP. Solano County Water Agency is the plan lead. The report of the independent science advisors was published in fall 2002. Participants are finalizing a planning agreement that will be made available for public review in early 2003.

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USING SCIENCE IN HABITAT CONSERVATION PLANS

Peter Kareiva, Sandy Andelman, Daniel Doak, Bret Elderd, Martha Groom, Jonathan Hoekstra, Laura Hood, Frances James, John Lamoreux, Gretchen LeBuhn, Charles McCulloch, James Regetz, Lisa Savage, Mary Ruckelshaus, David Skelly, Henry Wilbur, Kelly Zamudio, and NCEAS HCP working group *

The NCEAS HCP working group consisted of 106 students participating in a nationwide graduate-level course led by the following faculty advisors: Sandy Andelman, Dee Boersma, Daniel Doak, Harry Greene, Martha Groom, Frances James, Peter Kareiva, Ingrid Parker, James Patton, Mary Power, Mary Ruckelshaus, David Skelly, and Kelly Zamudio.

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Key Words: habitat conservation plans; Endangered Species Act; habitat management; extinction; conservation planning; monitoring.

AR 13601

EXECUTIVE SUMMARY

The Endangered Species Act of 1973 (ESA) was established to save species at risk of extinction and to protect the ecosystems upon which they depend. Toward that aim, the ESA makes it unlawful for any person to "take" a listed species. In 1982, the ESA was amended to authorize incidental taking of endangered species by private landowners and other non-federal entities, provided they develop habitat conservation plans (HCPs) that minimize and mitigate the taking. Since 1982, HCPs have rapidly proliferated, leading in turn to widespread concern among conservationists that these plans are not being prepared with adequate scientific guidance. Critics have argued that scientific principles must be better incorporated into the process of developing HCPs. In response to these criticisms, we reviewed a set of approved habitat conservation plans to evaluate the extent to which scientific data and methods were used in developing and justifying them. The review was conducted through a nationwide graduate seminar involving eight major research universities, 106 students, and 13 faculty advisors. Our analyses focused on the extent to which plans could be substantiated by science. Thus, even if based on the best available data (the legal requirement), a legally and politically justified plan could be deemed scientifically inadequate because, by more stringent scientific standards, the data were insufficient to support the actions outlined in the plan.

A Systematic Effort to Collect Quantitative Data on Science in HCPs

This investigation proceeded along two lines. First, individuals gathered data on 208 HCPs that had been approved by August 1997 in order to obtain basic descriptive information about plans. Second, the group conducted a more comprehensive analysis for a focal subset (43) of these plans. The HCPs in the focal subset range widely in geographic location, size, duration, methods, and approval dates. For this in-depth investigation, we developed two separate data questionnaires: one asked for information on the plans themselves, and the other focused on listed species and their treatment within HCPs. These questionnaires included information about what scientific data were available for use in formulating the HCP, how existing data were used, and the rigor of analysis used in each stage of the HCP process. As a whole, the questions were designed to generate a detailed profile of each HCP and to document the use (or lack thereof) of scientific data and tools. Plans were not judged overall; rather, questionnaires focused on different stages of the planning process, including the HCP's assessment of (1) the *status* of the species; (2) the "*take*" of species under the HCP; (3) the *impact* of the take on the species; (4) the *mitigation* for the anticipated take; and (5) the biological *monitoring* associated with the HCP. All of the data sheets, plan descriptions, and other detailed results from this effort are available on the NCEAS website: **http://www.nceas.ucsb.edu/projects/hcp/**

Results

From our data on 208 HCPs, we were able to outline an overall picture of HCPs across the landscape. These 208 HCPs involve permits for incidental take of 73 endangered or threatened species. Of those 208, a great majority (82%) involve a single species, although the profile is skewed by more than 70 plans involving the golden-cheeked warbler (*Dendroica chrysoparia*) in Travis County, Texas. HCPs occur in 13 states; the largest concentrations are in Texas, Florida, and California. They range in size from only 0.17 ha (0.5 acre) of habitat to 660,000 ha (1.6 million acres) of habitat. The duration of plans also varies widely, from seven months for a plan in Travis County, Texas, to 100 years for the Murray Pacific Company's HCP

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in Washington. HCPs do not appear to be getting larger, smaller, longer, or shorter over time.

In our more comprehensive examination of the focal HCPs, we direct much attention to what we call scientific adequacy. It is important to note that an HCP would be labeled scientifically inadequate if insufficient data were available to justify an action formally, even though legally the plan might be defensible. HCPs and many other provisions of the Endangered Species Act require only that decisions be based on the best available data. Scientifically, however, to support a claim we require data that when analyzed give some statistical confidence of an assertion, and that confidence is often lacking in applications of science to conservation biology because of a paucity of data. For example, from a scientific perspective, the best data might suggest a particular relationship between loss of habitat and loss of individuals, but the data are so variable and scarce that one could never have scientific confidence in the presumed relationship. Our aim is not to change the law but to point out just how much science is being used, and can be used given the availability of data pertinent to HCP development. The conclusions we draw probably apply to many other facets of federal decisions regarding species listed as endangered or threatened.

Status/Take/Impact

Because they involve take of endangered species, HCPs must include information about the ***status*** of populations and habitats of the species, an assessment of how many individuals and how much habitat will be ***taken*** under the plan, and what ***impact*** that take will have on the species overall. We found that, for most species (74%), population sizes were known to be declining globally before the HCP was submitted; 21% were stable, and 5% were increasing. The most important threat to species was habitat loss, although habitat degradation or fragmentation and direct human-caused mortality also represented important threats. Notably, for only 56% of the instances in which a listed species might be "taken" by an activity was the predicted take quantitatively estimated. And only 25% (23 of 97) of species treatments included both a quantitative estimate of take and an adequate assessment of the impact of that take.

Mitigation

A crucial measure for the success of HCPs is the choice and implementation of measures to avoid, minimize, and mitigate impacts on the species included in the permit. If the appropriate measures are chosen and implemented in a timely fashion, the impact on the species in question might be effectively mitigated, justifying the issuance of an incidental take permit. For this analysis, we chose to evaluate avoidance, minimization, and mitigation measures as overall "mitigation," because they all involve offsetting potential impacts to species. Minimization and avoidance of the threatened species are by far the most common mitigation measures (avoidance is proposed for 74% of species, and minimization for 83%). Our analyses identify some important gaps in quality of data underlying mitigation proposed in HCPs. Overall, particular mitigation measures commonly suffered from an absence of data indicating they were likely to succeed, leading to a situation in which "unproven" mitigation measures were relied on in the HCPs. Given this uncertainty, one would expect that a mitigation measure should be evaluated prior to the onset of take. Unfortunately, such a precautionary approach was often lacking.

Monitoring

We determined whether biological monitoring (i.e., "effectiveness monitoring" or

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monitoring of trends in the populations that are potentially affected) was included for the HCPs in our sample. In this analysis, we looked at each plan as a sampling unit (n = 43), and we only considered information included in the plan or associated documents. For only 22 of the 43 plans was there a clearly outlined monitoring program. Of those 22 well-described monitoring programs, only 7 took the next step of indicating how the monitoring could be used to evaluate the HCP's success. Interestingly, although most plans do not include provisions for "adaptive management," when plans do include such provisions they are significantly more likely to include clear monitoring plans as well.

Availability and Use of Information Needed for Scientifically Based HCPs

In many cases, we found that crucial, yet basic, information on species is unavailable for the preparers of HCPs. By crucial, we mean information necessary to make determinations about status of the species, the estimated take under the HCP, and the impact of that take on the species. For example, in only one-third of the species assessments was there enough information to evaluate what proportion of the population would be affected by a proposed "take." If we do not know whether one-half or one-hundredth of a species' total population is being affected by an action, it is hard to make scientifically justified decisions.

We assessed the overall adequacy of scientific analysis at each stage of the HCP process. Although this evaluation of scientific adequacy amounted to a largely qualitative assessment, the foundations of that assessment were well specified by series of background questions; "overall adequacy" was consistently well predicted by data obtained for these background questions. In general, the earlier stages in HCP planning are the best documented and best analyzed. In particular, species status is often well known and adequately analyzed, whereas the progressive analyses needed to assess take, impact, mitigation and monitoring are more poorly done or lacking. Our evaluations also indicate that the very large and the very small HCPs contain the poorest analysis. In terms of plan duration, it appears that shorter-duration plans have better estimates of the amount of take, but longer-duration plans have better analysis of the status of the species and the mitigation measures imposed.

Conclusions and Recommendations

Although our analysis points to several shortcomings of HCPs, we acknowledge that the HCP process is new, complex, and difficult. In general, the USFWS and NMFS are doing a good job with the data that are available. They do not have the resources to obtain the data that are needed for many of the decisions that must be made. Without such resources, the best scientific approach is to be more cautious in making decisions and to use the findings of this report to justify requests for additional resources.

Recommendations

1. We recommend that greater attention be given to explicit scientific standards for HCPs, but that this be done in a flexible manner that recognizes that all HCPs need not adhere to the same standards as high impact HCPs. A formalized scheme might be adopted so that small HCPs draw on data analyses from large HCPs, assuring that applicants are not paralyzed by unrealistic demands.

2. For the preparation of individual HCPs, we recommend that those with potentially large

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impact (those that are large in area or cover a large portion of a species' range) include an explicit summary of available data on covered species, including their distribution, abundance, population trend, ecological requirements, and causes of endangerment. HCPs should be more quantitative in stating their biological goals and in predicting their likely impact on species. When information important to the design of the HCP does not exist, it may still be possible to estimate the uncertainties associated with the impact, mitigation, and monitoring, and to still go forward, as long as risks are acknowledged and minimized. Flexibility can be built into mitigation plans so that managers can be responsive to the results of the monitoring during the period of the HCP. When highly critical information is missing, the agencies should be willing to withhold permits until that information is obtained.

3. For the HCP process in general, we recommend that information about listed species be maintained in accessible, centralized locations, and that monitoring data be made accessible to others. During the early stages of the design of potentially high-impact HCPs and those that are likely to lack important information, we recommend the establishment of a scientific advisory committee and increased use of independent peer review (review by scientists specializing in conservation biology). This policy should prevent premature agreements with development interests that ignore critical science.

AR 13605

5.13 Cultural Resources

281-547

• Please refer to our scoping comments of September 2001 on Cultural Resources beginning on p. 78 for the numerous questions raised there and unanswered here.

In introductory material to this section, the DEIR presents arguments on p. 5.13-1 leading to the conclusion that "areas exhibiting slopes of less than 25% within 100 feet of a natural perennial water source are the most sensitive and likely to contain at least prehistoric sites, features, or artifacts". Later in the discussion of prehistory (pp. 5.13-4 to -5) the DEIR admits that "[e]arly Native American occupation has resulted in sites being distributed throughout the county" in the form of "stone tool scatters, midden deposits, and small campsites", as well as stone quarries, bedrock mortars, and large village sites with house pits.

281-548

The DEIR goes on to say (p. 5.13-2) that "more than 1,300 prehistoric and historic cultural resources had been documented within the county as of 2002. Two associated tables describe"eleven" properties listed on the National Register of Historic Places and the California Register of Historic Places, and separately, California State Historic Landmarks.

• Please give a statistical breakdown of the documented prehistoric sites to evaluate the two statements, that such sites are most likely to be associated with perennial water sources, and that they are distributed throughout the county. How has this information been used in connection with evaluation of development proposals?

281-549

• Table 5.13-1 lists only eight, not eleven properties. Please provide the appropriate information to complete the table with the missing three properties.

281-550

• There is further mention that an additional 70 eligible resources have been identified. We appreciate the inappropriateness of giving detailed information about their location. Nevertheless, planners need the information in reviewing proposals. How is this need-to-know accommodated?

Prehistoric Native American sites in the County may, says the DEIR, date from as long ago as 10,000 to 12,000 years Before Present, though documented sites are thought to date to 4,750 to 2,500 BP. Peoples on the western slope depended heavily upon oaks and their acorns, while those of the eastern slope were dependent upon a wider range of plant materials.

Euroamerican history really commenced, of course, with the discovery of gold. This period of history gave rise to our current towns and communities (though leaving many others as only dim memories), our basic road network (though modified over time), many place names, and traces of mining of various sorts. Agriculture began early in order to support the new populations, and logging to supply needs for both mining and residences.

281-551

Protection of cultural sites is rendered under both the California Environmental Quality Act and the National Historic Preservation Act. Privately-owned properties do not enjoy any protection, per the DEIR (p. 5.13-8). State Historic Landmark recognition can be applied more broadly, however. Georgetown (as a town), the Pony Express (route), and Negro Hill (as a locality) are so listed. If a property is listed by the State, an owner, public or private, may be able to receive funding help for preservation or restoration.

Native American remains are protected under CEQA, as are cultural resources when accidentally found. The former are also protected under the Native American Graves Protection and

AR 13606

Repatriation Act of 1990 when federal involvement in a development project is involved. Recent state legislation has extended similar protection under state law.

The DEIR mentions on p. 5.13-10 several organizations and commissions that are involved in cultural resource management, including the County Historical Museum, the County Historical Society, and the County Pioneer Cemetery Commission.

281-551

• Please discuss the nature and role of each of those listed relative to cultural resource management. Is the County Pioneer Cemetery Commission the same as El Dorado County Pioneer Cemeteries Commission? An El Dorado County Cemetery Advisory Committee was formed in June 2002 but is not in the DEIR's list. What is it and its status and role?

• What of the several local groups interested in history, such as the El Dorado County Historical Society, the Rescue Historical Society, etc. Do they have any role in cultural resource management?

281-552

The 1996 General Plan called for establishment of a Cultural Resources Preservation Commission. One was formed in 1998. But it was disbanded in January 2003 and the ordinance that created it was repealed a month later.

• What was the envisioned role of this Commission? What unaddressed issue was it intended to address? What were the problems that led to its disbandment and the repeal of the establishing ordinance? What would fill this gap in the new general plan? With the 1996 General Plan under consideration as one of the "equal-weight" alternatives, what would be the status of this Commission?

281-553

Impact 5.13-1 p. 5.13-11 Destruction or Alteration of Known and Unknown Prehistoric and Historic Sites, Features, Artifacts, and Human Remains.

Proposed mitigation measures for the four "equal-weight" alternatives are very similar and include, among others, 5.13-1(a), a review process that would apply to all development projects that would identify the presence of previously unknown cultural resources and verify information on known ones; 5.13-1(b), to treat significant resources in ministerial development in accordance with CEQA standards (but they have to be on the CRHR/NRHP eligibility list).

281-554

Please refer to the discussion in these comments relative to communication towers under Visual Resources. The affected cemetery was St. Michael's Catholic Cemetery and it had been thought to belong to the County because of a long-ago "recording error". If the County thought it was the owner, as apparently it did, it had certain legal duties to protect the cemetery under state law, yet it apparently allowed Pacific Bell to build a telephone relay station over part of the cemetery in 1988, destroying a family burial ground. Later, in 1993, it allowed a developer to build a road through the heart of the cemetery with apparently unknown impacts to 6 to 8 graves (removed or desecrated). The County later was compelled to pay a settlement to the Catholic Church.

• How does the proposed review in 5.13-1(a) differ relative to cultural resources from the present review process, which seems to have been ineffective in important situations? How would the proposed mitigation forestall repetition of such a situation?

• Please explain how, as the proposed new policy under 5.13-1(b) is written, it could possibly help reduce impacts on an "undocumented cultural resource" as the following paragraph in the DEIR alleges. Also, what would be the mechanism by which this would be applied to

281-555

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281-555

ministerial projects?

281-556

• With the high standards of CRHR/NRHP eligibility, what sort of cultural resources might be affected adversely because of lack of eligibility? Would a formal decision be required from state and federal authorities before this measure would be applied? How long do such decisions usually take? Might the issue be moot before a decision is reached? Just how would this work?

281-557

Another proposed mitigation measure (5.13-1(c)) would replace Policy 7.5.1.1 with a requirement for a Cultural Resources Ordinance (the old policy called for text in the Zoning Ordinance). Missing is implementation wording setting forth a time line. Application is only to discretionary projects. In this text, setbacks from sites are provided for and a county-appropriate definition of "significant" is called for that might differ from the CRHR/NRHP standards. This would enable the County to determine its own standards for significance.

• While these measures all appear to be heading in the right direction, until the questions are answered and the blanks filled in, how can it be concluded that they can or will be effectively carried out so as to result in reducing possible impacts to less than significant in any alternative?

281-558

‡ We propose an additional policy (or for incorporation into one of the proposed new policies) that requires a setback of 100 feet from any cemetery, whether prehistoric, historic, or currently in use. It is known from the work of the EDC Pioneer Cemeteries Commission that it is fairly common for burials to have occurred outside of a cemetery's fence. Development proposals adjacent to pioneer cemeteries should be required to hire an archaeologist to assess actual cemetery boundary lines. See Mitigation Measure 5.13-1(g), which is fine as far as it goes, but needs named setbacks.

281-559

For historic buildings the similar mitigation measures for the four "equal-weight" alternatives include a new Policy establishing Historic Design Control Districts. Here, too, the proposal seems fine, with one exception: 7.5.2.2. B. refers to conforming "to styles of architecture *and construction* prevalent during the latter half of the 19th century into the first decade of the 20th century." We suppose it comes down to what is meant by "construction style".

• We suspect that "architectural style" is sufficient and "construction style" would violate current building codes and standards for energy efficiency. Please expand on what is meant and reword, as appropriate.

281-560

‡ Please also consider wording such as "used in rural settings". We think that quite elaborate architectural styles were used in the first decade of the 20th century, and perhaps even earlier, in urban settings that would be of questionable appropriateness for historic settings in unincorporated El Dorado County.

281-561

New policy 7.5.2.4, governing modifications of listed historic properties, also seems good.

Policy CO-9b (p. 5.13-28) appears to limit the role of the CRPC (should it be reestablished) to only design review.

• Please see our queries above re the brief history of the CRPC after adoption of the 1996 General Plan. It would appear that unless the Planning Department undergoes a heart transplant, this change would leave the County without a badly needed watchdog for historical preservation. Please discuss this issue and modify the proposed mitigation accordingly.

AR 13608

Badly needed is some way of helping private owners to preserve significant resources like the Bayley house and the Stone House in Shingle Springs, or to be sure that, if in public ownership, such remnants of the County's historic past are not left to decay. The sad story of the decline of the Stone House is set forth in attached documents. Alexander Andres, before he died in 1999 at the age of 96, told one of us that he had at one time owned the Stone House and that he always kept the roof in good repair. But the County, he said, came to own the building and let the roof go, which introduced water into the interior, hastening the deterioration of the building.

281-562

‡ We urge additional mitigation directed at the foregoing problem. Preserving our heritage of historical buildings and sites benefits the economy of the County as a whole and, therefore, its residents.

The Amador County Chamber of Commerce includes on its website (as we said in scoping comments, which, again, we request you to review and respond to) a map of locations of old cemeteries with information about each. Surveys have shown the chamber that 11 percent of visitors come to the County specifically to visit old cemeteries. El Dorado County has some 200 burial grounds, according to the County Pioneer Cemeteries Commission. Think of the possibilities!

281-563

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AR 13610

An old El Dorado fight flares anew

S. 13, 9/15/2002

Preservationists say planners are trampling on the county's artifacts.

By Stuart Leavenworth
BEE STAFF WRITER

El Dorado County takes pride in its history. "This is gold country," says the county's Web site. "This is where the Gold Rush was born."

But according to several members of the county's Cultural Resources Preservation Commission, El Dorado planners are riding roughshod over that history – by failing to ensure that proposed development doesn't damage artifacts left behind by pioneers and American Indians.

This years-old dispute reflared last week when a member of the cultural commission resigned and sent a stinging letter to the county, accusing planners of favoring development over protection of archeological sites.

"It is futile to continue on a commission that is acting simply as a puppet for the planning department," wrote Jean Starns, an anthropologist who had served on the commission for the past year.

Starns says that county planners routinely have overruled the 12-member commission, allowing farmers and developers to disturb land without even basic checks of historical records.

"The Planning Department has no real interest in preserving the cultural resources of the county," Starns said in an interview. "By doing this, I hope county supervisors will sit up and take notice."

Several county supervisors, busy with budget hearings this week, did not return phone calls. But one, Penny Humphreys, said she was surprised by Starns' sudden resignation.

"Obviously, we are going to look at it and see if the statements are true," said Humphreys, who represents District 4.

▶ COUNTY, page B5

> *"The Planning Department has no real interest in preserving the cultural resources of the county."*
>
> Jean Starns, an anthropologist who resigned in protest from the El Dorado County Cultural Resources Preservation Commission

County: Many charges off-base, top planner says

▶ CONTINUED FROM B1

The county's planning director, however, said many of Starns' accusations are off-base and unfair to his department.

"We are doing more (archeological) surveys than we've ever done," said Planning Director Conrad Montgomery. "In fact, I am constantly barraged with complaints from property owners about all the surveys we do."

Crisscrossed by old Indian paths, emigrant trails and the original Pony Express highway, El Dorado County is a crossroads of archeological sites. The county is dotted with pioneer cemeteries and Indian cremation grounds, many of which are found on small patches of flat land that are now prime sites for development.

In 1998, the county established the Cultural Resources Preservation Commission to help review proposed development permits, document pioneer cemeteries and ensure the county complies with the California Environmental Quality Act. All members are appointed by county supervisors, and Starns joined the commission last year after a decade working for the El Dorado Irrigation District, including several years as a cultural specialist.

From the start, Starns said, county planners dismissed many of her suggestions and those of other commissioners. Several times, she said, planners approved projects before the commission could review them, rendering its work meaningless.

The most recent instance, she said, came when a county planner ruled that no environmental review was needed for an 18-acre site in Pilot Hill where a landowner was planning a home. On its own, the commission conducted a records search of the site, which led to an on-site survey that found a prehistoric Indian hunting camp on the property.

This month, she said, planners also issued an "after-the-fact" permit for a private campground in Happy Valley without consulting the commission. Now, she said, the panel has learned the land "may very well include Indian artifacts."

Montgomery, the county planning director, acknowledged some friction with the commission, but he disputed any attempt to undermine its work.

Often, said Montgomery, the county issues "certificates of compliance" for projects, such as the Pilot Hill acreage. Such certificates, he said, are an initial step toward developing a parcel but don't constitute a building permit or a grading permit.

"In certain situations, the land is not going to be disturbed," said Montgomery. In those situations, the Planning Department doesn't think an archeological survey is necessary, he said.

Starns and some other commissioners, however, say planners repeatedly side with developers and landowners.

"Everything Jean wrote in her letter was accurate and on the mark," said Joan Wicklund, who has served on the commission for two years. "You sit on this commission and your decisions are constantly overridden. It makes you wonder: Why waste your time?"

In El Dorado County, said Wicklund, the conversion of ranch land to vineyards has been a major point of contention. The Planning Department, she said, has balked repeatedly at requiring archeological reviews when farmers seek county tax breaks under the Williamson Act, a state farmland preservation law.

Montgomery said such reviews would be onerous to landowners who already have agricultural zoning. Starns disagrees. She said many landowners are using tax breaks to convert ranch land into vines, plowing through ground that could include valuable artifacts.

"This is an issue all over the state," said Karen Schambach, a Georgetown resident who works for a watchdog group, Public Employees for Environmental Responsibility. "Cultural sites are being trampled all over, and part of the problem is that archeologists are afraid to speak up."

Starns said she decided to speak up after learning last week that two supervisors wanted to further restrict the type of projects the commission could review. The two supervisors, she said, are Carl Borelli and Helen Baumann, who couldn't be reached for comment.

"It was like banging my head against the wall," said Starns. "I finally decided it wasn't worth it."

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AR 13611

Lack of cultural commission clout causes resignation

By OLIVIA LOY
Staff writer
9/18/2002

The cultural resources and artifacts of a county whose history may stretch back as far as 6,000 years are not being adequately protected by county officials, states preservationist Jean Starns in her letter of resignation from the El Dorado County Cultural Resources Preservation Commission.

Starns had served on the commission for about a year when she resigned in protest last Wednesday. Starns quit, she said, because she and other members of the committee get shot down when making recommendations or suggestions to the El Dorado County Planning Department.

The commission is virtually powerless, states Starns, because "individuals within the county's Planning Department are consistently overriding recommendations of the commission."

It is the commission's responsibility to conduct surveys on certain sites posed for development to determine whether they hold any cultural or historical value and then provide recommendations to the Planning Department based on the information obtained.

"I feel it is futile to continue on a commission that is acting simply as a puppet for the Planning Department," wrote Starns. "There is a very real attempt on the part of the Planning Department to block the efforts of the commission in its attempt to ensure the adequacy of cultural resource reports for California Environmental Quality Act compliance and preservation of cultural resources."

The commission is an "advisory body for the Planning Department in certain circumstances," said Planning Director Conrad Montgomery. "I am disheartened that a member of the committee has stepped down and has accused the Planning Department of being a big part of that."

While the two agencies agree on most issues, he said, the commission wants to "go quite far in having cultural resource (reviews) done on everything that comes along in the permit process." They want to be involved in projects where land will not even be disturbed, he said.

For example, said Montgomery, the commission recommended they conduct a survey on a parcel of ranching farmland whose owner wished to change the property's tax status under the Williamson Act. The property was not undergoing any change in use, according to Montgomery. "The commission wanted to have more authority than reasonable to conduct studies," he said.

The commission was formed to provide additional cultural review information to the Planning Department for building permits. But, said Starns, the department would sometimes approve permits before the commission had a chance to review them.

The county department is not an island, as its first function is to serve the residents of El Dorado County, she said.

A "number of citizens" have complained about the burden of withstanding the extra preservation steps that have been implemented in the permitting process, said Montgomery.

The planning director praised the commission for its successes over the past four years.

It "has been very valuable," he said, elaborating that between 200 and 300 percent more cultural preservation surveys have been conducted since the commission formed in 1998. "I think they've done a great job and provided a great level of expertise that we haven't had until this point in time."

Virginia W. Crespo, chair of the Cultural Resources Preservation Commission, said, "It's unfortunate (Starns) has resigned. She has her reasons. As chair, I don't feel it's appropriate to comment." Crespo also said she did not want to "get in the middle."

Commissioners are appointed by the county Board of Supervisors to serve four-year terms, but several have quit earlier than scheduled for individual reasons, said Crespo, including dissatisfaction.

Archaeological excavations, performed "recently" in and around the Camino area, reveal that the area's history may date back as far as 6,000 years, but the creation of Jenkinson Lake has significantly disrupted it, said Starns in her letter. Also, Highway 50 in Shingle Springs runs across a prehistorical village, burial site and historical cemetery. The county, as a whole, holds hundreds of unevaluated sites that could possibly reveal unknown facts of the Gold Rush era.

"I believe El Dorado County is failing in its obligations to protect historic and prehistoric sites," states Starns.

Jean Starns did not return phone calls by press time to provide additional comments.

Olivia Loy can be contacted at oloy@mtdemocrat

Cultural commission dissolved for now

By HEATHER LAKE
Staff writer

10/11/2002

A waning Cultural Resource Preservation Commission forced the El Dorado County Board of Supervisors to unanimously decide at Tuesday's meeting to disband the current commission and start anew.

Supervisor Penny Humphreys put the matter on the agenda after receiving a number of e-mails and telephone calls regarding problems with the commission. Supervisor Helen Baumann said she too has gotten quite a number of complaints.

The commission, which was formed in 1998, was intended to be an advisory group to the Planning Commission on cultural resource matters within the county. Its role was to work with the county Planning Department at providing them information regarding historical value on proposed sites of development.

A lack of attendance at commission meetings, among other problems not specifically articulated at Tuesday's meeting, including some apparently regarding the Brown Act, apparently fueled the complaints.

In September the commission's preservationist, Jean Starns, resigned stating she felt

see COMMISSION, page A-11

COMMISSION

continued from A-1

the commission's efforts were "futile," and citing problems working with the Planning Department.

Supervisor Baumann said she would like to see Brown Act training for the future commission members. And Humphreys said the number of members should be reduced to ensure they always have a quorum.

Victoria Croft, another commission member, said at least 50 percent of members should be professionals in their fields of expertise, holding a master's degree or higher. The current commission only has one qualified professional who also happens to be among those who almost never attend, according to commission chair, Virginia Crespo.

At present the commission is unable to locate its data base which, Crespo said, they have been told is "lost in computer land."

Humphreys recommended in her motion the formation of a sub-committee within the next 60 days consisting of two board members, county counsel and a current commission member to look at reforming the commission, though, she said, she will not sit on any more sub-committees until after the upcoming election.

In the meantime the current commission will remain intact and county counsel will attend all meetings until issues are resolved.

Cultural panel to get makeover

A new focus and fewer members are in store for the the El Dorado commission.

By Maija-Liisa Young
BEE STAFF WRITER

El Dorado County's Cultural Resources Preservation Commission is undergoing a transformation.

The commission, charged with reviewing proposed development permits, documenting historical and archaeological sites and ensuring the county follows state regulations when building projects, will have a new focus, fewer members and an equal number of professionals and lay people serving on it.

The Board of Supervisors agreed this month to establish new guidelines for appointing commissioners and to narrow the panel's scope. County Planning Department staff members are working to define the commission's scope and duties and determine the optimum number of members.

The recommendations will be presented to supervisors in early December. Once the the board has approved the recommendations, the commission will be disbanded and re-created.

The decision came a month after Jean Starns resigned from the commission, saying county planners constantly disregarded the panel's recommendations.

Supervisors said they knew problems existed with the commission.

"We have had several issues come up over the past year," said Supervisor Helen Baumann. "We noticed during the process there is an inconsistency given to the cultural resources commission. If you look at our current ordinance, it's really a broad ordinance. It doesn't give clear definition to the commission."

Commissioners are frustrated partly because they have spent time researching projects that did not fall into their purview, said Supervisor Penny Humphreys.

"The commission didn't understand the agricultural designations and the Williamson Act," she said. "They really aren't suppose to comment on those."

Virginia Crespo, commission chairwoman, agreed that changes need to be made. The commission's guidelines have not been reviewed since the panel was established in 1998 and, like other ordinances, need to be re-examined after a few years, she said.

"We live in a very historically rich area," Crespo said. "Our county is where gold was discovered. It was an area that for many years was settled by Native Americans.

"There needs to be a group that provides a place where people come together and save cultural resources."

Another problem is the 11-member commission is too large, and getting a quorum of six members is difficult, supervisors said. They would like to see a seven-member commission.

Originally, half the commission members were to be professionals – defined as someone with a master's degree who could provide expertise in an area such as archaeolo-

▶ PANEL, page 8

Panel: Imbalance has occurred

▶ CONTINUED FROM PAGE 1

gy. The other half were to be interested residents. Over the years, an imbalance has occurred, and now only one professional serves on the panel.

"You really need a professional perspective to really assess the cultural resource reports," Crespo said.

Although the Board of Supervisors is to hear county staff members' recommendations for the commission in December, a new commission will not be appointed before the beginning of the year, Humphreys said.

□ □ □

The Bee's Maija-Liisa Young can be reached at (916) 608-7453 or myoung@ sacbee.com.

"We live in a very historically rich area. ... There needs to be a group that provides a place where people come together and save cultural resources."
Virginia Crespo
Cultural Resources Preservation Commission

AR 13614

Cultural Commission disbanded

Ordinance, commission to be reshaped

By NOEL STACK
Staff writer

1/31/2003

The Cultural Resource Preservation Commission officially ended its tumultuous existence Tuesday when the El Dorado County Board of Supervisors unanimously voted to disband it.

Citing a lack of communication between the commission and the county, the supervisors agreed with a recommendation made by the Planning Department to disband the commission and start over.

"It's not to do away with the commission," said Supervisor Helen Baumann. "I think we need to look at the commission and... make it a better functioning commission."

But some argued the commission wouldn't function at all.

"I highly doubt the Planning Department, with their lack of interest, time, and finances, could do even a less-than-adequate job at protection of any of the cultural resources," said Joan Wicklund, a CRPC member. "El Dorado County has been derelict in its critical attempt to preserve our cultural heritage."

Conrad Montgomery, director of the Planning Department, acknowledged that his staff does

see DISBANDED, page A-11

DISBANDED

not have all the expertise necessary to take over but they do follow a strict process that helps determine the historical value of property and can pull outside resources if necessary.

"We will continue to do that particular process," said Montgomery. "We will diligently carry on our duties."

Because of the cuts, he added, the department simply can't fully support a commission that isn't working well.

"Our staffing levels have come down so our abilities to support the Cultural Resource Commission has become very limited," said Montgomery.

Wicklund said the support from staff was always limited. All the effort and time put in by commissioners on projects, such as properly documenting historical cemeteries, was quality, she said. When staff presented these documents, she added, their presentation was far inferior to the quality of work done.

"We were doing what Ordinance 4488 was set up to do," said Wicklund. "Unfortunately, staff was not able to work in a professional, cooperative efficient manner."

Ordinance 4488, addressing the need for preservation of cultural resources, was incorporated into the 1996 General Plan and though the plan was deemed inadequate, the section containing the ordinance was not, said Virginia Crespo, chairman of the CRPC.

Crespo questioned the board's ability to comply with the ordinance if the commission is disbanded and suggested the board invite local historical and Native American groups to work with a subcommittee to create a better commission.

Jeri Scambler chairman of the El Dorado Miwok, a Native American group still fighting to regain recognition, offered her tribe's support for any commission, adding that they were willing to be involved in all aspects of preservation and help where they could.

"Preservation is very complex," said Scambler. "I hope this is the beginning of a positive working relationship between the El Dorado Miwok tribe and El Dorado County."

The supervisors directed the Planning Department to draft an amendment to Ordinance 4488, clearly defining the members and role of a preservation commission for the county.

The first attempt to clarify the roles was made at the Oct. 8 Board of Supervisors meeting. During that session, it was determined that staff, CRPC members, and a representative from County Counsel should work together and come back in 60 days with recommendations.

This first attempt at clarification was fueled by CRPC members who accused the county of not adequately protecting cultural resources and artifacts defined by the commission. This lack of authority with the Planning Department resulted in Jean Starns, a state preservationist, resigning from her position with the CRPC.

Montgomery said an amendment may be available as early as 90 days. A subcommittee with Supervisors Charlie Paine and Carl Borelli, as well as county staff, will assist the Planning Department in drafting out the amendment to Ordinance 4488, ensuring the future protection and preservation of the county's cultural resources.

E-mail Noel Stack at nstack@mtdemocrat.net

ORDINANCE # 4621

THE BOARD OF SUPERVISORS OF THE COUNTY OF EL DORADO DOES ORDAIN AS FOLLOWS:

Section 1. Chapter 2.29 of Title 2 of the El Dorado County Ordinance Code is hereby repealed in its entirety.

Section 2. This ordinance repeal shall take effect and shall become effective thirty (30) days following the adoption hereof.

PASSED AND ADOPTED by the Board of Supervisors of the County of El Dorado at a regular meeting of said Board, held on the 11th day of February, 2003, by the following vote of said Board:

Ayes DUPRAY, BAUMANN, BORELLI, PAINE, SOLARO

ATTEST
DIXIE L. FOOTE
Clerk of the Board of Supervisors
By /s/ Margaret E. Moody
Deputy Clerk

Noes: NONE
Absent NONE
/s/ Helen Baumann
Chairman,
Board of Supervisors

I CERTIFY THAT:
THE FOREGOING INSTRUMENT IS A CORRECT COPY OF THE ORIGINAL ON FILE IN THIS OFFICE
Date February 12, 2003
ATTEST: DIXIE L. FOOTE, Clerk of the Board of Supervisors of the County of El Dorado, State of California
By /s/ Margaret E. Moody
Deputy Clerk
2/19/2003

04506561

Cultural Resources ?

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By NOEL STACK
Staff writer

1/31/2003

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see DISBANDED, page A-11

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Clerk of the Board of Supervisors
By /s/ Margaret E. Moody
Deputy Clerk

/s/ Helen Baumann
Chairman,
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04506561

Cultural Resources ?

Around Here Magazine Spring 2002

History



A photo of the Stone House taken between 1914 and 1917.

Historic Stone House in Shingle Springs

Referred to commonly as the Stone House, the Shingle Springs structure dates back to the mid- to late-1800s. It was a shop or saloon in the 1890s, a gathering spot for the Red Cross to roll bandages during WWI and, about 1914-17, a general merchandise shop owned by J.A. Harris and family.

Built of native stone, the Stone House builder and original owner are unknown, but local historian John McCabe says it was built by a good stonemason since the structure is still standing. However, today the roof and the masonry just under it are severely compromised; it is now privately owned and awaits restoration.

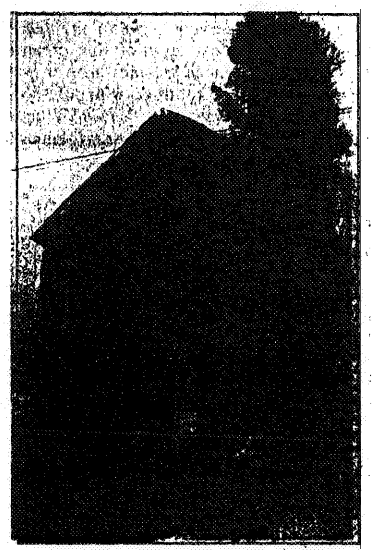
Time running out for the old Stonehouse

Cultural Resources

By JACK CARREROW
Staff writer
4/2/2001

After 10 years of trying, the Former Buckeye-Mother Lode Foundation has lost its battle to save Stonehouse.

Located in the business district of Shingle Springs, Stonehouse has stood since 1854, serving at various times, as a general store, a Wells Fargo Express stage stop and office, a grape depository, a saloon and butcher shop, a Red Cross relief station, a haven for Dust Bowl refugees and a private residence for various families.



Democrat photo by Joanne McCubrey
THE STONEHOUSE in Shingle Springs is slated to be demolished.

Former BMLF board member Bob Edwards said that the foundation had done its best to save the building, but that the interest wasn't there. "We tried fundraisers, bake sales, even soliciting private donations, but nothing worked. People just didn't care," said Edwards. "I feel like I'm going to a funeral," said Edwards.

The cost of the restoration has been estimated to be up to $300,000, a sum that must be collected before a May 7 deadline.

"Even if we could get the money, we still have the problem of

see **STONEHOUSE**, page A-9

AR 13617

STONEHOUSE

continued from A-1

the widening of Mother Lode Dr., which will be eighteen feet. That added to the 20 foot required easement, puts the road right through the store." said Edwards.

Gordon Vicini of Vicini General Engineering said that the restoration would have to start from the bottom. "You'd have to take it apart stone by stone, move the foundation back from the road, and then put it back together, taking care that everything was up to code." said Vicini who added that stricter building codes are making it more difficult to preserve historic buildings. "They had to turn Coloma into a state park to save it." Vicini added.

The idea of trying to save the 150-year-old building, started with a hike by students of the nearby Buckeye Elementary School. "They saw the building, fell in love with it and decided to try and save it." said Edwards.

The owners of the property at the time , Douglas and Peggy Milton, granted the land to the Foundation with the proviso that any proceeds gathered from its restoration, be used for the benefit of area children.

Even with the impending demolition, Edwards said that there is a plan that will allow the children to benefit.

"We plan to save the stones and give them to the Boys and Girls Clubs to sell as landscaping, rock gardens or just as a piece of history," said Edwards.

As Vicini slowly surveyed the crumbling relic, he said, "She should probably come down pretty easy."

Edwards said that his concern, while the building still stands, is for kids or transients, who might seek shelter in the building. "As much as I want to save her, I have to be realistic. Right now, she's a danger to anyone who tries to go in there." Edwards said.

So unless there's a history loving benefactor in the area that can lend a hand or $300,000, El Dorado County will lose another important part of it's rich history to progress.

E-mail Jack Carrerow at jcarrerow@mtdemocrat.net

Disappointed that building not restored

EDITOR: 4/5/2001

I have lived in El Dorado County for six years. During that time, I have watched the Stone Building in Shingle Springs deteriorate annually and as it did my heart broke a little each time. In 1997, I tried calling the phone number on the sign in front of the building, but it had been disconnected and I could not find another listing.

In 1999, the El Dorado County Cultural Resources Preservation Commission became involved with an issue related to another stone building, located in Diamond Springs. This issue involved the grading of a road immediately adjacent to the building and the damage that grading did, as well as the potential damage expected in the future.

During a meeting of the Board of Supervisors, at which one of the members of the CRPC brought that matter to the attention of the supervisors, then-District 2 Supervisor Ray Nutting cited the effort to save the Shingle Springs Stone Building as an example of the good outcome of preservation attempts.

Yep. What a wonderful outcome, Ray. Thanks for sharing that with us.

Let's hope the Bayley House preservationists aren't as successful as those in Shingle Springs.

SUE SILVER
Cameron Park



Neighbors / Randall Benton

The Shingle Springs stone house is due for demolition after the failure of a long drive to preserve the 150-year-old building.

End nears for stone house

By Walt Yost
Neighbors Staff Writer 4/8/2001

From the front, the Shingle Springs historic stone house appears in pretty bad shape. But it's the view from the back that makes you wonder what's kept it from collapsing.

Although it somehow has remained standing for 150 years, the stone building – barring a miracle – soon will be demolished. A decadelong effort to preserve the two-story structure was unsuccessful in raising the estimated $250,000 necessary to restore it.

On March 20, the stone house was condemned by the El Dorado County Building Department, which deemed it hazardous and a public nuisance. A 45-day notice was issued to the building's owners to either repair it or demolish it.

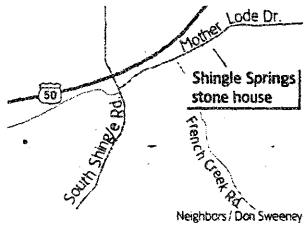
"The back of the building is caved in. The bottom line is it can't be repaired. You couldn't get a building permit to repair it," said Bob Edwards, a Shingle Springs resident who has tried for years to save the building.

Edwards is a former board member of the Buckeye-Mother Lode Foundation, which was given the building in 1990 with a stipulation that any proceeds derived from it be used for the welfare of area children.

During the past decade, the foundation created the Shingle Springs Stonehouse Restoration Committee, which spent about $30,000 to shore up the building, putting up wooden supports, pouring concrete and removing trees, the roots of which were damaging the foundation.

The committee also erected a 6-foot-high chain-link fence around the building.

Fund-raising events were held, T-shirts and calendars were sold, and volunteers – including an arborist and structural engineer – donated their time and expertise. Ultimately, however, the cost of restoring the building was simply too high, Edwards said.



Neighbors / Don Sweeney

"Nobody would take the building. It became a liability, and we listed it as a non-asset," Edwards said.

"We needed a big angel to come out of the woodwork," said Mimi Escabar, former executive director of the Shingle Springs-Cameron Park Chamber of Commerce, which also was involved in trying to save the stone house.

The Buckeye-Mother Lode Foundation dissolved several years ago, and members

▶ STONE, page 2

Stone: Sketch of house serves as chamber logo

▶ CONTINUED FROM PAGE 1

put their energy into helping establish the West Slope Boys & Girls Club, Edwards said. When the stone house is finally demolished, he said, proceeds from the sale of the quarter-acre site will be offered to the club.

"The sad thing is that now there will be all these people who will say, 'You guys failed,' " Escabar said.

But she said she'll ask them, "Where were you when we had the spaghetti feed? Did you ever write a check?"

> *"The sad thing is that now there will be all these people who will say, 'You guys failed.'"*
>
> **Mimi Escabar**
> Stone house booster

Escabar kiddingly refers to the stone house as "kind of the symbol of Shingle Springs' financial district." It is certainly a familiar image in this unincorporated community. A sketch of the building, drawn by longtime Shingle Springs resident Alex Andres, is the official logo of the chamber of commerce.

The old building, on the south side of Mother Lode Drive near the community's commercial center, is thought to have been built in 1849. It is said to have housed a butcher shop and to have been a Pony Express stop and a Wells Fargo stagecoach station.

Escabar said that for a time it was mistakenly called the Shingle Mill.

Edwards said he thinks whoever built the stone house "didn't intend it to last long." Not only was no steel used in the building's construction, but the mortar was made with limestone and sand, not concrete.

Over the years, he said, water seeped inside, eroding the mortar and causing the stones to fall apart.

Last week, during the county Board of Supervisors' open forum, Shingle Springs resident Judy Quincy spoke on behalf of the stone house.

She asked the board whether some sort of marker could be erected to commemorate the historic building after it is torn down. She also said she'd like to see the stones sold, with proceeds donated to the Boys & Girls Club.

Quincy will meet with county Supervisor Helen Baumann to discuss her ideas.

□ □ □

Walt Yost can be reached at (530) 626-9162 or wyost-@sacbee.com.

AR 13620

Shingle Springs boy laments the passing of the 150-year-old Stonehouse

By JACK CARREROW
Staff writer

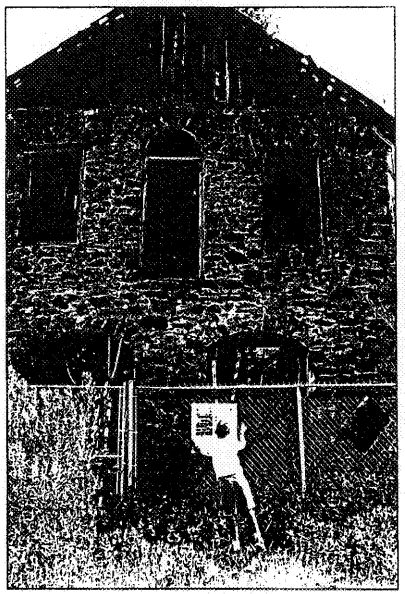
Alex Ekelund is like any other 11-year-old boy. He enjoys the outdoors, likes riding his horse and has a deep appreciation of Gold Country history. Okay, so he's not like any other 11-year-old boy, but that's what sets him apart.

It seems that when Alex had heard that the Stonehouse in Shingle Springs was going to be demolished, because of the failed restoration efforts, he became very upset.

"He first saw it when he was in kindergarten and for some reason, he became attached to it," said his mother, Pat Ekelund, who adds that Alex had decided to become a contractor, when he grew up, so that he could fix the 150-year-old building.

He was a third grader at Buckeye Elementary, when he announced his future plans to his mom. "His father and I are history buffs, so I guess it's only natural for Alex to follow," said Ekelund.

When Alex was asked what he thought of Stonehouse' impending doom, he replied, "I think it's lame. They should just leave it the way it is." When told that there was a safety issue that would cost thousands of dollars to solve, Alex had a suggestion for that. "They should restore it piece by piece. That way, they don't have to pay for it all at one time." He suggested building back the balcony that he had seen in a picture when his class was on a field trip to the house.



Democrat photos by Adam Harju

ALEX EKELUND, 11, of Shingle Springs believes the Stonehouse should be preserved and used as a teaching tool.

Asked if any of his friends share his passion for the house, Alex replied, "Maybe my friend Charles feels the same way. His grandfather used to own it."

When Alex was queried as to what the importance of the house signified to kids his age, Alex said, "One reason it's important is it's a teaching tool. It gives kids an idea about the history of Shingle Springs. Maybe they can find out if one of their relatives came into that train station," said Alex, indicating the old Shingle Springs depot directly across Mother Lode Drive.



ALEX EXAMINES the Stonehouse through the chain link fence erected to keep people out of the unsafe structure.

Resigned to the fact that the Stonehouse will come down soon, Alex suggested that the contractor might want to start with the roof, because, "I saw a lot of almost new 2x4s up there that can be used again."

As the saying goes, "The future belongs to the young." Alex is one young person who wishes he owned part of the past.

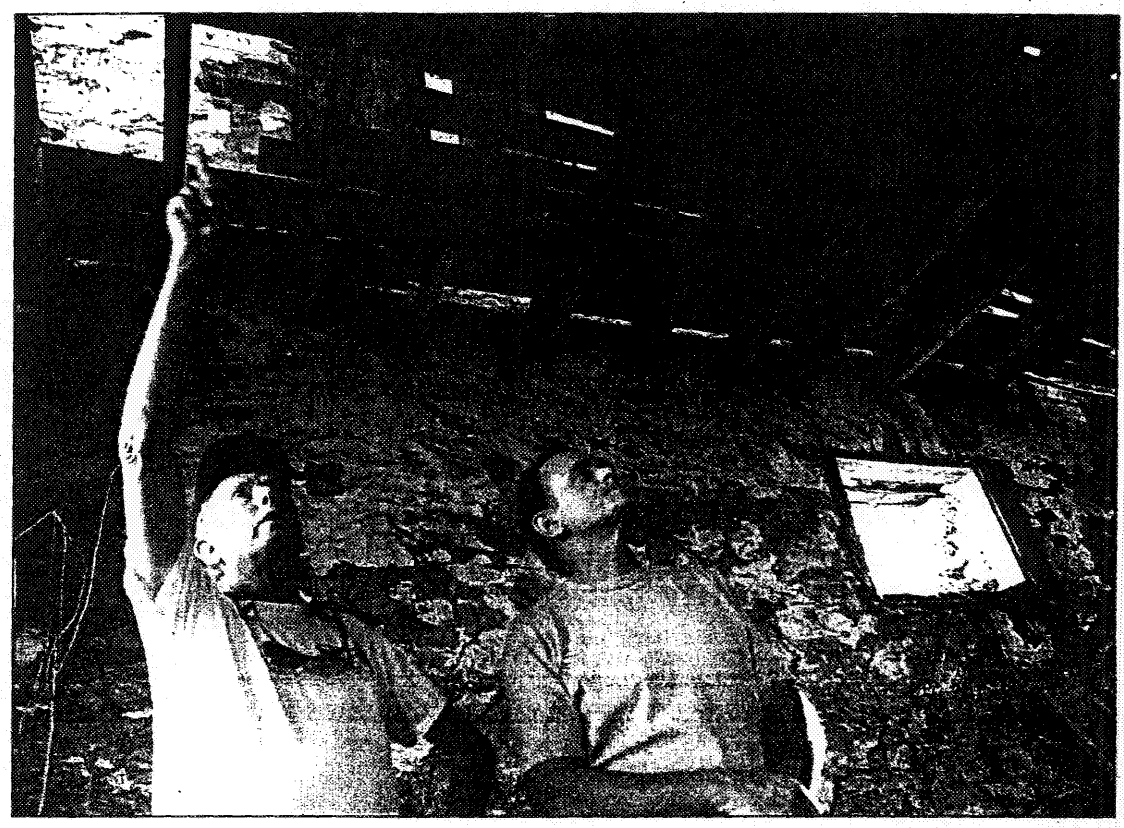
E-mail Jack Carrerow at jcarrerow@mtdemocrat.net

AR 13621

Stonehouse restoration

10/5/2001

Cultural Resources



Democrat photos by Adam Harju

SKYLIGHT — Nello Olivo, right, of Cameron Estates, examines the Stonehouse structure with Neil Moore, a structural engineer from Shingle Springs. Nello, who purchased the historic building at the urging of his wife, plans a full restoration.

New owner to rebuild Stonehouse

By JACK CARREROW
Staff writer

As with Mark Twain's reported death in May of 1897, it appears that the reports on the untimely passing of the Stonehouse in Shingle Springs were an exaggeration, thanks to Cameron Estates residents Nello and Danica Olivo.

"My wife read the article in the Mountain Democrat (Published last April) and told me we had to do something. We thought it would be nice to give back to the community, so we bought it," said Olivo.

Located in the business district of Shingle Springs, the Stonehouse has stood since 1854, serving at various times, as a general store, a Wells Fargo Express stage stop and office, a

see STONEHOUSE, page A-13



OLIVO AND MOORE look over the building plans with Bob Masterson, center, acting chairman of the Shingle Springs advisory committee. The renovated Stonehouse will help enhance the historical district, according to Masterson.

STONEHOUSE

continued from A-1

grape depository, a saloon and butcher shop, a Red Cross relief station, a haven for Dust Bowl refugees and a private residence for various families.

In 1990, the Buckeye-Mother Lode Foundation tried to save the crumbling structure. After 10 years of little or no success at fund-raising, they gave up the fight and the old building was doomed to demolition.

A few months ago, the Olivos decided to save the stone structure, and now with the help of structural engineer Neil Moore, a Shingle Springs resident and member of El Dorado County SAGE (Surveyors, Architects, Geologists and Engineers). Moore, who is also a member of the Sacramento Urban Search and Rescue, said he was a little preoccupied when he got Olivo's call for help.

"I was on a bus headed to an air base to catch a flight to New York and 'ground zero' when Nello called. I told him I'd be glad to help, but right now I'm on the way to help out with the World Trade Center."

Also on board for the restoration project is Bill Thompson, board member of the Placerville & Sacramento Valley Railroad, a group looking to restore the old freight station and outbuildings across the street from Stonehouse.

"With the work we'll be doing with Sacramento City College, in trying to restore the railroad, it's nice to see that the historical district of Shingle Springs will come together with the restoration of Stonehouse, as well," said Thompson, whose group is working towards an excursion railroad between Shingle Springs and El Dorado.

Another interested party is Bob Masterson, acting chairman of the Shingle Springs advisory committee. "We've been concerned about the Shingle Springs' historical district since our group was formed last May. At that time we set up an historical committee, dusted off the Shingle Springs area plan that established the district back in 1977 and will have input into the county General Plan," said Masterson, whose group is looking for more members.

The first phase of the restoration, is the building of a high chain link fence around the property. Moore's plans call for raker bracing of the structure and then, as soon as the proper permits are acquired, adding a habitable structure.

With all the help the Stonehouse is getting, it wouldn't have been possible without the Olivos. Asked what the plans for the historical structure were, Olivo said, "We originally thought of building a wine tasting room that would connect to the shored up structure, but we're pretty open to ideas at this stage."

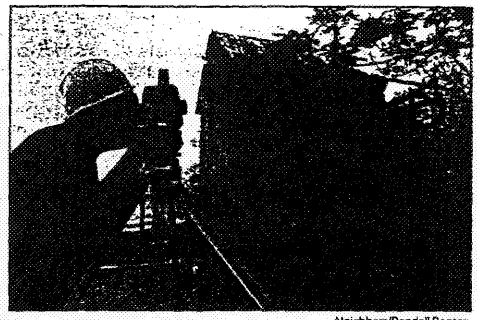
As to the cost of whatever project he decides on, Olivio, who is providing all the financial backing, said, "I really have no idea. I haven't set any budget yet. We'll just have to see what happens."

Whatever happens, it will certainly be an improvement over what was reported last April, when the Stonehouse was reported as having passed away.

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Cultural Resources





Neighbors/Randall Benton

Rich Briner, above, surveys the site of an old stone building on Motherlode Drive in Shingle Springs. Workers survey the building, below, which was purchased by Nello Olivo and his wife, Danica, of Cameron Park. Left, Nello is shown inside the building that he and his wife plan to restore.

ROCK REVIVAL

Shingle Springs stone house escapes possible demolition

10/14/2005

By Walter Yost
Neighbors Staff Writer

To most people concerned about the fate of the stone house in Shingle Springs, the historic building was a goner until Nello and Danica Olivo came on the scene.

The Cameron Park couple purchased the stone house several months ago, when it was on the verge of being demolished.

Bob Edwards, a Shingle Springs resident who has tried for years to save the building, said the Olivos paid $10,000 for the building and made a $20,000 donation to the West Slope Boys & Girls Club.

"We'd been driving by it for years," Danica Olivo said. But not until the couple read a newspaper story about its pending demolition did they realize the seriousness of the building's plight.

In March, the stone house, estimated to be 150 years old, was condemned by the El Dorado County Building Department, which deemed it hazardous and a public nuisance. A notice was issued to the building's owners to either repair it or demolish it.

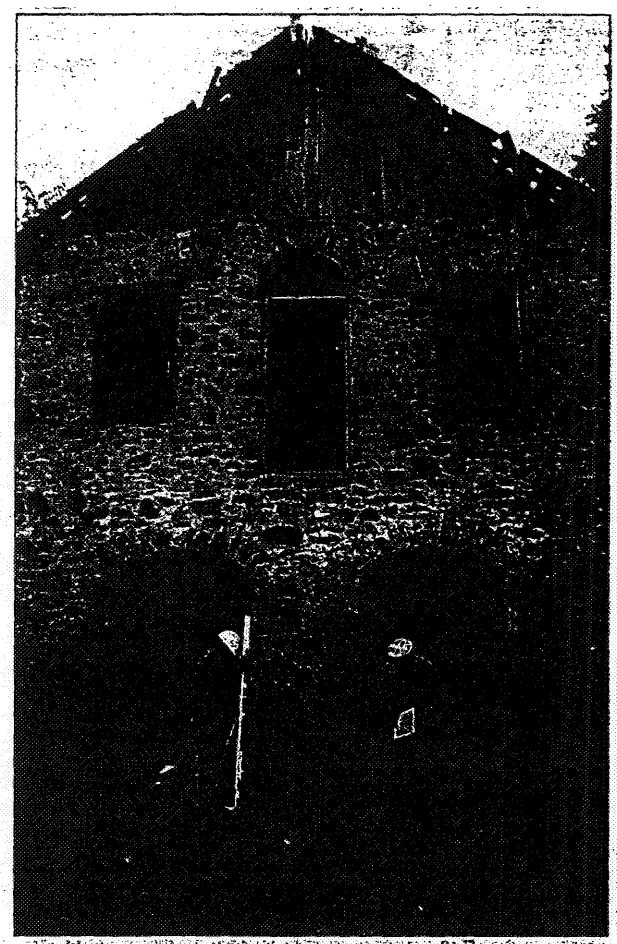
The old building, on the south side of Mother Lode Drive near Shingle Spring's commercial center, is thought to have been built in 1849. It is said to have housed a butcher shop and to have been a Pony Express stop and a Wells Fargo stagecoach station.

Edwards said a fund-raising campaign was unable to raise enough money to restore the building.

Edwards is a former board member of the Buckeye-Mother Lode Foundation, which was given the building in 1990, with a stipulation that any proceeds derived from it be used for the welfare of area children. The foundation, whose last asset was the stone house, was established to raise money to supplement school programs.

During the past decade, the foundation created the Shingle

▶ STONE, page 3



Stone: New owners want wine-tasting room

▶ CONTINUED FROM PAGE 1

Springs Stonehouse Restoration Committee, which spent about $30,000 to shore up the building, putting up wooden supports and pouring concrete.

Ultimately, however, the cost of restoring the building was simply too high.

When the Olivos contacted Edwards about acquiring the building, their original intent was to tear it down and rebuild it somewhere else using the original stones, Danica Olivo said.

But the couple then began receiving calls from people who said the building could be saved if it were properly buttressed.

Over the years, water had seeped inside the structure, eroding the mortar and causing the stones to fall apart.

The Olivos talked with El Dorado County officials, including the Building Department and the Department of Transportation, about methods to save the building.

The couple obtained permission to move a chain-link fence surrounding the building farther away from the structure, allowing work crews to go in and stabilize it.

The Olivos said they hope to stabilize the building before the rainy season. Once that's done a contractor can go in and replace the second-story floor and put on a new roof.

The couple said they would like to use at least part of the building as a wine-tasting room for some of the smaller wineries in the county. Nello Olivo makes his own wine and is planting a vineyard in the Shingle Springs area.

Volunteer help in shoring up the building has come from numerous individuals, including Shingle Springs residents Neil Moore, a structural engineer, and Bob Masterson, a geologist.

Last week, Masterson helped survey the property, a necessary step to assist Moore in designing the best way to shore up the stone house.

"We have to stabilize the building and then go into restoration," Masterson said.

Masterson and Moore are both members of the Shingle Springs Advisory Committee, established earlier this year to advise the county Board of Supervisors on community concerns. The committee, which is looking for new members, meets at the Cameron Park Library at 7 p.m. on the second Wednesday of each month.

It was during the committee's first meeting last spring that Moore mentioned stabilizing the stone house and then using it for a search-and-rescue training exercise.

Moore is a member of the Sacramento Urban Search and Rescue team.

Bill Carey, county building official, has been a resident of Shingle Springs for about 20 years.

Carey said he's glad to see people in the community coming together on behalf of the stone house.

"We had a safety hazard there, but at the same time we wanted to help anyone interested in saving it," Carey said.

Carey said stabilizing the building and putting a new fence around it will make it safer.

In the meantime, the Olivos are looking for any old metal doors or other artifacts that may once have been part of the stone house or come from the same era.

They'd also like to see old photographs of the building.

Danica Olivo said her husband always has had a love of the Gold Country and that his grandfather was a gold miner in California.

"I feel so privileged we were able to get it," Danica Olivo said of the stone house.

□ □ □

Walter Yost can be reached at (530) 626-9162 or wyost@sacbee.com.

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5.2 Agriculture and Forestry

"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.*

281-27

So did we begin the discussion in our scoping comments, incorporated by reference herein. the latest report from the State Department of Conservation (June 2003) states that farmland continues to be converted into suburban subdivisions at an increasing rate (30% over that in the previous reporting period), amounting to over 91,000 acres between1998 and 2000.

AGRICULTURE

281-28

• Please see our scoping comments on Agriculture, pp. 67 ff., for unanswered questions and respond in the FEIR.

The DEIR notes the importance of agriculture, both historically and currently, to the County's economy (pp. 5.2-1 to -2). Crops were valued at more than $24 million in 2000 (not including timber). Soils suitable for agriculture are monitored by the State Department of Conservation; nearly 90,000 acres are classified as Important Farmland (including Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance). Much of this land is concentrated in the vicinity of Cool, Georgetown, Pollock Pines, Pleasant Valley, and Somerset.

As of the County's most recent (1997) agricultural census, there were 783 farms comprising nearly 103,000 acres in the County, excluding grazing land. The amount of agricultural land has been declining from 14% in 1982 to the present 9%.

Leading crops are apples, wine grapes, pasture and rangeland, Christmas trees, and cattle and calves. Production of fruits and nuts generally leads in value, followed by the catchall miscellaneous comprising hay and pasture, nursery products, Christmas trees, and truck gardens (berries, nectarines, oranges, chestnuts, avocados, pumpkins, tomatoes, and persimmons). Statistics exclude organic farming operations, family farms, and grazing lands. (See Tables 5.2-1 and 5.2-2, p. 5.2-5.)

The concentration of farms in the Apple Hill area has grown into a major tourist attraction in the fall and early winter, when local ranches have many agricultural products for sale. Wineries in this area and some ranches are open year-round. The wine industry has grown by leaps and bounds in recent years, the acreage planted to wine grapes having increased by 16% between 1999 and 2000.

281-29

Conversion of agricultural land to residential purposes eats away at the County's tax base. In contrast to residential lands, where property taxes don't adequately pay for public services required, agricultural lands require few public services. And residents in the new subdivisions largely spend their money out of the county in the regions where they work whereas income derived from agriculture largely stays in the County.

Agricultural land is the mainstay of the rural character of the County, provides open space and habitat for certain kinds of wildlife, and contributes to separation of communities. In the Apple Hill area, and in the growing winery industry, it contributes to County coffers in stimulating tourism, as well.

The DEIR discusses development pressures on agricultural lands on p. 5.2-9, including

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conflicts with surrounding residential areas that affect the cost of doing business, discrepancy in land valuation, and conflicts arising from agricultural needs and life styles. In response to these--and perhaps other--pressures, between 1960 and 2000, the amount of agricultural land in the county decreased by 58%. (See References.)

Certain protective measures exist to counter these pressures and trends. The State's Williamson Act and the County's Right-to-Farm and Ranch-Marketing Ordinances assist in this endeavor. On the federal level, the Natural Resources Conservation Service implements the Farmland Protection Program that purportedly "provides matching funds to state, local, or tribal government entities and nonprofit organizations with existing farmland protection programs to purchase conservation easements". However, charges surfaced on June 5 that the U.S. Department of Agriculture has been diverting funding from this program to other agency programs in the amount of "well over $100 million". Requests to enroll 8,200 acres in the program in California were unsuccessful last year, according to environmental and ranching groups. (See References.) 281-29

• **Were any of these unsuccessful requests from El Dorado County?** Has any land in the County benefitted from this program?

• **We asked several questions about irrigated agriculture in the County in our scoping comments, to which please refer. To those questions we should now like to add: To what extent does irrigation tailwater run off irrigated lands in the County and to where does it run? To what extent does it contain agricultural chemicals (fertilizers, pesticides) that might contaminate the receiving waters?** 281-30

• **The Regional Water Quality Control Board requires Waste Discharge Requirement (WDR) permits for discharges of wastes. In order to issue these, it needs a CEQA document. What documentation has the County been requiring when land use is changed to vineyards? What concern, if any, has been expressed by the RWQCB? What measures, if any, are taken by dischargers to reduce pollutants before discharging such waters? What is the regulatory environment relative to this situation?** 281-31

• **How has expansion of demands for residential water affected available supplies for agriculture? What trends exist and what is the outlook for this issue?** 281-32

Impact 5.2-1: Potential for Conversion of Important Farmland, Grazing Land, Land Currently in Agricultural Production or for Conflict that Results in Cancellation of a Williamson Act Contract (p. 5.2-24.

The DEIR projects potential loss of agricultural land as 104,149 acres under Alternatives 1 and 4, 72,677 acres under Alternative 2, and 63,307 acres under Alternative 3 (see Table 5.2-5, p. 5.2-26). 281-33

• **How much such acreage has been converted in El Dorado County since adoption of the 1996 General Plan? Please break down the figures by the above-mentioned categories. Also give figures for acreage upon which Williamson Act Contracts have been canceled and for how much land has been newly brought under the Williamson Act.**

• **Please do the same (a table would be nice) for each reporting period since establishment of the Important Farmland Mapping Program. How much total agricultural land has been converted to subdivisions since recordkeeping began (ca. 1980). What fraction is this of total agricultural land(excluding nonjurisdictional land) in the County?** 281-34

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• What will be the amount of remaining agricultural land in each of the alternatives at 2025 and at buildout? How do these figures relate to the claimed need of 160,000 acre feet of water for agriculture in the future (see discussion in Water Resources)? 281-35

• When non-coniferous woodland or shrubland is converted to vineyards, is there any environmental review or chance for public participation? How is this kind of conversion tracked by the County? Is it included in the farmland conversion tallies? What figures does the County have for this kind of conversion in recent years? 281-36

Proposed mitigation again involves the ubiquitous measures 5.1-3(a) and -3(b). We agree with MMs 5.2-1(d) and -(e) concerning adequate agricultural setbacks. MM 5.2-1(f) is problematical, as the DEIR points out, in the likely impedance presented for wildlife movement. 281-37

‡ We would suggest instead that whatever harassing animals might be present on the adjacent residential properties be confined in smaller areas on that property as an alternative to perimeter fencing. Effect on wildlife movement would be reduced. 281-38

• MM 5.2-1(c), however, presents greater problems, in our opinion. Continually accepting loss of *any* agricultural land will eventually lead to loss of *all* agricultural land. This proposal would require replacement—within the County, which would require somehow creating more agricultural land? (How?) Somewhere else (how far away?)? This appears to be a have-your-cake-and-eat-it-too proposition. 281-39

• The Planning Commission scheduled a public hearing on 26 Jun 2003 to establish an Agricultural Preserve District similar to the present Exclusive Agricultural District but incorporating certain changes relative to ranch marketing and wineries. Please explain why this is being done in advance of whatever changes might come about in the course of adopting a new general plan and what effect doing so will have on the analyses in this DEIR. 281-40

Impact 5.2-2: Potential for Ranch Marketing, Winery, and Visitor-Serving Activities to Remove Substantial Areas of Agricultural Land from Production (p. 5.2-63)

We agree that the potential for loss of agricultural land through expansion of visitor-serving activities is considerable under present regulations . 281-41

Mitigation Measure 5.2-2 (p. 5.2-9) proposes to Limit Extent of Ranch Marketing Activities, Wineries, and Other Agricultural Promotional Uses Within Agricultural Designations and Require Compatibility Review. We agree this is appropriate in that, as set forth, it would serve to limit conversion of agricultural land to ancillary purposes.

Seasonal traffic congestion is already considerable, and by-right (Ranch Marketing Ordinance) permission to stage numerous visitor-attracting "events" can contribute to spreading congestion throughout the year. 281-42

• How do traffic analyses include these conditions? How does the County keep track of such events and attempt to distribute congestion temporally if holding them is a "by-right" privilege? To what extent do they present any problems now? What if agriculture should expand?

Impact 5.2-3: Inconsistent Level of Protection for Agricultural Operations Based on Location in 281-43

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Identified Agricultural Areas (p. 5.2-70).

Use of an Agricultural land-use designation is apparently deemed more protective of agriculture than is an Agricultural Overlay District for reasons not quite clear to us. We agree that there might be conflicts between the underlying designation and the overlying Agricultural designation, but we thought the latter "trumped", so to speak. However, presumably Planning knows how they apply the criteria and we'll accept the judgment that the former is more protective. 281-43

• **We would, however, like this aspect to be clarified in the FEIR.**

The proposed mitigation (5.2-3, p. 5.2-76) would incorporate "productive and suitable agricultural land into Agricultural Districts", that is, it would extend the treatment of such lands found in Alternative 3 to the other alternatives. Residential development within such districts is heavily restricted already. 281-44

FOREST RESOURCES

• **Please see our scoping comments, pp. 70 et seq., for unanswered questions and respond in the FEIR.** 281-45

Coniferous forest has already been eliminated from large areas in El Dorado County that once supported them. According to *The Utilization of El Dorado County Land*, "It seems apparent that the...forest formerly extended down to as low as 1,000 feet in elevation...." The shingle mill that gave Shingle Springs its name took advantage of a forest, according to pioneer accounts, consisting of ponderosa and sugar pines and incense cedar. That forest is long gone. Evidence of it remains in scattered ponderosa pines and black oak, the latter being a component of virgin ponderosa pine stands. 281-46

Management of the timber resource for decades consisted of cutting the largest, most easily accessible trees, just the genetic stock that would produce the best offspring. Coupled with fire suppression and the introduction of clear-cutting, we are left today with fire-susceptible thickets of small trees, combined with increasing residential development in the so-called wildland interface. (For further discussion of the fire hazard, see herein under Human Health and Safety.)

This section of the DEIR treats timberlands, "defined as lands capable of growing 20 cubic feet per year per acre of harvestable wood", and leaves the hardwoods to Biological Resources. Practices connected with commercial logging produce many conflicts with residential development and can affect both water and air quality. The DEIR does not concern itself with the nonjurisdictional national forest lands, but only with the private forested lands in the County. 281-47

The DEIR states (p. 5.2-80) that the County's timberlands serve "as a major source of employment" in the County. Timber production in the County has, however, been declining in recent years as old growth has been depleted. Sierra Pacific (formerly Michigan-California) retooled its Camino plant to process smaller logs several years ago. 281-48

• **Please provide comparative figures to substantiate that the County's timberlands are a major source of employment. According to 2000 census data, even combined with agriculture, fishing, hunting, and mining, employment in that industry amounts to only 1.8% of the labor force. If manufacturing is added (to be sure lumber mills are included) that is only another 7.4%.**

The County receives in lieu payments from the Eldorado National Forest that amounted to 281-49

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over $1 million in 1996.

The State regulates timber harvesting on private lands through the California Forest Practice Act. This requires submission of timber harvest plans to the California Department of Forestry and Fire Protection (CDF). Although the DEIR does not say so, individual counties can develop their own further regulations (see Section 4516.5). El Dorado County has not done so and has stated that it does not have that authority. 281-49

• **This attitude is erroneous (see References for excerpts from Santa Cruz County code pertaining to forest practices). Please amplify the discussion in the DEIR.**

The SNEP Final Report to Congress stated,

> In a review of the application of best management practices [under the California Forest Practices Act], adequacy of protection could not be fully evaluated because practices were not applied in many cases.

• **Please discuss what oversight the County exercises relative to timber harvesting to assure compliance with such regulations as those governing erosion control and sedimentation. How is it aware whether or not BMPs applicable under state law are being carried out in timber harvesting? Has it ever intervened in situations where BMPs apparently were not being practiced? What did it do?** 281-50

Certain tax advantages accrue to a landowner who commits, through establishment of a Timber Production Zone, to forest production for 10 years. This program is administered by CDF through county agriculture departments.

At present, the County Zoning Ordinance allows timber harvesting activities in Exclusive Agriculture, Transportation Corridor, and Timberland Preserve Zone land-use designations. The DEIR says, however, that "because timber harvesting is not regulated by the County, it may be carried on in all zone districts" under state law. (This implicitly suggests that the County *can* regulate timber harvesting.) The Zoning Ordinance, however, does specify protective setbacks for "agricultural properties, including timberland". 281-51

• **Please discuss the possible advantages of the County's exercising jurisdiction over timber harvesting so as to control where it could be practiced and to be sure that BMPs were being implemented.**

Impact 5.2-4: Conversion of Timberland, Including Lands Currently in Timber Production and Lands Zoned for Timber Production, to Nonforestry Uses (p. 5.2-86).

The DEIR claims that this effect is less than significant because strong protection exists. However, we know of recent cases where land zoned for timber production was converted to vineyard, presumably just another "agricultural" use for which no special review is needed. We cannot, therefore, agree that this impact is Less Than Significant. The discussion in this part of the DEIR needs to be redone. 281-52

• **Evaluate the County's adopting its own forest-practices regulations, as allowed for under the California Forest Practices Act, as a means of solving this sort of problem and that of the finding of the SNEP report that the CFPA's requirements are not always applied.**

We note that the Legislative Analyst's Office recommends "enactment of legislation imposing 281-53

AR 13630

fees on timber operators to fully cover the costs incurred by state agencies in their review and enforcement of timber harvesting plans." (See References.)

281-53

281-54

• **Investigate whether the County could similarly act to impose fees to monitor THPs if it passed enabling legislation under the provisions of Section4516.5 of the CFPA.**

281-55

• What happens when privately owned lands in a TPZ are clearcut? Does the land remain in a TPZ? Tree-growing does not, after all, occur in a short time.

REFERENCES

1. *State's Farmland Disappearing at a Faster Rate.* Department of Conservation News Release, 2 Jun 2003. (Includes El Dorado County statistics taken from the Farmland Mapping and Monitoring Program for 1998-2000.)
2. *California Ranchers Air Fears to Congress.* Sacramento Bee, 5 Jun 2003.
3. Excerpts from Santa Cruz County code governing timber harvesting.
4. *Timber Harvest Fees. 2003-2004 Budget Bill.* Legislative Analyst's Office.

AR 13631

Department of ConservationNR 2003-14
June 2, 2003

STATE'S FARMLAND DISAPPEARING AT A FASTER RATE
More Than 90,000 Acres Urbanized from 1998-2000

SACRAMENTO – California has some of the most productive farmland in the world, but the pace at which the state's land is being urbanized is accelerating, exceeding 90,000 acres between 1998 and 2000, according to a new report from the California Department of Conservation.

DOC's Farmland Mapping and Monitoring Program maps land-use change on 90 percent of the privately owned land in the state. It produces a biennial report to help decision-makers assess the status of California's agricultural land and plan for the future.

California Farmland Conversion Report 1998-2000 shows that urban development increased by 30 percent, compared with the 1996-98 data. There were 91,258 new urban acres in the state, the most in a decade. Prime farmland accounted for 19 percent of the total. Other irrigated farmland comprised an additional 8 percent.

"California leads the nation in agricultural production and at the same time needs to create places to live and work for its ever-growing population," Department of Conservation Director Darryl Young said. "This report is intended to help local policy makers decide how best to balance the needs of a growing economy and agriculture."

Some of the highlights from the report:

- Of the 48 counties involved in the survey -- those that do not have significant amounts of agriculture or lack modern soil surveys are omitted -- 29 had net decreases in irrigated acreage.

- More than 10,000 acres were removed from irrigated farmland categories in Riverside, San Diego and Kern counties. It should be noted that farmland losses are not just due to urbanization, but also to conversion to low-density residential uses, ecological restoration projects, or long-term land idling. Farmland may be idled for a variety of reasons, including water, soil and economic factors.

- Riverside and San Diego counties accounted for 29 percent of the new urban acreage; 15 new or expanded golf courses or golf course communities were developed in Riverside's Coachella Valley alone.

- Sacramento, Contra Costa, Santa Clara, Sonoma and Placer counties accounted for an additional 28 percent of the newly urbanized land.

- The counties with the highest proportion of urbanization on irrigated farmland were San Joaquin and Merced (80 and 84 percent, respectively).

- Increases in irrigated acreage were reported in 19 counties. Vineyards accounted for 71 percent of the new irrigated acreage.

- Five wine-grape counties –Monterey, San Luis Obispo, Sonoma, Santa Barbara and Napa – had a net increase in irrigated land totaling 42,775 acres from 1998-2000. Of the land brought into irrigated agriculture, only 32 percent is rated as Prime Farmland.

- Counties reported that 188,510 acres of land – including 73,324 acres of prime farmland – have been committed to nonagricultural use in the future. Generally, this is land earmarked for development. In some cases, development, such as sewer installation, may already be underway.

California Farmland Conversion Report 1998-2000 details land conversion within a series of land-use categories, from Prime Farmland (land with the best physical characteristics to sustain long-term production of agricultural crops), to Urban and Built-Up Land (land occupied by structures at a density of at least one unit per 1.5 acres).

Over the past two years, DOC's Farmland Mapping and Monitoring Program issued land conversion data and maps for individual counties to local planning officials as work on those counties was completed. The report provides land conversion summaries at the regional and statewide level and includes the county-by-county information.

"This report clearly demonstrates the need for voluntary agricultural land conservation programs," DOC Director Young said. "The state's population is expected to grow to 50 million by 2025, and we must promote programs to protect farmland if California is to continue as a world leader in agricultural production."

DOC's Division of Land Resource Protection manages two such programs, the California Farmland Conservancy Program and the Williamson Act.

The Williamson Act, established in 1965, shields approximately 16 million agricultural and open space acres from development. The program provides tax incentives to landowners who voluntarily place land in Williamson Act contracts, which continuously restrict development for 10 years into the future until the landowner begins the process of exiting the restrictions.

The California Farmland Conservancy Program, in existence since 1996, provides grant funding for acquiring agricultural conservation easements. State grant funds are used in combination with federal and/or local funds to help local land trusts and other entities purchase conservation easements from willing landowners, thereby retiring the property's development potential. The landowners retain ownership of the land, and it remains available for agricultural production permanently. The restriction against future development is held by the land trust, even if the land is sold. DOC accepts grant proposals year-round.

The Important Farmland Maps and Conversion Reports, which DOC has developed since 1984, are planning tools that complement the Williamson Act and California Farmland Conservancy programs. Hard copies of the report are available to the public at a cost of $15, which includes shipping and handling. To order, contact the Farmland Mapping and Monitoring Program at (916) 324-0859, or by e-mail at fmmp@consrv.ca.gov.

In addition to administering land conservation programs, the Department of Conservation studies and maps earthquakes and mineral resources in the state; ensures reclamation of land used for mining; administers the state's beverage container recycling program; and regulates oil, gas and geothermal wells.

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TABLE A-5

EL DORADO COUNTY

1998-2000 Land Use Conversion

CALIFORNIA DEPARTMENT OF CONSERVATION
Division of Land Resource Protection

Farmland Mapping and Monitoring Program

PART I
County Summary and Change by Land Use Category

LAND USE CATEGORY	TOTAL ACREAGE INVENTORIED		1998-00 ACREAGE CHANGES			
	1998	2000	ACRES LOST (-)	ACRES GAINED (+)	TOTAL ACREAGE CHANGED	NET ACREAGE CHANGED
Prime Farmland	1,201	1,117	85	1	86	-84
Farmland of Statewide Importance	1,042	1,016	41	15	56	-26
Unique Farmland	4,621	4,406	230	15	245	-215
Farmland of Local Importance	81,282	83,136	184	2,038	2,222	1,854
IMPORTANT FARMLAND SUBTOTAL	88,146	89,675	540	2,069	2,609	1,529
Grazing Land	185,283	183,944	1,372	33	1,405	-1,339
AGRICULTURAL LAND SUBTOTAL	273,429	273,619	1,912	2,102	4,014	190
Urban and Built-Up Land	25,691	26,132	60	501	561	441
Other Land	230,404	229,777	715	88	803	-627
Water Area	6,880	6,876	4	0	4	-4
TOTAL AREA INVENTORIED	536,404	536,404	2,691	2,691	5,382	0

PART II
Land Committed to Nonagricultural Use

LAND USE CATEGORY	TOTAL ACREAGE 2000
Prime Farmland	
Farmland of Statewide Importance	DATA
Unique Farmland	NOT
Farmland of Local Importance	AVAILABLE
IMPORTANT FARMLAND SUBTOTAL	0
Grazing Land	
AGRICULTURAL LAND SUBTOTAL	0
Urban and Built-Up Land	
Other Land	
Water Area	
TOTAL ACREAGE REPORTED	0

PART III Land Use Conversion from 1998 to 2000

LAND USE CATEGORY		Prime Farmland	Farmland of Statewide Importance	Unique Farmland	Farmland of Local Importance	Subtotal Important Farmland	Grazing Land	Total Agricultural Land	Urban and Built-Up Land	Other Land	Water Area	Total Converted To Another Use
Prime Farmland	to:	--	0	0	85	85	0	85	0	0	0	85
Farmland of Statewide Importance	to:	0	--	0	41	41	0	41	0	0	0	41
Unique Farmland	to:	0	0	--	221	221	0	221	0	9	0	230
Farmland of Local Importance	to:	1	15	8	--	24	0	24	137	23	0	184
IMPORTANT FARMLAND SUBTOTAL		1	15	8	347	371	0	371	137	32	0	540
Grazing Land (1)	to:	0	0	0	1,108	1,108	--	1,108	237	27	0	1,372
AGRICULTURAL LAND SUBTOTAL		1	15	8	1,455	1,479	0	1,479	374	59	0	1,912
Urban and Built-Up Land	to:	0	0	0	9	9	22	31	--	29	0	60
Other Land	to:	0	0	7	574	581	7	588	127	--	0	715
Water Area	to:	0	0	0	0	0	4	4	0	0	--	4
TOTAL ACREAGE CONVERTED	to:	1	15	15	2,038	2,069	33	2,102	501	88	0	2,691

(1) Conversion to Farmland of Local Importance primarily due to updates and refinements of "prime" Williamson Act Land parcel boundaries.

Agriculture

CALIFORNIA RANCHERS AIR FEARS TO CONGRESS

By MICHAEL DOYLE
BEE WASHINGTON BUREAU
Published: June 5, 2003, 08:07:31 AM PDT

WASHINGTON -- California ranchers worry that they're the ones getting fleeced as the Agriculture Department juggles money meant to preserve rangeland. Just ask Nita Vail.

Wednesday, the fourth-generation California rancher warned lawmakers about "our grave concern" that conservation money is being diverted from its intended purpose. Ranchers are the poorer for it, some lawmakers agreed, and less land is being protected.

"Here California is the No. 1 farm state, and we have all these development pressures and we can't get what we need," said Vail, executive director of the California Rangeland Trust.

The California Cattlemen's Association established the trust to help conserve the 22 million acres of privately owned rangeland in the state.

Vail's ranching experience includes time in Kern County and on Santa Rosa Island, off the Southern California coast. But it was the political range Vail rode Wednesday, with testimony before a House subcommittee on behalf of several livestock groups, including the Modesto-based Western United Dairymen.

Their big worry is that the Agriculture Department is taking money from the Farmland and Ranchland Protection Program and similar efforts to pay for "technical assistance" on other agency programs. Well over $100 million has been siphoned from four Agriculture Department land conservation efforts -- money that was supposed to pay to protect rangeland and grassland.

It's more than a bookkeeping flap. Thousands of California acres could be on the line. Environmental groups and farm groups have united in protest and lawmakers are flexing their muscles.

"It was never our intention to have key conservation programs act as donors for other programs," said Rep. Colin Peterson, D-Minn. "We must correct the problem."

Complicating the issue, though, is that any fix could threaten to reopen the farm bill Congress completed last year. That bill boosted crop subsidies and conservation spending to new levels, increasing farm spending by an estimated $82 billion over the next decade.

California farmers are receiving $98.2 million this year for assorted programs run through the Natural Resources Conservation Service.

By buying conservation easements and making direct payments, the programs aid farmers who preserve habitat and reimburse those who keep land undeveloped. Even with record spending, there are shortcomings and problems aggravated by draining away promised funds.

There is excessive demand. Last year, California farmers unsuccessfully sought to enroll 38,000 acres in the Wetlands Reserve Program and 8,200 acres in the Farmland Protection Program, according to figures presented Wednesday by environmental groups.

There also is bureaucratic delay. A year after President Bush signed the farm bill into law, Vail noted the Agriculture Department "has yet to propose rules" for a new Grasslands Reserve Program meant to protect 2 million acres.

EXCERPTS FROM SANTA CRUZ COUNTY CODE GOVERNING TIMBER HARVESTING

16.52.180 General harvesting specifications.

(a) Archeological sites, historical sites, nesting sites for birds of prey or aquatic birds, habitats of rare and endangered species, designated by the county, shall be protected. In the event an archaeological site is discovered during the course of timber harvesting, the county shall be notified and work in the immediate area halted pending prompt evaluation of the site and determination of the protective measures to be taken.
(b) Diligent care shall be exercised in timber harvesting to minimize damage to soils, leave trees, young growth, reproduction, and other vegetation.
(c) Solid non-forest refuse resulting from timber harvesting shall be removed from the harvest area concurrently with timber harvesting. Equipment shall not be serviced where petroleum products could pass into a watercourse.
(d) The hours of specific timber harvesting operations may be regulated when the noise of such operations will create a serious public nuisance.
(e) Operation of trucks, tractors, and similar heavy equipment within the harvest area between October 15 and the following April 15 is prohibited unless authorized in writing. Authorization may be granted only when conditions are such that the operation will not cause excessive damage. Authorization may be conditional. Authorization may be revoked at any time either by phone, in person, or in writing. Once revoked, such authorization may be reinstated only in writing. On such operations, necessary erosion control facilities shall be installed and/or maintained concurrently with timber operations on a daily basis.
(f) Hauling on public roads shall conform with all applicable traffic regulations and the following requirements:
(1) Hauling is not permitted on Saturday, Sunday, and national holidays.
(2) The haul route specified in the timber harvesting application shall be modified as required if it is determined that use of the route presents a serious traffic hazard and a reasonable alternative route is available.
(3) Special traffic signs and/or flagmen may be required when necessary to prevent a serious traffic hazard.
(4) The haul route and/or time of use may be reasonably restricted when necessary to prevent a serious hazard to school busses or serious interference with commute traffic.
(g) Along public roads where the ground surface could be readily visible following timber harvesting, the county may designate a visual impact area which shall not exceed in square feet a total area calculated by multiplying the length of the harvest area road frontage by 100. Within the visual impact area, the county may:
(1) Designate those conifer trees to be left uncut provided the allowable cut includes at least 30 percent of the gross conifer volume, but does not exceed 30 percent of the conifer trees 18 inches d.b.h. and larger.
(2) Designate those hardwood trees to be left uncut provided the allowable cut does not exceed 50 percent of the hardwood trees four inches d.b.h. and larger.
(3) Require tractor roads to be flagged for approval.
(h) The County Forester may recommend to the Planning Director, or the Planning Commission, that certain trees be designated in the permit or Notice as leave trees when they have a special natural or historical significance or because they are a unique and valuable habitat for wildlife.
(i) Trees to be cut near streams may be required to be marked for county approval prior to cutting.
(j) Operations approved pursuant to Sections 16.52.035 through 16.52.038, inclusive, must comply with all other applicable county ordinances and policies. (Ord. 2353, 11/9/76; 3332, 11/23/82; 4301, 4/12/94)

16.52.190 Cutting specifications.

(a) Timber harvesting, except as approved for stand improvement, shall be limited to a minimal interval of ten years and shall meet the following stocking requirements prior to reharvesting.
(1) The harvest area under consideration shall be deemed adequately stocked if the area contains an average point count of 600 per acre, to be computed as follows:
(i) Each countable tree which is not more than four inches d.b.h. to count as one.
(ii) Each countable tree over four but not more than 12 inches d.b.h. to count as three.
(iii) Each countable tree over 12 inches d.b.h. to count as six.
(2) Redwood root crown sprouts will be counted using the average stump diameter one foot above average ground level of the original stump from which the redwood root crown sprouts originate, counting one sprout for each foot of stump diameter to a maximum of six per stump.
(3) Rock outcroppings, meadows, wet areas, or other areas not normally bearing timber shall not be considered as requiring stocking and are exempt form such provisions.
(4) The stocking requirements shall apply to conifer stocking when a conifer harvest is being considered, or to

hardwood stocking when a hardwood harvest is being considered.
(5) The stocking standard (Section 4561 Public Resources Code) as defined in the Z'Berg-Nejedly Forest Practice Act of 1973 (Division 4, Chapter 8, Public Resources Code) shall be met immediately upon completion of Timber Harvesting.
(6) Stocking shall be determined in accord with the "Standardized Stocking Sampling Procedures" as found in Title 14, California Administrative Code, Sub-Chapter 4.1, Chapter 2, Division 2, Article 6.
(b) Conifer leave trees shall include at least 50 percent of those live conifer trees eighteen inches d.b.h. and larger and 60 percent of those live conifer trees 12 inches d.b.h. to 18 inches d.b.h. No conifer tree shall be cut which is less than 12 inches d.b.h. or more than 75 feet from a conifer leave tree 18 inches d.b.h. or larger located within the harvest area, except as approved for stand improvement.
(c) Hardwood leave trees shall include at least 50 percent of those live hardwood trees four inches d.b.h. and larger and 60 percent of those live hardwood trees less than four inches d.b.h. No hardwood tree shall be cut which is more than 75 feet from a hardwood leave tree four inches d.b.h. or larger or a conifer leave tree 12 inches d.b.h. or larger located within the harvest area, except as approved for stand improvement.
(d) Leave trees as required in (b) and (c) above shall be thrifty, vigorous trees and well-formed crowns free from damage caused by the logging operation.
(e) Leave tree stand density shall reflect the general before-harvest density reduced by a factor not exceeding the allowable cut.
(f) Trees shall be felled away from public roads, in line with skidding direction to the fullest extent possible that topography, lean of tree, local obstructions and safety permit, with minimum damage to leave trees and reproduction. Trees shall not be felled into streams.
(g) Trees with evidence of use as nesting sites by raptors, waterfowl, or rare or endangered wildlife shall be left uncut.
(h) The cutting limitations of this chapter shall not prohibit the cutting or removal of trees for truck roads and landings.
(i) Removal of hardwood trees from a predominant conifer stand to promote growth of the conifer trees may be approved.
(j) Plantations on non-forest land approved by the Planning Commission for the production of forest products are exempt from the cutting limitations of this chapter.
(k) The cutting of trees located within a distance equal to their height from a permanently located structure currently maintained for human habitation, or within said distance from the location of a structure approved for construction under a valid building permit and where the owner of the structure is the owner of the land upon which the operation is to be conducted or if not, where the owner of the structure has given his written consent, shall be exempt from the cutting limitations of this chapter. Operations pursuant to this sub-section may constitute a conversion and be subject to the provisions of Section 16.52.195.
(l) The cutting of ancient trees or ancient forests is prohibited unless the tree(s) pose a threat to health and safety as verified by County staff. A report by an arborist or Registered Professional Forester may be required as supporting documentation prior to the removal of any ancient tree. (Ord. 2353, 11/9/76; 3155, 9/1/81; 4301, 4/12/94)

16.52.200 Water quality protection.

(a) Truck and tractor roads, tractor trails and landings shall be permitted only where there is a protective strip between such facilities and a stream. The strip shall have sufficient filter capacity to prevent significant degradation of stream water quality. If it is determined that the filter capacity of the protective strip is insufficient, additional erosion control may be required, including but not limited to the following:
(1) Increased width of the protective strip.
(2) Decreased interval between waterbreaks.
(3) Treatment of the traveled surface.
(4) Treatment of fill slopes.
(5) Installation of down drains.
(6) Seeding or planting of bare soil.
(7) Installation of obstructions between the toe of the fill and the stream.
(b) No earth or organic material shall be deposited or placed where it may enter a stream, marsh, or body of standing water in a quantity deleterious to wildlife, aquatic life, or other beneficial uses of the water.
(c) The design, location and installation of bridges and culverts shall be subject to approval.
(d) Bridges and culverts, together with associated fill material not designed to pass the water flow from the estimated 100-year maximum frequency storm, shall be removed upon completion of timber harvesting, before significant rain, but not later than October 15 of each year, and not replaced prior to April 15 of the following

year.
(e) If water flow can be expected during use of a watercourse crossing or during the time fill material is in a crossing, a bridge or culvert shall be installed concurrently with construction of the crossing. Such bridge or culvert shall be adequate to pass the anticipated flow without causing significant degradation of water quality.
(f) Stream crossing structures shall be designed and installed to permit the passage of fish if the stream supports fish at the crossing during the time the crossing structure is in place.
(g) Streams shall be kept free of slash. Watercourses shall be kept free of slash which might cause or contribute to accelerated erosion, blockage of fish movement or other deleterious effects.
(h) Non-merchantable riparian and/or aquatic vegetation shall be protected from unreasonable damage.
(i) Sufficient canopy shall be retained to prevent an increase in stream water temperature to that extent which is deleterious to wildlife, aquatic life or other beneficial uses of the water.
(j) The water flow from perennial springs shall not be diminished to the detriment of wildlife or human use.
(k) Grading requiring permits, or the emplacement of culverts, bridges or other crossings, is not allowed in conjunction with harvests approved pursuant to Sections 16.52.035 through 16.52.038, inclusive, unless the appropriate permits are obtained. (Ord. 2353, 11/9/76; 3155, 9/1/81; 4301, 4/12/94)

16.52.210 Erosion control specifications.
(a) Water flow shall be directed and/or dissipated to control erosion.
(b) All required permanent drainage structure shall be installed concurrently with the construction or reconstruction of truck roads. Waterbreaks, berms or measures providing equivalent protection shall be established on all truck and tractor roads, tractor trails, landings and the like immediately upon completion of use and before significant rain, but not later than October 15. Equivalent protection requirements may include, but are not limited to, the following:
(1) Covering exposed soil with slash or similar material.
(2) Outsloping to effectively divert water flow.
(3) Treating the traveled surface.
(4) Installing inside ditches with cross-culverts.
(c) Berms not needed to control erosion shall be breached or removed.
(d) All side-cast and fill material exceeding five feet in slope length shall be seeded within fifteen days following the first significant rain, but not later than October 15.
(e) Waterbreaks and dips shall be:
(1) Located in areas with minimal fill and sidecast material.
(2) Designed to divert surface water from the traveled surface.
(3) Flagged for approval prior to construction when necessary to determine that the location and design are in conformance with this chapter.
(4) Cut a minimum of six inches into the firm soil and shall have a continuous firm embankment of at least six inches in height immediately adjacent to the lower edge of the waterbreak cut, and constructed so they will not be rendered ineffective by the passage of vehicles.
(5) Constructed at all watercourse crossings unless a culvert or bridge is provided.
(6) Constructed at intervals not exceeding the following slope distances:
(i) On grades of 10 percent or less--150 feet.
(ii) On grades of 11 percent--25 percent--100 feet.
(iii) On grades of 26 percent--49 percent--75 feet.
(iv) On grades of 50 percent or more--50 feet.
(v) At such lesser intervals as may be necessary to prevent excessive erosion.
(f) All erosion control facilities required by this chapter shall be maintained during periods of significant rain throughout the periods covered by sureties or as required by permit conditions.
(g) Pre-existing erosion problems may be required to be repaired as a condition of approval of any timber harvest.
(h) The minimum criterion to be achieved by all operations is that there shall be no net increase of silt or debris entering natural bodies of water.
(i) Off site mitigation may be acceptable if the mitigation site is in the same watershed as the harvest and if approved by county staff and the property owner(s). (Ord. 2353, 11/9/76; 3332, 11/23/82; 4301, 4/12/94)

16.52.250 Fire hazard reduction.

(a) All slash, except slash in areas substantially covered by logs on the ground, shall be lopped to within 18" of the ground, chipped, burned, or otherwise disposed of no later than April 15 of the year following its creation. Slash along truck roads outside the harvest area shall be lopped concurrently with its creation.

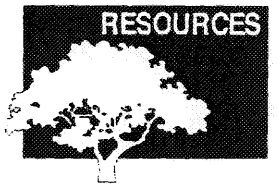
(b) Only those standing dead trees required by State law to be cut must be cut. Standing dead trees with visible nesting sites of raptors, waterfowl, rare or endangered wildlife or those trees designated by the California Department of Fish and Game shall not be cut.

(c) An area within 50 feet of the edge of all public roads shall be kept free of slash. Slash between 50 feet and 100 feet of the edge of said roads and slash within 200 feet of all permanently located structures currently maintained for human habitation shall be disposed of by piling and burning, chipping, burying, or removal.

(d) Slash shall not be pushed against residual trees.

(e) Truck roads within the harvest area shall be kept passable for fire equipment during the dry season until lopping is completed.

(f) Open burning shall be done only with approval of the California Department of Forestry and Fire Protection and the Monterey-Santa Cruz Air Pollution Control District. (Ord. 2353, 11/9/76; 3332, 11/23/82; 4301, 4/12/94)



Legislative Analyst's Office

Analysis of the 2003-04 Budget Bill

Timber Harvest Fees

We recommend the enactment of legislation imposing fees on timber operators to fully cover the costs incurred by state agencies in their review and enforcement of timber harvesting plans. This would result in a savings of about $22 million to the General Fund and $806,000 to special funds. (Reduce Item 3480-001-0001 by $1.2 million, Item 3540-001-0001 by $13.2 million, Item 3540-001-0235 by $384,000, Item 3600-001-0001 by $4.9 million, Item 3600-001-0200 by $422,000, and Item 3940-001-0001 by $2.8 million; Increase new special fund item under Items 3480, 3540, 3600, and 3940 by like amounts.)

Background. The state regulates the harvesting of timber on nonfederal lands in California under the Forest Practice Act. Specifically, timber harvesting is prohibited unless harvest operations comply with a timber harvest plan (THP) prepared by a registered professional forester and approved by the Director of the California Department of Forestry and Fire Protection (CDFFP). The THP covers such matters as harvest volume, cutting method, erosion control, and wildlife habitat protection.

Timber harvest plans are reviewed by multiple state agencies in addition to CDFFP, including the Departments of Conservation, Fish and Game, and the State Water Resources Control Board (SWRCB). For example, SWRCB is responsible for reviewing the impact of a THP on water quality. The review process can include initial desk reviews, preharvest inspections, inspections during harvesting, and inspections and monitoring after harvesting is completed.

There is a significant amount of variation in the type of plans submitted to CDFFP for review. For example, plans can vary in the amount of timber proposed to be harvested, the type of harvesting methods that will be used, and sensitivity of the natural resources where the harvesting will occur. Furthermore, the type of timber proposed to be harvested and thus the value represented by the THP also varies.

Budget-Year Proposal. As shown in Figure 1, the budget proposes expenditures totaling $23.5 million for various state agencies to review and enforce THPs. Most of this funding is from the General Fund.

Figure 1
Timber Harvest Plan Review Expenditures

2003-04 (In Millions)

Department	General Fund	Other	Total
Forestry and Fire Protection	$13.2	$0.6[a]	$13.8

Fish and Game	4.9	0.8[b]	5.7
State Water Resources Control Board	2.8	—	2.8
Conservation	1.2	—	1.2
Totals	**$22.1**	**$1.4**	**$23.5**

[a] Public Resources Account, Timber Tax Fund, and reimbursements.

[b] Environmental License Plate Fund and reimbursements.

Fees Should Fully Cover Program Costs. We think that fees levied on timber operators should cover the total state agency costs to review and enforce THPs, including the cost of monitoring the impact of timber harvesting on natural resources. This is because there is a direct link between the THP review and enforcement and those who directly benefit from it through their harvesting of timber. In other words, without the state review and approval of the THP, businesses would not be able to harvest timber. Doing so would be consistent with the Legislature's actions in requiring the costs of most other environmental regulatory programs, such as those protecting air and water quality, to be fully or partially reimbursed through industry fees and assessments.

Since CDFFP and other state agencies reviewing and enforcing THPs currently do not have the authority to charge fees for their costs associated with these activities, the Legislature would have to enact legislation to provide them with this authority.

Various Fee Mechanisms Could Be Established. We have reviewed a number of potential ways that fees could be structured to recover state agency costs related to THPs. These fee mechanisms include the following:

- ***A Per Acre Fee.*** Timber operators would pay a fee based on the number of acres proposed to be harvested in the submitted THP, without regard to the value of the proposed harvest. Under this option, fees could be structured with a sliding scale so that above a certain minimum number of acres, the cost per acre could be reduced. The fees would be payable to CDFFP upon submission of a THP.
- ***A Flat Fee Per THP.*** Timber operators would pay a flat fee for each THP submitted to CDFFP, without regard to the value of the proposed harvest. The fees would be payable to CDFFP upon submission of a THP.
- ***A Fee for Service Basis.*** A fee would be assessed based on the costs of state agencies related to reviewing a particular THP. Under this option, THPs requiring more state agency review time would be assessed a higher fee. A fee would be collected at the conclusion of the review process.
- ***A Timber Yield Fee***. Timber operators would pay a fee based on the value of timber that is harvested. Such a fee could be collected using the existing timber tax collection system in which timber owners are required to report each quarter the value of timber harvested to the State Board Of Equalization (BOE) for payment of timber yield taxes, based on the value of the harvested timber.

Our analysis of the various potential fee mechanisms concludes that the preferred fee structure would be a timber yield fee. This is because unlike the first three options, the timber yield fee would be directly proportional to the monetary gain from the harvest. This addresses concerns with the flat fee that all timber operators would pay the same regardless of the value harvested. Similarly, there is a concern that under a per acre fee, timber operators submitting the same size THP, but which represent different harvest values, would pay the same fee. We also find that a timber yield fee is preferable because unlike the other options, a yield fee would use an existing process to collect the fee, thereby

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saving the administrative costs to set up a totally new collection process.

Recommend Legislation to Enact Timber Yield Fee. We recommend that the Legislature enact a timber yield fee, calculated as a percentage of the value of timber that is harvested subject to the Forest Practice Act. We recommend that the Legislature specify that such a fee be collected using the existing timber tax collection system, administered by BOE. We also recommend that the fee *rate* be set initially at a level sufficient to fund the state's costs of review and enforcement of timber harvest plans and the BOE's administration costs. In order to account for fluctuations in the market value of timber (and thus the amount of revenue raised from the fee), the legislation should also authorize BOE to make biannual adjustments in the fee rate in order that the fee would raise sufficient revenues to cover state costs as specified. We further recommend that the legislation create a special fund into which the fee revenues would be deposited, with expenditures from the fund subject to appropriation by the Legislature. We think that this would increase the Legislature's oversight of the use of the new fees. Similar legislation, AB 1172 (Keeley), was introduced last year to enact a fee on timber yield to cover state agency costs for THP review and enforcement.

General Fund and Special Fund Savings. Implementing our recommendation to shift funding in the forest practices regulatory program to fees levied on timber operators would result in General Fund savings of about $22 million, savings to the Public Resources Account (PRA) of $384,000, and savings to the Environmental License Plate Fund (ELPF) of $422,000 in the budget year.

We therefore recommend that the Legislature make the corresponding reductions in General Fund, PRA, and ELPF and the increases of a like amount from the new special fund that we recommend be established. In estimating the savings to the General Fund, PRA, and ELPF, we have assumed that the fee structure and collection process would be in place to allow for collection of the timber yield fee for four quarters of the budget year.

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Return to LAO Home Page

5.3 Visual Resources

Impact 5.3-1: Degradation of the Quality of Scenic Vistas and Scenic Resources (p. 5.3-14).

‡ We support the provision in all alternatives for establishment of a Scenic Corridor Ordinance and a Scenic Corridor Combining Zone District and prefer the more protective wording of Alternatives 2 and 3. 281-56

‡ We support extending this provision to include State Highway 49.

‡ We support extending limitations on ridgeline development to include ministerial, as well as discretionary development. This provision should be extended to State Highway 49.

Impact 5.3-2: Degradation of Existing Visual Character or Quality of the Area or Region (p. 5.3-26).

The DEIR considers this Less than Significant for both Alternatives 1 and 2 through 2025 but Significant at buildout. For Alternates 3 and 4 it is considered Significant at both times.

Significance is in the eye of the beholder. We disagree that increased development as proposed in Alternative 1 and 2 would pose a Less Than Significant visual impact even through 2025. 281-57

‡ Despite this reservation, we support designing streets and other improvements so as to minimize effects on existing rural character, though we disagree that doing so will reduce this impact to LTS in Alternatives 1 and 2 at 2025.

We believe, however, that it would have a positive effect in reducing speeding and accidents.

• Please refer to our scoping comments, p. 10, under Land Use, where we asked that this subject be analyzed in the DEIR. 281-58

COMMUNICATION TOWERS:

Siting of communication towers is briefly mentioned on p. 5.3-16. Their siting is both a visual and a health and safety issue, discussed more in what follows.

> *"They seem to be popping up everywhere, like intergalactic mushrooms. We see them inappropriately placed in residential neighborhoods, on school grounds, on pristine ridgelines, along beautiful country roads and scenic highways—usually over the vehement objections of neighbors, parents, and environmentalists. Towers are often reluctantly sited in these hallowed places by the very people we have elected to protect our communities."*
>
> *"No community is unaffected by cell towers today. Siting them is one of the most contentious areas of land-use law in America, as well as in many European countries where far more stringent exposure standards have been set for ambient environmental radiofrequency radiation—the area of the electromagnetic spectrum used for this wireless technology."*
>
> — *Cell Towers, Wireless Convenience? or Environmental Hazard"* B. Blake Levitt *in* Proceedings of the "Cell Towers Forum", State of the Science, State of the Law. December 2, 2000.

281-59

• In the FEIR, please include a map showing the location of all communication towers in the County. Indicate which ones are now visually intrusive. Indicate those that are camouflaged

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in some way to mitigate their intrusiveness and describe the various ways in which these have been camouflaged. Indicate which are not camouflaged. (See References.)

281-59

• Please describe the effect that locating a communication tower in the vicinity has upon property values. To what extent has siting been controversial in the County?

281-60

There was a recent incident in the County in which it was discovered that the siting of a communication tower impinged upon a cemetery. Eventually, the County had to pay to settle a lawsuit. See discussion herein under Cultural Resources.

281-61

•Explain how this happened and how repetition of such an incident will be prevented.

Regulatory framework for siting communication towers isn't discussed until p. 5.8-78 under Human Health and Safety, where it says that the Telecommunications Act of 1996 limits state and local government authority over decisions. But local governments do retain the power to regulate many aspects of tower siting, including location, height, what can be situated on the tower, monitoring for radiofrequency emissions to assure conformity with standards, and other attributes. On p. 5.3-16 this authority is at least partially acknowledged, though the Zoning Ordinance (17.14.180) as yet contains no standards to mitigate adverse visual effects. Local jurisdictions aren't quite as helpless as is commonly believed in siting locations. (See, e.g., the quote from Conrad Montgomery in the third Reference.)

‡ We believe the key provisions for inclusion in zoning ordinances as presented in *Cell Towers, Wireless Convenience? or Environmental Hazard"* would help to mitigate both health and safety issues (see 5.8, Human Health and Safety) and visual ones, as well as to protect the County from liability and restoration costs should a facility be abandoned. We propose them for suitable mitigation (see References):

281-62

1) Monitoring for radiofrequency emissions, both before and after an installation goes on line.
2) Large, at least 1500 feet, setbacks from homes, schools, hospitals--wherever people congregate.
3) Avoid siting installations on or near metallic objects such as water tanks, roofs, architectural girders, elevator cables because conductive materials can create local "hot spots".
4) Establish by-right zones where facilities can locate, but nowhere else.
5) Discourage private entrepreneurs and churches from establishing sites (the income can be attractive) because such people and organizations rarely understand the complexities of the issue.
6) Allow only signal strengths that will provide for adequate coverage and capacity, not blanket coverage. (The right to do so has been upheld by both the courts and the FCC.)
7) Require extensive engineering detail and proof that a facility is really needed.
8) Require *independent* engineering review of all applications and modifications to existing sites.
9) Encourage use of satellite-based systems to reduce the number of ground-based facilities.
10) To discourage building towers on speculation, require the service provider, the tower owner, and the landowner all to be part of the application.
11) Write airtight liability protection into the regulations by all concerned, with proof of insurance annually submitted, transferable with any future change of ownership.

Additional important features could be:
12) Require co-location on a single tower by competing service providers.
13) Require bonding to assure site-restoration should the facility eventually be abandoned.

281-62

LIGHT POLLUTION

Impact 5.3-3: Creation of New Sources of Substantial Light or Glare that Would Adversely Affect Daytime or Nighttime Views (p. 5.3-33).

> *"My seventh-grade class at Presentation Elementary went on a four-day trip to Point Bonita in the Marin headlands. My favorite part was going on the night walks, which were amazing. You could see the stars forever, and you could see the Golden Gate Bridge and beautiful lights. You could just sit there forever and watch the waves and look at the sky."*
> —Nicole Gray, 12, Sacramento

A misunderstanding on the part of a the Planning Commission at the time of adoption of the 1996 General Plan is reflected in Policies 2.1.4.4 (" U. Shielded, low intensity and efficient lighting.") and 2.8.1.1 ("Include standards, consistent with prudent safety practices, for outdoor lighting to reduce high intensity nighttime lighting and glare in the update of the County Zoning Ordinance.") from Alternatives 1 and 4. This misunderstanding is continued in Revised Policy 2.8.1.1 (p. 5.3-38). A commissioner recounted a story involving a parking lot in a coastal county and a narrowly averted accident as a result of dim lighting. This was translated into the recurring phrase "consistent with prudent safety practices".

281-63

Proper shielding is what prevents lighting spillover, glare, and skyglow, as we have tried many times to make clear in commenting. *Direction* of light *should not be confused* with its *intensity*. Top- and side-shielding, with the latter preventing sideways light at an angle above twenty degrees below the horizontal plane passing through the light fixture, was readily accepted by AKT Development in the case of Promontory and Carson Creek as part of settlement discussions, once the concept was understood. Energy efficiency is only common sense; it saves both money and natural resources. (According to Japanese astronomer Syuzo Isobe, who uses satellite photos to measure light from various locations and then calculates how much electricity is needed to produce that light, Sacramento spends nearly $2 million per year on light wasted to the sky.) And there is no evidence that shielding lights contributes to less safe conditions. On the contrary, there is evidence that, by reducing glare, shielding *adds* to safety in making the scene more, not less, visible.

• Please thoroughly discuss shielding, light intensity versus direction, safety, potential for energy savings, retrofitting the common "barn lights" economically, saving money with efficient light sources, etc. issues in the FEIR and clarify the matter once and for all. The web site www.darksky.org has much useful information. See also comments on this subject in Quality Growth's comments on the 1996 General Plan DEIR, incorporated by reference. Include discussion of conforming systems for sport-field illumination (see References).

Implementation of Mitigation Measure 5.1-3(a), as proposed on pp. 5.3-37 and -38, while desirable (it would seem to close the loophole through which ministerial projects might pass), by itself says nothing about lighting standards. Mitigation Measure 5.3-3(b) (p. 5.3-38) is toothless in calling for merely considering (and not requiring) design features without specifying any standards. Mitigation Measure 5.3-3(b) repeats the flaws of merely considering and not requiring, as well as the nonsense wording of "consistent with prudent safety practices".

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‡Another specific application that should be included (and in Revised Policy LU-6f, p. 5.3-39) is that of sport fields. 281-65

‡ Improve these mitigation measures by substitution of "require" for "consider", addition of standards (such as not allowing side lighting above 20 degrees below the horizontal plane through the light fixture), dropping the phrase "consistent with prudent safety practices" as safety is a non-issue, and adding sport fields to the list of potential sources of offending lighting. 281-66

• There already is substantial "nightglow" in various parts of the county. Please discuss in the FEIR ways and means by which retrofitting could be undertaken gradually to reduce this nightglow through gradual retrofitting of existing installations, with a goal of complete elimination of light pollution. One possibility might be requiring retrofitting at time of sale. Inexpensive shields are available for ubiquitous barn lights, as one example. (See References.) 281-67

Illumination of signs is also an issue in increased light pollution and glare. Suggested mitigation includes the following measures (see References):

‡ Require top-down rather than bottom-up illumination of signs when directional illumination is used. Encourage Caltrans also to use this technique. 281-68

‡ When behind-the-wording illumination is used, require that text is illuminated and not background (i.e., light against dark, not dark against light).

‡ Prohibit so-called "nervous" signs—those that flash on and off frequently to attract attention.

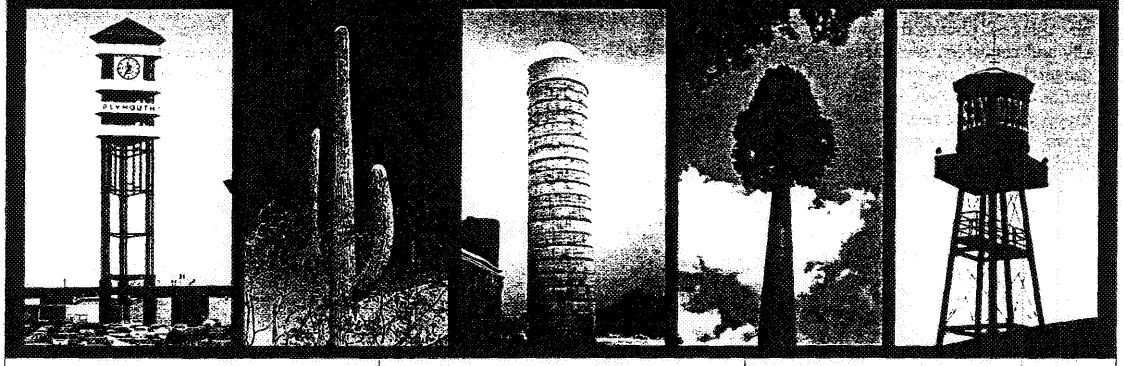
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Cellular's Camouflage

As wireless towers spread, so do their guises—including 50-ft. cacti



By JULIE RAWE

"CAN YOU HEAR ME NOW?" NOT too well if you're using a cell phone near the top of Massachusetts' Mount Watatic. That's because state officials, eager to protect this pristine peak from unsightly antennas, agreed to buy it for $2.5 million last summer. In the town-by-town battle between improving cell-phone coverage and preserving precious skylines, few places have had the resolve—not to mention the resources—of Mount Watatic's neighbors. But such aversion to tower building is becoming the norm in cities and suburbs across the country. From Lakeland, Fla., to Winnetka, Ill., more and more communities are demanding some sort of antenna concealment. Even **Microsoft's** tech-friendly hometown, Redmond, Wash., requires that new towers be camouflaged in residential areas.

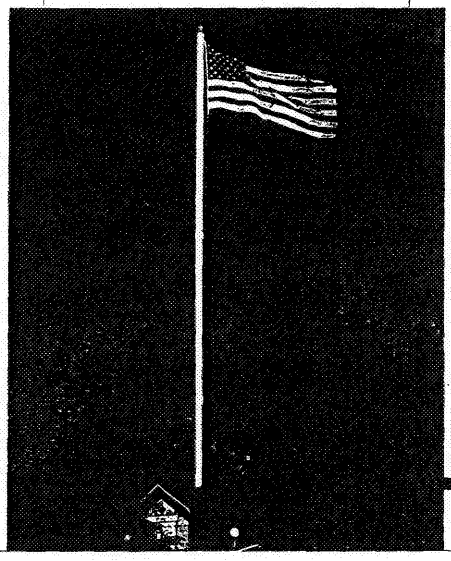
Suburban stonewalling was a hot topic at the wireless industry's recent Tower Summit and Trade Show in New Orleans. "Wireless companies have already paid the Federal Government over $20 billion for licenses that are tied up in local disputes," lamented Laura Altschul, government affairs director for T-Mobile USA. "We need to break the logjam in residential areas." To speed the process, the Bush Administration is trying to give the industry unfettered access to the public right of way. Municipalities could lose control over tower siting along major roads, but it's unlikely that citizens will have no say in what happens along the edges of their yards.

Even if the feds step in, the only way tower builders are moving into cell-phone-rich, aesthetically guarded communities is through camouflage. **Sprint PCS** recently agreed to pay an estimated $150,000 to fix up—and wire up—a century-old windmill in a ritzy section of Fairfield, Conn. The mansions there have lousy cellular reception because well-heeled neighbors don't want a tower in their backyard. "We've got millionaires sitting in their driveways just so they can use their cell phones," says an exasperated resident.

The number of so-called stealth towers, which have been around for a decade, has doubled since the Telecommunications Act of 1996 first prevented local jurisdictions from shutting out wireless carriers altogether. Of the roughly 128,000 cellular-antenna sites in the U.S., about 75% are mounted on towers in the traditional (read: ugly, obtrusive) sense. The rest have been tucked inside steeples and flagpoles, on rooftops and water towers and in giant fake trees adorning rarefied real estate from Virginia's Mount Vernon to California's Hearst Castle. Even Pebble Beach's hallowed golf course is reportedly considering installing high-tech replicas of gnarled cypress trees.

Although tower building has fallen off more than 70% since the late '90s, business is holding steady at major camouflage shops, with San

FANCIFUL FACADES Antennas can blend into any landscape with Stealth Network Technologies' fake water tower, far right, or Larson's saguaro cactus, second from left



◀STEALTH SALUTE Flagpoles are the cheapest and most popular design

RIGHT: COURTESY OF VALMONT MICROFLECT. ABOVE, FROM LEFT: COURTESY OF VALMONT MICROFLECT; JOHN MILLER; AP; COURTESY OF STEALTH NETWORK TECHNOLOGIES; DARREN MCCOLLESTER; GETTY IMAGES; COURTESY OF SELA; LENA IWORN/FLAMINGO LIGHTS

AR 13647

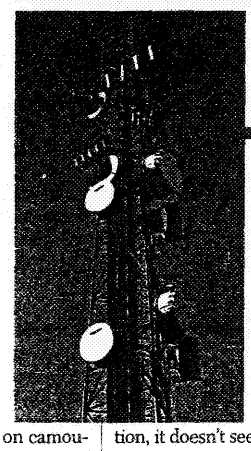
Diego's **TeleFlage** enjoying a 75% sales increase this year. Cash-strapped carriers are still willing to cough up the extra 15% to 20% that it costs to hide an antenna in a high-rent neighborhood.

With half of Americans now using cell phones, the novelty and convenience of these gadgets have given way to frustration over patchy service and dropped calls. The need to improve network coverage in hard-to-zone locales has led to thousands of remarkably symmetrical pines, palms and cacti; fake chimneys and air-conditioning huts; ersatz silos and water towers home to no liquid or grain. One company raised the roof of a **McDonald's** to conceal some antennas. Another stashed wireless gear inside signs for **BP** stations and Red Roof Inns. The camouflage unit of **Valmont Industries,** based in Omaha, Neb., received a request for a 115-ft. saguaro cactus, which would have been triple the plant's natural height. "You'd turn around and run if you saw something like that," says the company's tree specialist, Jim Casqueiro. The solution: split the coverage area and build two 50-footers instead.

The cheapest stealth design, a stocky flagpole with room inside for antennas, accounts for roughly half the camouflage market and adds $10,000 to $20,000 to the price of a tower. Trees cost double or triple that amount. "You pretty much blow your profit margins on camouflage," says Jim Fryer, the industry's chief data tracker, who runs TowerSource.com. "But if you can close the deal and not have to go through another year of zoning battles, it's probably worth it."

So far, the business of utility concealment has attracted only a dozen or so players. Industry leader Larson Camouflage, whose parent company in Tucson, Ariz., has spent decades building fake habitats for such clients as Disney World and the Bronx Zoo, developed the first "tree" tower in 1992. TeleFlage founder Nancy Tuggle got into the business after serving on a planning board in a San Diego suburb that nixed a proposed tower in someone's backyard. She directed PacBell to a nearby school and six years later is forming a coalition of camouflagers to help companies expand their networks by educating the public about alternative tower designs. "With concealment as an option, it doesn't seem so bad," she says.





ANTENNA MAKEOVER TeleFlage's Tuggle holds a piece of CELlite used to imitate rock and stucco on stealth sites like this San Diego clock tower

Go-betweens like Tuggle are trying to make suburbs less hostile territory for tower builders. PlanWireless.com's Ted Kreines has taken a different approach. Dozens of communities have adopted his tiered-application system, which streamlines permit approval for small, inconspicuous antennas and screeches it to a halt for big, ugly ones. "If you go low, we'll help you," he tells tower builders. "If you go high, God help you."

Kreines is also trying to help towns get their share of wireless wealth. He advises officials on how much to charge for space on water tanks and how to find the stealthiest towers—the ones built without a permit. When Florida's Alachua County completed its first antenna inventory in 1999, it uncovered $1.5 million in new tax revenues.

But the biggest moneymaker for cities could come with a system upgrade to third-generation (3G) wireless technology (if and when that happens). To fill in cellular-service gaps and accommodate massive data transmissions, antennas will need to be closer to the ground and to one another. Utility poles are already home to thousands of bread-box-size microcells in California. And as every streetlight becomes a possible antenna site, Kreines wants wireless providers to pay local jurisdictions for using the right of way.

As public-utility execs start to wake up to their potential role in the wireless revolution, ailing tower companies are starting to head indoors. **SpectraSite,** a Cary, N.C., firm that filed for bankruptcy this month, is installing distributed-antenna systems inside malls, airports and other big buildings largely sealed off from outside airwaves. Using credit-card-size antennas and existing fiber-optic-cable networks to provide perfect indoor coverage, these wireless systems mimic landlines by offering universal access to the infrastructure and charging individual carriers for customer use. There are more than 1,000 tiny antennas up and running in Las Vegas hotels, where minicamouflage is already in full swing. **LGC Wireless** of San Jose, Calif., has artfully blended in these cell sites with ceiling frescoes at the Venetian Casino Resort. Those who are worried about the health risks associated with these ubiquitous low-powered antennas might be reassured to know that LGC's newest client is the very institution that approved their safety, the FCC.

Even as the next generation of wireless equipment calls for ever shrinking antennas, tall towers will probably avoid extinction by offering fixed-wireless service in rural areas where other high-speed Internet access isn't available. Meanwhile, **AT&T Wireless** and **Cingular** are building a joint network along 3,000 miles of highway in the Midwest and West. That includes a lot of wide open spaces where there's no place to hide.

—***With reporting by Jyl Benson/New Orleans***

JACQUELINE BONNEY FOR TIME (2)

AR 13648

File LP40.DOC, 9 August 2000

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This text is based on extracts from *Outdoor Lighting Principles for Australia in the 21st Century* which is obtainable free via email through the website of the Astronomical Society of Victoria Inc. at <www.gsat.edu.au/astrovic>.

OUTDOOR LIGHTING AND CRIME

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Honorary Life Member, Astronomical Society of Victoria Inc.

Summary

This document is an extended version of one submitted in May 2000 to the Drugs and Crime Prevention Committee of the Parliament of Victoria.

The proliferation of artificial outdoor lighting in the 20th century was fostered by the lighting industry with sometimes questionable propaganda and little regard for the environmental consequences. As a result, the natural spectacle of the night sky has virtually been blotted out for urban populations in developed countries. Other adverse effects of excessive artificial light at night are known or are still being investigated in humans and other species.

Contrary to widespread belief, intense or continuous lighting is generally unnecessary for personal or property security, and may even encourage crime because fear of crime is allayed and probably because commission is facilitated. In some circumstances, darkness can inhibit crime. Especially when displacement is taken into account, *there is no reliable evidence that more or brighter outdoor lighting reduces crime rates. Seclusion rather than dim lighting favours crime. Crime is a social problem, not a lighting problem.*

Coloured lighting to discourage illicit drug injections merely displaces the activity, advertises the area for drug dealers, and engenders unease for passers-by.

Outdoor lighting decisions need to be made in full awareness that outdoor lighting has little influence on the crime rate. In many cases, bright existing illumination could actually be reduced or eliminated altogether without increasing crime in the vicinity. But lighting, preferably glare-free, remains important for mobility safety. National and regional strategies for outdoor lighting are sorely needed on environmental grounds. Their existence could also help to avoid substantial waste on misguided schemes for crime reduction that require more and brighter lighting. CONTENTS Page

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1. INTRODUCTION

This document was originally prepared as an input to the joint all-party Drugs and Crime Prevention Committee of the Parliament of Victoria in response to a call in May 2000 for submissions, including options for crime reduction. Some additional material gathered since then has been added to this version. This document presents the views of the Astronomical Society of Victoria Inc. through its Outdoor Lighting Improvement Section.

Improvements to outdoor lighting are frequently proposed in the news media and government planning documents as an option for crime reduction. Unfortunately, misguided interpretation of 'improvements' as 'more and brighter' in this context is likely to be counterproductive. Outdoor lighting across the whole of Victoria and much of the rest of Australia is already seriously degrading the environment. This document indicates how genuine improvements in outdoor lighting can be pursued with multiple beneficial outcomes, including economic and environmental advantages (Hunter and Crawford 1989).

Public and private outdoor lighting in Australia often lags well behind world's best practice. Far too much unused and waste light illuminates the night sky, needlessly degrades the environment in other ways or is otherwise obtrusive. Producing this light wastes energy and unnecessarily increases greenhouse gas emissions. Artificial sky glow, one of many undesirable consequences, hampers astronomical observation and research and also degrades the aesthetic beauty of the night sky. Careless installation and overuse of outdoor lighting adversely affects many species of plants and animals and can degrade human health, safety and recreation. The problem is growing at an alarming rate in Australia and the rest of the world, a result of a century of sometimes questionable propaganda by the lighting industry, beginning with Edison himself. As a result, the natural spectacle of the night sky has been largely blotted out for urban populations. Adverse effects of excessive artificial light-at-night include sleep disorders in humans and other species. Light-at-night is actively being investigated at the Harvard Medical School and elsewhere as a risk factor for breast and other cancers (NAPBC 1997).

Light-at-night disrupts daily and annual natural photoperiods and thereby affects sleep and health (Dement and Vaughan 1999). In particular it appears to lead to obesity and consequent obesity-related disease (Wiley and Formby 2000).

Control of obtrusive lighting and lighting waste is relatively simple and economical (IDA IS12 1996, SA 1997, IESNA 1999, IDA IS152 1999). Inclusion of such control in future outdoor lighting strategies has a low technical risk and will result in a more attractive, comfortable, safe and healthy visual environment for residents, workers, shoppers, travellers and tourists. Comprehensive regional outdoor lighting codes and a national code could assist commerce, improve liveability and assist Australia to meet its greenhouse gas emission targets. But inevitably, people will object because they think that crime will increase if outdoor lighting is reduced in any way. The facts indicate quite differently (eg ICOLE 2000).

2. LIGHTING FOR SECURITY

Understandably, most people want the incidence of crime to be reduced. It appears to be almost universally believed that more and brighter outdoor lighting would help. Of course, extending the belief to its ultimate stage means there should be little or no daytime crime, but that is far from the facts. For example, 54% of violent crime in the USA occurred between 6 am and 6 pm, and only 20% of rapes involve unknown assailants at night (BJS 1999). Only 35% of all burglaries[2] in the USA are reported to have occurred at night, or 48% of all burglaries for which the time of occurrence is known (UCR 1996). During the power blackout that affected Auckland in New Zealand for several weeks in early 1998, press reports stated:

> "Even criminals have deserted the darkened streets of downtown Auckland... 'It's been almost a crime free zone,' Inspector John Mitchell said... 'The normal level of muggings, violence, fights, burglary and robbery have just not happened" (ICOLE 2000).

Electric lighting manufacturers, designers and installers as well as electrical power companies collectively stand accused of promoting the myth of 'security' lighting. News media have often perpetuated this myth uncritically on the basis that it is self-evident and common sense: 'everyone' 'knows' it to be true. Likewise, many political campaigners have sought voter support by promising increased outdoor public or security lighting to deter or reduce crime. Actually a connection between lighting and crime is demonstrable only to the extent that people do tend to *feel* safer when there is enough light for easy seeing. The consistent conclusion from many independent reliable studies is that *there is no clear overall effect of the amount of outdoor lighting on actual crime rates* (Ramsay 1991, IDA IS51 1992, Shaftoe and Osborn 1996, IDA IS63 1998).

The National Institute of Justice presented a large report on crime prevention to the US Congress in February 1997 (Sherman, Gottfredson, MacKenzie, Eck, Reuter and Bushway 1997). The following quotes are from '*Conclusions for Open Urban Places*' in Chapter 7:

> "We can have very little confidence that improved lighting prevents crime, particularly since we do not know if offenders use lighting to their advantage. In the absence of better theories about when and where lighting can be effective, and rigorous evaluations of plausible lighting interventions, we cannot make any scientific assertions regarding the effectiveness of lighting. In short, the effectiveness of lighting is unknown." (IDA NL41 2000)

Findings that more lighting reduces crime appear mostly to be confined to studies that are financially supported by lighting-associated companies or organisations (eg Lighting.com 1999). Other cases of pro-sponsor bias are known in industry-sponsored research; for example, in research reports sponsored by the tobacco industry claiming that cigarette smoking does not cause lung cancer and other diseases. Another example is that of reports claiming that car windshield and window tinting is not a road safety hazard: generally these have been done by or paid for by the vehicle industry while many more papers from independent vision researchers reach the opposite conclusion (Clark 1995).

Historically, urban crime rates have increased together with the growth in urban outdoor lighting although this, by itself, does not indicate a causal relationship. In particular, large peaks in crime during the 20th century appear to have no counterpart in the steadier growth of lighting, although both quantities grew substantially over the ten decades. In some more specific studies, crime actually increased as 'better' lighting brought more people into a busy area in the mistaken belief that they were now safer. Similar results have been observed when increased lighting has encouraged individuals to venture into an area that was previously shunned as secluded and unsafe. In other cases there have been relatively small displacements of crime to adjacent areas that are not necessarily darker. Even an announcement of planned lighting improvement has resulted in a displacement of this sort.

Vandalism can actually be reduced by making areas dark: vandals apparently need or like to see the damage they cause[3] (IDA IS 54 1997, King 1995). A similar effect of darkness in inhibiting the incidence of burglaries has been explained as a result of the attention-drawing factor created when a burglar has to use hand-held lights such as matches or torches (flashlights) to see well enough to break in.

Crimes other than burglary are also generally more difficult to commit in darkness and again the use of hand-held artificial light sources tends to attract attention. Dark alleys, sideways, parks etc in an otherwise brightly lit area may favour the concealment of lawbreakers. However there is often enough ambient stray light to improve visibility from more brightly lit areas, especially if minimal supplemental lighting is used. Nevertheless, comparable or better results are often possible simply by ensuring that the more brightly lit area is glare-free. *Seclusion rather than dim lighting favours crime.* Most so-called security lighting currently in use has been installed to allay fear, with little or no consideration of glare, light spill, economy, efficiency or even effectiveness in reducing crime. High-glare outdoor lighting tends to provide deep shadows for criminals to hide in. Insofar as they might be needed at all, future security light installations need to be controlled much more closely to avoid degrading the overall quality of an urban lighting scheme. Actual security is thereby more likely to be improved than decreased (IDA IS104 1996). Several interesting discussions are available about campus lighting and crime in IDA IS23 (1996), IDA IS 27 (1997) and IDA IS 31 (1997). A related issue, the amount of lighting at petrol filling stations and convenience stores, is discussed in IDA IS145 (1998).

In recent years, places such as alcoves, recessed doorways and public toilets with night lighting have become favoured areas for drug addicts to inject themselves. Owners of these areas have attempted to discourage this use by using saturated red- or blue-coloured lighting that reduces, or is supposed to reduce, the visibility of subcutaneous blood vessels. (Red light actually enhances the visibility of veins but reduces the visibility of arteries.) The strategy works only to the extent that it merely displaces some of the illicit activity to somewhere else, usually close by. It is easily defeated by addicts who outline targeted blood vessels beforehand with ballpoint

pens. It also advertises the availability or presence of illicit drugs in the area and seems likely to make passers-by uneasy. Blue-violet light is the worst possible colour in terms of its effect on visibility, legitimate or otherwise, for persons whose vision is affected by cataracts.

One of the arguments for more light for security is that video surveillance cameras (or closed circuit television, CCTV) can be used more effectively. For instance, metropolitan railway stations in Melbourne have video cameras installed. Excessively bright *high pressure* sodium lighting has also been installed at the stations, albeit in fittings that confine the directly emitted light to the horizontal direction and below. But bright lighting is an ineffective measure for controlling crime, and video cameras appear either to be ineffective (KDIS 1997) or of limited value (Sherman et al. 1997, Chs 7 and 10; Munro 2000)!

An indication of the extent to which outdoor lighting is out of control in Victoria at least is the almost inevitable installation of low-mounted security floodlights around every new industrial building. The economic and environmental costs of providing, installing and operating these floodlights are far from trivial and there is no known actual security advantage. The inevitable conclusion is that the lighting industry's fostering of the security myth adds to building and operating costs and thereby reduces the state's industrial competitiveness.

The main conclusions of this section are that *lighting does not decrease crime but only allays the fear of crime,* and that *crime is a social problem rather than a lighting problem.* It is also extraordinary how much public and private funding is wasted in Victoria and elsewhere through entrenched ignorance of these facts.

3. GLARE REDUCTION

Glare results from having an excessively bright light or illuminated object in the field of view. Glare can cause annoyance and discomfort, and reduce the ability to see in the circumstances. If criminals wish to hide to conceal criminal acts or to increase their prospects of successfully committing a crime, they can usually find somewhere suitable if dark shadows are available. Dark shadows generally occur when one or more light sources are substantially brighter than other lighting in the vicinity. This is typically the case with inadequately shielded floodlamps and overlit advertising signs. Shadows tend to become much less effective for hiding when lamps are adequately shielded and overlighting is reduced towards the mean luminance level in the area.

Lamps shielded and mounted so that no direct rays from the lamp are emitted above the horizontal are called 'full cutoff'. Cutoff angles even lower than horizontal (eg 10 or 20 degrees down) can usefully be specified and there is generally little or no capital cost differential. If a suitably shaped light shield with a glossy surface intercepts the near horizontal light, the available illumination can actually be more effectively used instead of being wasted. In turn, a lower power lamp may be substituted, resulting in a significant decrease in lighting costs. Such 'cutoff' shielding is the most direct way of reducing glare from outdoor light fittings, including street lights, pedestrian lights, floodlights and sports lights. Upwards waste light limits for many of these luminaires are specified in Australian Standards (SA 1999) but these limits represent minimal performance. Better is readily achievable, often with savings in money or energy or both.

There can be excellent community and economic value in specifying increased shielding against spill light to give less glare. In the present context, reduced glare is generally accompanied by

lighter shadows. Therefore a reduction of glare from outdoor lighting can certainly reduce the opportunity for a surprise criminal attack. Public education about this aspect of glare should link low-glare lighting with reduced opportunity for attack.

Brightly lit billboards and other illuminated advertising also tend to create an environment with increased opportunities for criminals to conceal themselves. AS 4282-1997, *Control of the obtrusive effects of outdoor lighting* (SA 1997), does set limits for spill light including glare effects on drivers at nearby roads but the glare test is necessarily a little complex and not easy for non-specialist readers to follow. AS 4282 is not yet mandatory in most municipalities, but identical limits for glare are set in AS/NZS 1158.1.1 (SA 1999), a usually mandatory standard for road lighting. In the several years since its introduction, initially as an interim standard prior to 1997, AS 4282 has apparently done little or nothing to curb the upwards 'ratcheting' of billboard brightness and size that passes for competition in the outdoor advertising industry (IDA IS35 1997). The outdoor advertising industry in Australia has argued for self regulation but it is now clearer than ever that lighting, size and placement of billboards and other advertising signs needs to be under stringent mandatory control to limit the occurrence of glare and deep shadows, quite apart from the environmental problems caused by present unconstrained practices such as overlighting and excessive upwards spill light. The need for mandatory control is reinforced by the results of a recent email survey by the Royal Automobile Club of Victoria. The responses have led the RACV to formulate proposals for controlling the form and placement of roadside billboards affecting road safety and scenic and historic aspects (Lay 2000).

The single most important improvement that can be made to urban outdoor lighting is to eliminate glare. This requires all light sources to be shielded so that intensely bright areas such as lamps, reflections of lamps and over-illuminated areas close to lamps are not seen in normal circumstances. Not only would this greatly improve the amenity of areas so lit but unfortunate people with significantly reduced vision[4] would often be able to see better than is usually the case at present. Older and handicapped persons are over-represented in this population. As older or handicapped people appear to be chosen by some criminals as easy targets, people in this population are also supposed to be over-represented as victims of assault and robbery. Better lighting, not necessarily brighter lighting but glare-free lighting, would appear to reduce their vulnerability to some extent by allowing better visual performance but this is speculative. Their mobility safety would certainly be better.

It appears that the crime rate might be unaffected, or even reduced a little, by less rather than more outdoor lighting if national and regional lighting strategies were introduced with reduced glare as a key element. Substantial reductions in glare are possible by the use of full cutoff road lighting, as is currently being applied in many states in the USA (Clark 2000), by eliminating the large peaks in illumination resulting from overlighting of architectural and advertising items, and by reduction of spill light from all outdoor lighting including sports lighting installations. A positive consequence of such a strategy would be better visual functioning for many of the persons who are potentially vulnerable to criminal acts. At least such persons would be less fearful of outdoor crime at night if the reduced glare environment allows them to see more.

Security lighting that is switched off unless triggered by motion or presence sensors is now in common use. It has several commendable aspects from the environmental viewpoint. However, such lighting should still be subject to limit controls on maximum intensity, aiming angles and spill light.

4. OUTDOOR LIGHTING STRATEGIES

National and regional lighting strategies would provide a means of guarding against economic waste and environmental degradation resulting from inappropriate and misguided attempts to reduce crime with brighter and more numerous outdoor lights. By itself, the implementation of such strategies would be likely to have no effect on the crime rate or perhaps lead to a small reduction. It would help to allay the fear of crime, especially in the more vulnerable members of the community. More tangible effects of such implementation are expected to be fewer mobility accidents and the freeing up of resources that would otherwise be wasted and unavailable for dealing with the social issues that lead to crime.

There is no doubt that displacement of crime sometimes occurs following outdoor lighting changes. In that expenditure on lighting intended to reduce crime brings about no overall crime reduction benefit but merely moves some of the crime problem to adjacent areas, it is a government responsibility to block such wasteful and antisocial lighting changes. The simplest way of doing this is by mandatory application of appropriate regional lighting strategies (ie statewide or municipal). What happens at present is that any neighbouring areas affected by crime displacement tend to respond by applying their own lighting changes, setting in motion a perpetual brighter lighting competition in the region with the inevitable outcome of environmental degradation, reduced quality of life and at least as much crime overall.

Modern artificial light at night has certainly brought about a profound and beneficial transformation of human life. But as indicated above, it is not necessarily without its downside. Large commercial entities often seek the greater profits achievable by a 24-hour operating and trading advantage that forces small competitors out of business and provides maximum utilisation of fixed assets. Extended hours requires shiftwork, but shiftworkers are generally considered not to be as contented and as well as people with equivalent day jobs and there is often a social cost of reduced contact with their families.

Customers shopping during extended opening hours at night require a continuation of daylight-like indoor lighting conditions. In turn this results in commercial-ratepayer pressure on city authorities to increase outdoor illumination levels. However, bright light at night extends the body's waking arousal beyond the onset of natural darkness and, if carried to excess, sets the stage for subsequent sleeping problems (Dement and Vaughan 1999), and obesity and disease (Wiley and Formby 2000). These are relatively recent views, not firmly established but profound for their implications about current lifestyles. Regardless, extended hours of business, retail and entertainment activity in cities currently results in increasing numbers of individuals and groups being present late at night. Criminals presumably find it easier to be less conspicuous in crowds, and increased pedestrian traffic late at night could be thought to increase the opportunity for crimes against individuals in secluded places.

The extent to which extended hours in urban centres is a factor in urban crime is speculative. But it is unlikely that urban centres would retain shopping and entertainment crowds for long after all outdoor lighting dimmed or ceased in accordance with a curfew. This is not a suggestion for the introduction of presence curfews or lighting curfews. However, the point is that even a 'soft' curfew such as a lighting curfew is likely to have a substantial effect on an out-and-about population and could conceivably allow manipulation of variables in large-scale field experiments on urban crime control measures. Another relevant point is that AS 4282-1997 includes lighting curfews as a standard requirement for certain types of outdoor lighting, with

default curfew times such as 10-30 or 11-00 pm. However, as already mentioned this standard is not mandatory unless called up in laws or regulations.

The several other Australian Standards that deal with outdoor lighting, including sports lighting, generally range from marginal to quite deficient in reference to the need for stringent control of light pollution and light trespass. They barely mention what is now a greenhouse gas crisis in Australia. For example, in Victoria the increase in electrical power generated since 1990 is about 33%. On a pro-rata basis, this is 7.5 times greater than the 8% maximum growth by 2008 in greenhouse gas emissions over the 1990 value, the international obligation accepted by Australia under the Kyoto protocol. The writer's analysis of two sets of observations of actual light pollution observed from Melbourne suburbs in that time shows that the amount of light pollution has increased by about 90%. The unnecessary generation of greenhouse gases implied during 2000 is therefore about 20 times as much as the 4.4% pro-rata obligation! In other words, 19 lamps need to be decommissioned for every 20 lamps of a given energy consumption installed in Victoria since 1990, or equivalent savings should be made in other areas of energy consumption, an unlikely prospect.

The standards do not mention what is now a pressing need to limit the use of outdoor lighting to the absolute minimum required for cultural purposes and mobility safety. Environmentalist representation appears to be needed in the committees that draft and maintain Australian lighting standards: at present the committees are largely made up of lighting and power industry representatives. As a concrete and highly relevant example of the pro-light-at-night consequences, AS/NZS 1158.3.1: 1999 on public area lighting consistently propagates and perpetuates the myth that outdoor lighting prevents or reduces crime and reduces the risk of crime, and Standards Australia endorses this in its advertising. Until Standards Australia radically improves the situation, minimal reliance should be placed on the standards in ensuring effective and economical outdoor lighting. National and regional lighting strategies should therefore follow the increasingly common overseas practice of incorporating at least the major technical constraints against glare, spill light, overlighting and other unnecessary and wasteful practices in the applicable laws. Stringent control of waste and excess is certainly an increasingly important aspect of limiting excessive greenhouse gas emissions, and communities must learn to live with the change.

Lighting curfews do make good environmental sense for items such as decorative and billboard lighting. An even better alternative that has recently become popular in some parts of the USA is to require billboard lighting and shop or office signs and lighting to be switched off outside the times that the advertised company or shop has its doors open to the public. Such requirements reinforce the need for minimal interference by decorative and advertising lighting with the illuminated properties of public areas- there can be little or no justification for the presence of uneven lighting and deep shadows caused by a nearby sign or floodlight during its operating times.

Given that there is a strong environmental case for national and regional lighting strategies, it is suggested that some aspects of such strategies could also be useful in the study and possible reduction of the crime rate. This strengthens the case for suitable strategies to be considered. Many precedents already exist elsewhere. Numerous complete texts of state, county and town lighting laws, ordinances and regulations are readily accessible (Clark 2000). Nevertheless the main thrust of drug and crime prevention strategies needs to be concentrated on social rather than lighting issues. Conversely, even severe environmental constraints can be applied to

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outdoor lighting in the knowledge that crime is unlikely to become worse.

5. CONCLUSIONS AND RECOMMENDATIONS

Intense or continuous lighting does not necessarily assist personal or property security. On a historical basis, urban crime rates have increased together with the growth in urban outdoor lighting but a causal link has not been established. *There is no reliable evidence that increased outdoor lighting reduces actual crime rates. Seclusion rather than dim lighting favours crime. Crime is a social problem, not a lighting problem.*

There appears to be no general prospect of reducing the crime rate by the installation of more or brighter outdoor lights. Small improvements in the crime rate and better insights into factors controlling crime appear possible by genuine improvement of outdoor lighting, particularly the reduction of glare and the reduction of waste by imposition of lighting curfews. Outdoor lighting aspects that are especially in need of improvement are overbright floodlighting of architectural items and advertising billboards. Reduction of excessive spill light from these and from sports lighting could reduce a tendency of these installations to form deep shadows nearby. In turn this is thought likely to have some positive effect on reducing opportunities for crime.

Specific recommendations are that the Commonwealth, states and individual municipalities should:

a. Consider application of mandatory outdoor lighting strategies, including provisions to:

i. conserve energy and assist seeing by reducing glare, limiting spill light and preventing overbright lighting,

ii. increase the use of *low pressure* sodium lamps for energy efficiency and graffiti deterrence,

iii. deprecate the use of coloured lighting as an attempted means of discouraging illicit drug injections,

iv. specify curfew times for certain types and locations of outdoor lighting,

v. avoid waste of resources by inappropriate use of lighting to try to control crime, and

vi. cap outdoor lighting energy usage in line with Australia's international obligations.

b. Educate the public about lighting effects on crime and the fear of crime.

c. Investigate lighting curfews as a means of manipulating variables in crime reduction research, but otherwise concentrate on the social aspects of crime causation.

d. Explicitly include mandatory technical constraints on spill and intensity in laws and regulations implementing national and regional lighting strategies rather than simply calling up relevant but currently somewhat flawed Australian Standards.

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[1] Also honorary Senior Research Fellow, Department of Optometry and Vision Sciences, The University of Melbourne, Parkville, Victoria 3053, Australia

[2] This figure includes what are known in some countries as housebreakings, ie a burglary

committed in daylight hours.

[3] A variation on this is that graffiti vandals are apparently deterred if they cannot distinguish which colours they are using. Accordingly, the solution in areas prone to graffiti attacks is to use *low pressure* sodium lamps. These electrically efficient lamps emit quasi-monochromatic yellow light and consequently have exceptionally poor colour rendering properties. However, it is not known whether this strategy reduces overall graffiti vandalism or merely displaces the end result.

[4] Subnormal vision generally involves one or more of the following: visual field losses, reduced visual acuity, reduced contrast sensitivity, acquired losses in colour perception, or reduced sensitivity to low light levels. Depending on definitions, as much as 10% of the population has subnormal vision.



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05/97
International Dark-Sky Association -- Information Sheet 35
Billboards

Some Comments on Billboard Lighting

Billboards are controversial, and some persons would no doubt like to see them all banned. However, others feel that billboards provide a valuable advertising service for small and large businesses and welcome information for the weary traveler. IDA has no organizational policy concerning billboards as long as they do not contribute to light trespass and light pollution. Many billboards are illuminated all night and are ridiculously overlit with bottom-mounted lighting, the major part of which ends up in the sky rather than on the billboard. Billboard and roadway sign lighting can be effective and unobtrusive if it is done in the right manner.

Top-lit signs with well-shielded fixtures save energy and contribute little to light pollution. Yet, there are all sorts of objections raised to suggestions that billboards be designed in this fashion. Most, if not all, of these objections are fallacious. The majority of the billboards in the Tucson, Arizona area are top-lit, and all interstate roadway signs in southern Arizona are lit from the top. This has caused no problems, resulted in better sign lighting, probably saves money, and helps keep unwanted light out of the sky. A well- designed top-lit billboard is cheaper to run a relatively low-wattage fluorescent fixture, for example, provides more than enough light to give the billboard easy visibility.

We have not noticed any objectionable shadows in the daytime caused by the lighting system being mounted at the top of the billboard. This is an objection often raised by opponents of top-lit billboards. They also complain that top-mounted fixtures are more difficult to service. This may be true in some cases, but in most instances in Tucson the billboards are quite large and are difficult to change or service no matter where the lights are located.

There is little doubt that changing a lighting system for a billboard may be expensive. It is probably impractical to ask for all billboard owners to retrofit the lighting systems for bottom-lit signs. A first approach would be to ask for all new billboards to be top-lit. Older billboards could be left as they were for some time until they would ordinarily undergo major renovation due to their age.

There is also the question of whether a billboard needs to be lit at all when the business being advertised is not open. Most billboards and other advertising signs should be turned off after 10:30 or 11:00 p.m. We should point out to the sign owner, or better yet the business doing the advertising, how much coal is being burned (and wasted) to light the night sky. These individuals probably do not realize that in addition to light pollution they are also contributing to air pollution and possibly global warming. Most electricity comes from coal-burning power plants.

It does not take very much light to make a sign visible at night. The next time you are at an airport notice how dim the taxi and runway lights are. Nevertheless, they are easily seen. In your efforts to produce changes in the way signs are lit in your area, be reasonable and work with the sign owners and billboard companies. A well-constructed top-lit sign is easy to see at night and yet it contributes little to light pollution. We know it can be done because we see good examples in many places. Changing billboard and sign lighting will not be easy and it will take years to bring about a large scale transformation. It will not by itself stop light pollution but it will surely help and is a worthwhile goal to work toward.

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Excerpts from a model lighting ordinance developed by the New England Light Pollution Advisory Group:

2.4. OUTDOOR ADVERTISING SIGNS.

A. Top Mounted Fixtures Required. Lighting fixtures used to illuminate an outdoor advertising sign shall be mounted on the top of the sign structure. All such fixtures shall comply with the shielding requirements of Section 2.2. Bottom-mounted outdoor advertising-sign lighting shall not be used.

B. Outdoor advertising signs of the type constructed of translucent materials and wholly illuminated from within do not require shielding. Dark backgrounds with light lettering or symbols are preferred, to minimize detrimental effects. Unless conforming to the above dark background preference, total lamp wattage per property shall be less than 41 watts.

C. Compliance Limit. Existing outdoor advertising structures shall be brought into conformance with this Code within ten years from the date of adoption of this provision.

D. Prohibitions. Electrical illumination of outdoor advertising off-site signs between the hours of 11:00 p.m. and sunrise is prohibited.

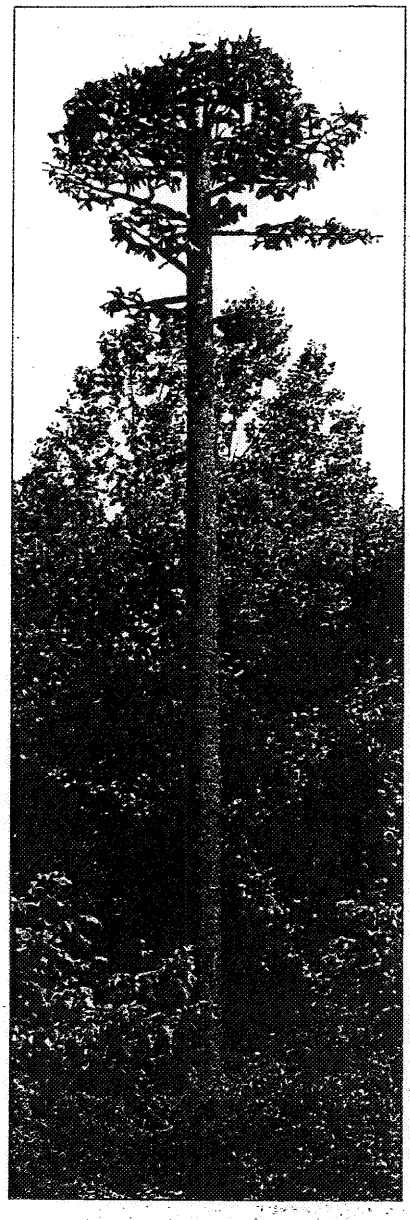


PHOTO BY JOHN T. RATCLIFFE

ArcNet's white pine monopole rising above a line of trees.

Poles Apart on Going Wireless

Wireless telecommunication is getting tangled up in community aesthetics.

Briefcase telephones and dashboard fax machines—increasingly part of the Washington scene—require an ever-growing forest of antennas, some anchored to buildings, others perched on steel poles as tall as 200 feet. Citizens' groups aware of the burgeoning thicket are starting to object.

ArcNet, Inc., a Holmdel, N.J., architectural and engineering firm, suggests a solution, with a disguise for technological necessity: Poles designed to look like trees, complete with artificial bark and limbs clustered to conceal antennas.

The idea is a joint venture between ArcNet; the Larson Co., a Tucson firm that designs faux trees and rocks for the Walt Disney Co.; and Valmont Industries of Valley, Neb., a major pole manufacturer.

The "tree" is modeled on a white pine, chosen because it keeps its foliage year-round and is indigenous across the United States. Marketed as "the lonesome pine with a secret," the structure functions exactly like other wireless poles, officially called monopoles. Several already have been "planted," including a 125-footer in Atlanta.

The monopole issue may be coming soon to a neighborhood near you. Cellular phone companies are adding 28,000 subscribers daily, and the personal communications services industry plans to construct 100,000 new relay and transmission stations nationwide by the year 2000. One PCS player, American Personal Communications, Inc., of Bethesda, intends to erect 25 poles in the Baltimore-Washington area by October and eventually "about 50," according to Jim Michal of Jackson & Campbell, attorneys for APC. "Over 300 base stations are planned . . . but the vast majority will be on existing structures that no one will notice."

Some citizens are unconvinced. A proposal to put up a monopole on the grounds of Congressional Country Club in Bethesda was recently defeated, and an emergency meeting on June 26 brought out neighbors horrified by APC's proposed 150-foot monopole on Route 123 in McLean. A public hearing is scheduled for July 20.

"My analogy is that the residential landscape is going to look like the Oklahoma oil fields," said Susan Woodward Notkins, an architect who lives nearby. "There's a nice view of tree cover all the way from Tysons Corner to the Cathedral now. Imagine a tower two to three times higher than the trees."

Attorney Michal says "APC will consider the 'tree pole' " as well as the possibility of lowering the monopole by 25 feet.

Meanwhile, ArcNet has adapted its vision to other landscapes: For tropical locales, the company offers a Royal Palm, and for deserts, a giant saguaro cactus.

—Patricia Dane Rogers

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...and takes on phone towers

By MARK LARSON 9/9/96

As the cellular phone boom went off a few years ago, Sacramento County was regularly caught in the middle of a telecommunications dilemma. Tall and ugly cellular phone towers were being erected, seemingly overnight, in residential areas.

That provoked wrath from offended residents. Some fought on the grounds that the unsightly towers brought down their property values. Others alleged they emitted cancer-causing electromagnetic fields.

Now, as a new wave of digital portable phones is about to swamp consumers, county planners hope to head the antenna controversy off at the pass.

Planners are meeting with five wireless phone providers, the Sacramento Metropolitan Utility District, the state Department of Transportation, community planning panels and neighborhood groups to try to make everybody happy.

The goal is to agree upon criteria for where towers can be placed, so residents won't fuss. They also want to create faster permit approvals so the wireless phone carriers can pursue business unencumbered.

"We're trying to provide consistency among our various jurisdictions as to the placement of all antennas," said Tom Hutchings, county planning director. "The idea is to see if we can agree on tower placement criteria which allow them without having to go through a public hearing. It's a significant difference for (carriers) in terms of time, cost and uncertainty."

The companies taking part are AirTouch Cellular, AT&T Wireless, Nextel Communications, Pacific Bell Mobile Services and Sprint.

Pacific Bell and Sprint are the two vendors who will begin providing so-called "personal communications services" next year — all-digital pocket phones expected to cost less and provide more features than traditional cellular phones.

Their digital formats for local coverage

Please turn to page 28

owned by different carriers on one existing tower.

Barring that, the county wants to see antennas placed on existing buildings or structures, such as water towers, billboards, street lights or traffic signals.

Carriers following the county general guidelines would get fast approvals.

As it stands, "Many of the sites we develop have no opposition at all, yet it still takes a long time to get them through," said Patrick Poling, system development manager with AT&T Wireless.

> *"We don't care if we go on someone else's tower"*
> Patrick Poling, AT&T Wireless

Getting a use permit approved for an antenna can take up to six months, he said. That time would be saved if a special use permit weren't required.

If a tower application were routed through the county zoning administrator, Hutchings said, approval could come in six to eight weeks. For a special use permit, approval has to come from the County Planning Commission, which can take up to a year if an environmental impact report is required.

When cellular towers first started showing up they needed to be 100 to 200 feet tall. Now, they need be only half as high.

"Because our system is mature enough, we've been able to build sites on rooftops of two and three-story buildings, and light standards on baseball fields," Poling said.

But what about antennas needed to cover residential areas? "That's the biggest challenge," said Poling. "Our objective isn't to build sites that would make everybody mad. We don't care if we go on somebody else's tower."

Poling added that tower sharing is only one solution.

"They can be put in sites that blend in. We just need feedback from the community on how it would like us to develop co-locations and other sites."

In Placer County, cell tower site applications have been processed smoothly, said associate planner Tom Kubic. There, applications to locate an antenna on an existing tower are approved quickly, typically in 30 to 60 days, he said.

"We're trying to encourage co-location (of antennas) whenever possible so we don't have a proliferation of antennas all over the county," Kubic said.

Opposition has come on occasion from residents unhappy with a tower, but in most cases the carrier has pulled them out, he said.

In El Dorado County, cell tower placements have triggered some huge outcries, said planning director Conrad Montgomery. Rural residents complain of the way the towers look, and fear there could be health risks. In the foothills, he said, towers are typically put on promontories, where they stand out.

The federal government has told local governments to stay out of the electromagnetic-field controversy, but cities and counties are still left with the aesthetics problem of antennas.

"We haven't adopted a standard," said Montgomery, noting that tower applications are on an upswing. El Dorado County also encourages co-locating antennas on existing towers.

Antennas can be made to blend in; towers can be shared

Continued from page 2

require much smaller antennas than cellular phones— but more of them.

Pacific Bell and Sprint have already applied for permits to put up about 60 antennas each in Sacramento County.

Current cellular carriers already have enough towers to physically cover the territory. They anticipate adding to their towers, however, in order to boost the capacity of their systems as more callers subscribe, or to improve transmission quality.

While traditional cellular service mixes analog and digital formats, the upcoming PCS phones are all digital. Antennas for digital phones can handle three times the call traffic that an analog antenna can carry — so once PCS antennas are in place, the conventional wisdom is that they'll have enough capacity to eliminate the need for more future antennas.

Currently, there are fewer digital phone users than analog, but the fast-growing industry is expected to migrate almost exclusively to digital.

Hutchings said that while details on tower placement approval procedures are still being hashed out, the county wants to encourage "co-locations" of antennas

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CELL TOWERS

Wireless Convenience? or Environmental Hazard?

Proceedings of the "Cell Towers Forum"
State of the Science/State of the Law
December 2, 2000

Edited by B. Blake Levitt

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An Overview of Zoning: What It Can – And Cannot Do – According To Federal Law

The parameters of zoning for "personal wireless service facilities" are set out in federal law, in the Telecommunications Act of 1996, Section 704.[1]

Cutting through the legalese of the Telecom Act, a community can still regulate many aspects of tower siting. Where a tower is located, how tall it can be, what can go on the tower, and how such installations are monitored for radiofrequency (RF) emissions to make sure they are in compliance with the FCC standards — among many other things, still fall under local jurisdiction. But, there are better and certainly worse ways of going about the exercise of that control.

The Telecom Act also stipulates that communities must be careful in denying permits. Denials should be for substantial reasons created in a written record of the proceedings. The better the zoning regulations are, the better will be the template for denials when siting requests are inappropriate. Good regulations are the blueprint for successful legal actions, should that come to pass.

What a community cannot do is to completely ban personal wireless service from that community. Does that mean it must allow a tower or base station within the community? Not necessarily. If the company could provide service from another adjacent community, and is already located on a tower in that nearby town, where — by adding antennas they could also cover your town — then you might be able to keep that company from building a new tower in your town.[2] The basic legal argument is that your town is not preventing the company from providing service to the community but rather disallowing a new base station to be erected within town boundaries. The reason for doing so is that the company can already provide service from an existing tower to which the company already has legal access.

Under the Telecom Act, communities cannot "unreasonably" discriminate among providers. This means the town cannot block one cellular company from providing service in the community if other

[1] See B. Blake Levitt, Chapter 1, for the exact language of the Telecommunications Act.
[2] Recent case law supports this. See James Hobson's presentation, Cellular Telephone Co. v. Zoning Board of Adjustment.

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providers have already established service.[3] But towns can — and usually do — require the new company to co-locate on an existing tower. That is reasonable discrimination — allowing them both to cover the same area from the same location. You might hear carriers arguing that they want a better location, or to provide better service — but your town is not required to provide the carriers the absolute best possible location — just a reasonable location. If another carrier is already providing service from an existing location, then it is probably good enough.

In addition, your community must act within a reasonable period of time in dealing with applications. Towns cannot put service providers off indefinitely. State statutes establish precise timelines on land-use applications. In some states or municipalities, a permit is automatically granted if a decision-making board does not act within a specified time frame. It's a decision by default.

One of the most vexing clauses in the Telecom Act — for citizens in particular who are worried about health effects — concerns the restriction on considering the environmental effects of RF. Municipalities cannot use the environmental effects of radio frequency radiation — which is widely interpreted by many, though not all, to include health effects in humans — as a basis for making a siting decision "to the extent that such facilities comply with the Commission's regulations concerning such emissions."

Although towns cannot regulate for RF, it is important to know there are other concerns that parallel environmental and health concerns that can be used as a basis for zoning. Examples include the use of large setbacks and vegetative screening. This will prevent facilities from being sited too close to dwellings, reduce visual impacts, and help protect property values. Large setbacks will also reduce the potential damage if a tower collapses or has ice fall from it. Another important avenue is the fact that towers can create an "attractive nuisance" — especially to students who may dare each other to climb them. Attractive nuisance is a legal term that could come in handy when denying applications near schools.

All such provisions can result in the tower being located at a reasonable distance from residential areas and schools, thereby reducing RF exposures, but without directly depending on that rationale to do so.

[3] There is recent case law on this point that appears to be in direct conflict with the Telecom Act. See James Hobson, Chapter 9, presentation, APT Pittsburgh v. Penn Township.

In addition, towns can require monitoring to make sure that all facilities meet the maximum FCC emissions guidelines — no matter how many providers are co-located at a particular site. Very few people at the local level understand that the responsibility for compliance monitoring has shifted to municipalities.

Hiring Experts

Telecommunications regulation and application-review is one of the most complex forms of land-use law today. Done correctly, it is unlike anything that most planners and zoners have been called upon to do. Many shy away from it because of the complexity. But what individual board members are unfamiliar with can — and should — be provided by hiring outside expertise.

One of the first things you will need to know is what telecommunications coverage already exists in your area. It is not enough to speculate that a company "ought" to be able to provide coverage from somewhere else. Wireless coverage is a function of tower height, signal strength, frequency, antenna direction, topography and several other factors. You need to know with precision if another location can work. And to know, you need expert assistance from an independent RF engineer who is working for the municipality — not the telecommunications industry. Such an RF engineer will be familiar with the systems and technology of radiofrequency communication and will help the town determine if the information on an application is accurate, or if other solutions would be better for the town's interests.

A telecommunications engineer can be helpful whether an application is pending or not. One proactive approach used by communities is to hire an engineer to help create a telecommunications master plan or overlay district, where facilities can be placed to provide adequate service — while still protecting the town's vital interests. By having an expert do a few radial or tile plots — diagrams that model RF coverage patterns — of likely sites, it can help town officials, as well as interested citizens, understand how topography and demography work as a whole. If a town can anticipate what the carriers want and do their own prior assessment, rather than passively wait for the industry to define its own goals in town, a win-win situation may result.

The town will have to front money for an RF engineer but the expense is worth it. A master plan will help with better siting decisions

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legally disallow towers built on speculation. The Telecom Act only preempts for providers of the service, not independent speculators.

Such independent tower companies are invariably set up as limited liability corporations (LLC). High-risk businesses always do this. SBA at least acknowledges in its investment portfolios that RF may turn out to be a risk for investors in company stock. American Tower Corporation has been fined $212,000 by the FCC for antenna structure violations at various sites around the country. The fines relate to 36 separate violations that include failure to notify the FCC of ownership changes; failure to register towers with the FCC, and failure to properly light towers during construction, among other problems.

With a limited liability company, most of the financial assets are in other holding companies and are therefore out of reach. If a town, or individual gets into trouble with a LLC, they may end up owning a tower, but not much else. Many service providers are selling their own towers to such companies. It is yet another way of shifting the liability away from themselves. No one wants to be responsible for damage at the local level for property devaluation and for health claims. That puts the liability squarely on individual planners and zoners, as well as the landowners where installations are sited, if citizens need legal redress.

A Note About The Precautionary Principle and Prudent Avoidance

Several European countries, having taken a look at the recent data, are taking a different approach to the RF question. They are recommending prudent avoidance when siting antenna installations near schools, residences, hospitals or wherever people congregate. For cell phone use, they are recommending that children below the age of 16 be advised not to use cell phones for anything other than emergencies.[49]

This approach is part of what is referred to as the Precautionary Principle, which has been adopted by many countries, including the U.S.,

[49] Thus far, groups making this recommendation include: the Independent Expert Group On Mobile Phones and Health – commonly called "The Stewart Report" in the UK, The Greater Glasgow Board of Health in Scotland, The German Pediatric Society, The Ecolog Institute in Hanover Germany, The European Parliament Directorate General for Research, the Italian government, and The Royal Society of Canada. Other countries have instituted far more stringent RF regulations than the U.S. See Sage Associates chart, Carl Blackman's presentation, Chapter 2.

for various applications in international treaties. It is not a radical or new way of going about situations that deal with environmental uncertainty.

The Precautionary Principle holds that when questions of safety are concerned, precautions should be taken to protect the public health even if scientific data is incomplete, or mechanisms of action are not understood. It is the only approach that makes sense given what we already know about RF, and given the situation in America with industry influence at all levels. Prudent avoidance should be the driving motivation for towns siting antenna installations near the population.

What Towns Can Do: Planning and Zoning Regulations

Something municipalities fail to keep in mind is the basic legal fact that it is up to the providers of a service or product to prove that their wares are safe. It is not up to us to prove that they are unsafe. The telecommunications industry has largely failed to do that. Just because they are within the FCC guidelines for RF emissions, does not prove safety.[50]

No town today should allow itself to be intimidated by telecom service providers or adjunct industries like tower companies. Despite the preemptions, there is still a lot of power reserved to the municipalities, and there is a growing volume of good case law to back up local decisions. But those in decision-making positions need to understand that this form of land use regulation is very different than traditional forms. Telecom regulation needs to be understood from a completely different vantage point. This is NOT just an aesthetic issue. It is a medical one.

Good zoning regulations are still the best protection but this kind of regulation can be complicated.[51] Here are some key provisions that should be included:

- Monitoring for RF emissions is essential, both before an installation goes on line, and afterward. It is the only way to determine what was changed in the environment, and to document the date of that change. Pre- and post testing will give a community a baseline of data in case problems turn up later. It will also assist with liability issues because it will demonstrate that the town was truly paying attention. Regular, annual monitoring should be instituted by

[50] See Andrew Marino's presentation for a fuller discussion of this point, Chapter 5.
[51] See Anthony Blair's presentation, Chapter 13, for sample regulations from Great Barrington, Mass. – the first community to write this kind of land-use by-law.

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independent RF engineers — not industry engineers. This becomes particularly important as other RF industries co-locate on the same installation. The industries should pay for the monitoring, not the taxpayers. Monitoring protocols should be consistent from year to year, using the same equipment, etc.[52]

- Large setbacks should be established from homes, schools, hospitals, or wherever people congregate — at least 1500 feet. But individual topography counts a great deal.[53] In some circumstances, 1500 feet may not be enough if dwellings on nearby hillsides are on a lateral plane with antennas. Also other RF sources need to be factored in. Sometimes different frequencies can couple with each other in ways that engineering computer models cannot predict, creating significant exposures in unexpected places.
- Take metal objects into consideration because they are conductive materials that can create localized hot spots. Things to avoid siting antennas on, or near, include: metal water tanks, roofs, architectural girders, elevator cables, etc.
- Establish by-right zones where facilities can locate — but nowhere else.
- Discourage private entrepreneurs and churches from establishing sites. Such people and organizations rarely understand the complexities of the issue or what they are getting into.
- Only allow signal strengths that will provide for adequate coverage and adequate capacity, not blanket coverage. The right to determine signal strength at the local level has been upheld in federal case law in U.S. Sprint v. Willoth, and by the FCC. The FCC only requires approximately 75% coverage of an area — not 100% coverage. It has been understood from the beginning that there would be holes in coverage, especially in hilly topography. If towns have environmentally sensitive areas or historic landmarks to protect, they should acknowledge such sites in their master plans of development as off limits to this technology.
- Towns should require extensive engineering detail in their applications, otherwise companies do not have to prove that a facility is

[52] See Appendix D, Cabot, Vermont for a monitoring protocol.
[53] See William Curry's presentation, Chapter 6, for a full discussion of how topography can affect RF exposures at specific locations.

really needed. They may be speculating on a site without admitting it.

- Require independent engineering review of all applications and modifications to existing sites. Often applicants are sloppy and rote in their preparations, using cookie-cutter computer models from site-to-site. In requiring such detail, towns are establishing the facts of a case that may be needed after turning an installation down. Engineering detail is critical.[54]
- Encourage those who want cell service to switch to satellite-based systems such as Globalstar and Teledesic, which will reduce the number of ground-based facilities.
- Require the service provider, the tower owner, and the landowner, to all be part of the application. That will discourage towers being built on speculation.
- Write airtight liability protection into the regulations by all concerned, with proof of insurance annually submitted. This should transfer to any new owners of the facilities or properties. Failure to substantiate proof of liability protection should constitute a revocation of any permit.
- There are many other constructive things that towns can do . . .

Most importantly, contact your legislators and insist that they fund the appropriate, unbiased, government research into the long-term, low-level biological effects of RF radiation. That is the only way we will know what the risks actually are. Until then, it is a great global experiment, without the courtesy of citizens being asked to sign consent forms for their participation. It is equally important to refund the other agencies with a stake in this issue — the EPA, the FDA, and the FCC. Budget slashing zeal has gone too far. The agencies can no longer do their respective jobs. We are the ones paying the price in uncertain risks, and sleepless nights when our children are affected.

There are ways to remedy these problems. But as a society, we must put our shoulder to the task. It is still fundamentally up to us to enact good laws, make our wishes known to our legislators, and hold them accountable. It is also up to us to insist that industries be more responsible

[54] See Cabot, VT. regulations in Appendix D for engineering details contained in zoning regulations. These were also discussed in Mark Hutchin's presentation, Chapter 12, and in Tony Blair's presentation, Chapter 13.

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when bringing new products and services to market. And finally, it is up to us, as consumers, to be more judicious in how we use new technologies. Increasing ambient RF exposures may prove to be environmentally unsafe for all living creatures. The price may indeed be steep for mere wireless "convenience."

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Chapter 2

Is Caution Warranted in Cell Tower Siting? Linking Science and Public Health.

By: Carl Blackman, Ph.D.[1]

Some of the topics I'll cover in my presentation include: why — in light of the proliferation of telecommunications technologies — the subject of EMF (electromagnetic fields) is important to us today; examples of pertinent data and its interpretation; what methodologies are used to evaluate public health exposures; some human exposure criteria; and directions we might take in the future to solve some of the questions at hand.

So that we all will have the same basic understanding of the principle terms used in discussing electromagnetic fields, let me start with some fundamental definitions. When it comes to radiofrequency radiation (RFR), one term often used is "intensity." Intensity is analogous to the brightness of a light bulb, or the loudness of a sound. As a general rule, the greater the intensity, the greater the effect.

With that definition, we can now look at exposure maximum values in use, or suggested for use, in various countries. Intensity limits vary widely around the world as seen below.[2]

International Standards for Radiofrequency Radiation (cell phone frequencies at 800-900 MHz)

Location	Intensity, microwatts/cm^2
Saltzberg (pulsed RF)	0.1
Switzerland	4.2
China	6.6
Russia	10.0
Italy	10.0
Auckland, Now Zealand	50.0
United States	~ 580.
Canada	~ 580.

Modified from SAGE Associate 2000

From this table it is apparent there is over a 3-order of magnitude difference considered for allowable EMF exposures around the world. Those making standards recomendations are all looking at the same research data. The basic difference

[1] Research Scientist, U.S. Environmental Protection Agency, MD-68, Research Triangle Park, NC 27711-2055. Phone: 919.541.2543. Please note the opinions I express are my own and not those of my employer.

[2] Table provided by Cindy Sage, Sage Associates, 2000.

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etween the standards is due to different approaches taken in evaluating hose research results.

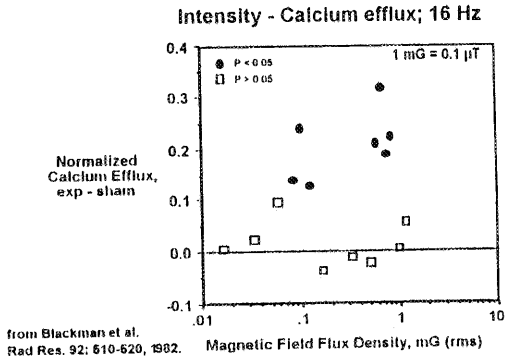
One approach is called "proof beyond a reasonable doubt" and is ased on observations of how EMF energy affects tissue. It is universally ccepted that a microwave oven heats food. The acceptance of this phe- omenon, and an understanding of the mechanism that causes temperature ise in biological samples, is the underlying basis for current high-level MF exposure limits.

The other approach is to use results that cannot be completely ex- lained, and draw conclusions that could protect the public until more is nown. This is called "proof on balance of probabilities." The classic ex- mple of this approach is John Snow's analyses and interpretation of the eneral cause of a cholera epidemic in London. It is used to mark the be- inning of epidemiology studies.

There are extreme positions taken by proponents on both ends of a ontinuum of ideas, i.e., all industrial applications should be allowed until onclusive proof of harm is established; or conversely, nothing should be llowed until safety is established. These positions are not helpful to es- blish a dialogue. We don't need to turn off electricity and cause our odern society to disappear, nor should we ignore clues of possible health roblems.

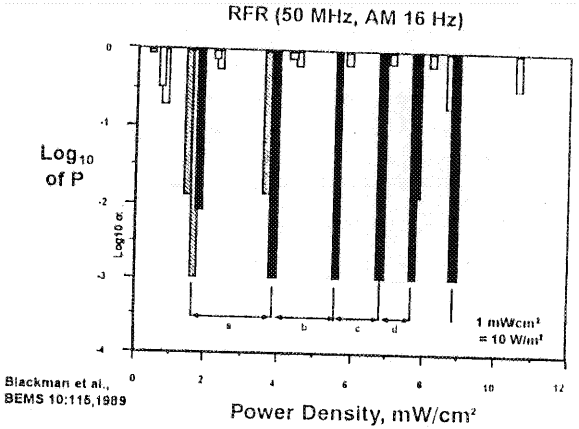
Some Complexities

The definition of intensity given before is deceptively simple. The bject is far more complex than that. The concept that more of a given gent will produce a greater effect in its simplest manifestation describes a near effect. However, there are non-linear phenomena that occur, which o not follow that simple (intuitive) concept.



Here is some data we published in 1982 showing increased intensity of a magnetic field (at low frequency) going from left to right along the horizontal axis. The vertical axis shows greater amounts of calcium ions leaving — or "effluxing"— from animal brain tissue contained in a test tube. The increases that are statistically significant are in solid circles.

These results show that there are at least two intensity regions — or "windows"— that cause effects in the tissue specimens, but other intensities that do not cause effects.



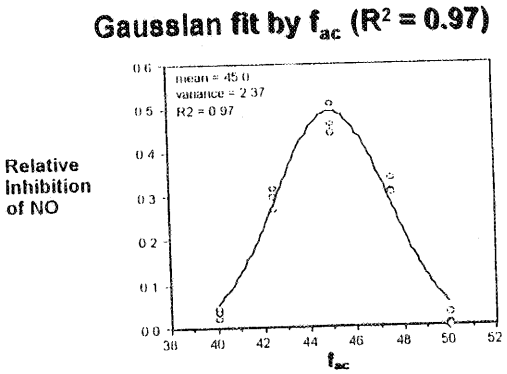
This figure also shows changes in calcium ion efflux, but here the electromagnetic field is in the radiofrequency range and it carries the low frequency (16 Hz) as amplitude modulation, just like an AM radio does. Again, the horizontal axis shows increased intensity, going from left to right. The vertical axis is a function of the calcium efflux, and any bar that extends below the dashed line is an indication of a statistically significant finding. On this graph we see six intensity windows of effects.

From these studies of intensity, we can conclude that intensity windows exist for effects at extremely low frequencies (ELF) and at higher radiofrequencies (RFR); that the results of our observations were unusual, the results nontraditional; and that what we observed were nonlinear effects. Such effects are mostly ignored in standards setting situations.

Our observations with calcium ions are important because cells use calcium for any number of critical functions. The efflux response observed indicates a possible change in the signaling processes at the cell outer membrane, which acts as a switchboard communicating information between the exterior environment and the intracellular activities that guide cell differentiation and control growth. The health implications are not fully understood but anything that alters basic cellular signaling processes warrants further investigation.

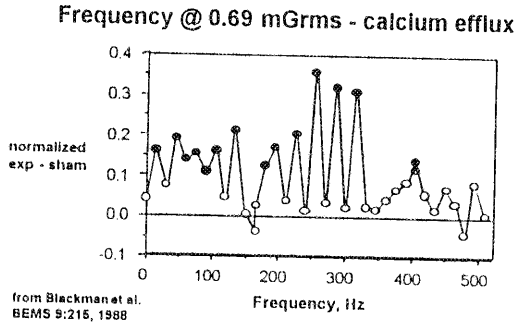
Frequency

Another critical concept to understand in this research area is frequency. Frequency is analogous to the various colors of visible light or the different pitches of sound. Usually different ranges have different effects, and results are not always expected. Often, these are non-linear responses. An example is that of growing plants indoors. With some light, the plants are a healthy green but never produce flowers. By changing the bulbs to "grow lights" which supply the plants with different colors of light, i.e. different frequencies, flowers will appear.



One of the examples of what different frequencies of magnetic fields can do is shown here in this figure. The horizontal axis shows different frequencies, and the vertical axis shows changes in the action of nerve growth factor to stimulate the growth of neurites (primitive neurons) from PC-12 cells (which have properties of cells in the peripheral nervous system). It is obvious there is a frequency range "window" within which magnetic fields inhibited neurite outgrowth (NO).

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This figure shows calcium ion release from brain tissue (vertical axis), with the solid circles showing statistically significant differences between exposed and sham-exposed samples, as a function of frequency on the horizontal axis. Again, multiple windows of frequency are shown to be effects.

The important information from the results we have observed is that there are two major features of EMF exposure: intensity and frequency; the responses were non-linear; and that the mechanism responsible for the observed changes is unknown.

Keep in mind that some review committees who set exposure standards only use data that has an understood mechanism of action. Thus, those committees ignore the results shown above.

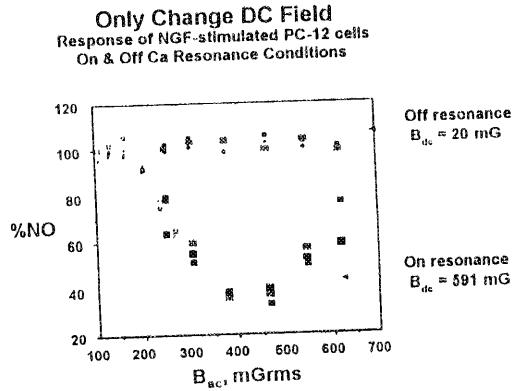
Other Factors

There are other factors that influence whether exposure to certain frequencies and intensities of electromagnetic fields will cause biological changes. Some of these factors include:

- One's physiological state, including age at either end of the spectrum (young or old), pregnancy, susceptibility to other illnesses, genetic polymorphisms, or additional exposures (co-insults) from chemicals or diseases.

- The earth's own static magnetic field. While this magnetic field is essentially "everywhere," its value varies over the surface of the earth because of different rock formations, and because of anthropogenic activity, e.g., use of steel support structures in buildings, etc.

This following figure is an example of one of these factors — the static magnetic field of the earth.



The horizontal axis shows increased intensities of the 45-Hz magnetic field from left to right, and the vertical axis shows changes in the ability of nerve growth factor to stimulate neurite outgrowth in PC-12 cells. There are two data sets: one with the static magnetic field at 591 milligauss, and the other when that field is altered by artificial means to 20 milligauss. It is obvious that changing the value of the static magnetic field, as can occur when you move around inside buildings containing steel support beams, can influence the effects of oscillating fields.

The overall summary of these data shows that EMF does not necessarily act like a single agent. EMF can act more like a chemical cocktail, in which the various components can affect different biochemical systems *within* a biological system. The consequence of this more

omplex action is that caution must be used in evaluating the significance f such exposures for public health.

Much additional research is needed to explore EMF interactions ith biological systems. Dr. Andrew Marino recently provided new in- ght that diverges from standard analyses and has the potential to alter nalytical approaches.[3] Most studies compare the averages of exposed roups' responses with those of control groups. There were a few reports oting changes in the variability of data points around a mean value, but o one had directly investigated such an observation until recently. Dr. Iarino and colleagues used special mathematical techniques to show that n some cases EMF exposure may not cause changes in the averages of a iological endpoint, but that it can impart instability to biological proc- sses. This observation may be particularly important, if the biological ystem is also being stressed by other agents that have it balanced at an reversible threshold. Additional research must be done to determine how idespread this phenomenon is, and whether it can have health conse- uences. There is still much that remains unexplained in EMF biological ffects research.

Current Evaluation Practices of EMF Data: The Engineering Model

It is useful to consider how EMF is currently evaluated for biologi- al effects and their health implications.

Traditionally, committees that are established to do these evalua- ons break up the data into frequency bands (e.g. ELF, VHF, radiofre- uency, microwave, etc.) and only look at data within certain specified ands. Why is this done? Because developments in engineering technol- gy allowed higher and higher frequencies of EMF to be generated, the ands have been established for engineering convenience of notation, not or health considerations, and that notation still is used as convention. The onsequence of this approach is an engineering-based clustering of data at reduces evidence for coordinated experiments performed across sev- ral frequency bands. This approach to evaluation drastically reduces the mpact of basic science results because the weight of complete evidence is self reduced.

Am J Physiol Regul Integ Comp Physiol; 279:R761-8, 2000.

Biologically-based model

In contrast to the engineering-based segmentation of biological re- sults, another approach may be more productive when addressing public health concerns — that is, biologically-based clustering of data. This is the way it is done in other areas of science concerned with public health is- sues. In EMF research, we should group experimental results that show similar EMF features such as intensity and frequency-exposures; cofactors such as the influence of the earth's magnetic field, and/or chemical coinci- dent exposures; and physiological similarities such as age, or selected sen- sitive populations.

An example that would illustrate the relaxation of the engineering- based rules would include combining data from several frequency bands such as the ELF band with the RFR band, especially when the RFR is "complexed" or modulated with ELF. A common example of this real-life combination is radio transmission when the human voice or other sound is heard directly through a radio. This is accomplished by modulating a RF "carrier" signal with an ELF signal. There are several types of modulation, i.e., ways to encode ELF signals on RFR. They include amplitude modu- lation (AM), frequency modulation (FM) and pulsed modulation, among other complex forms.

Why a New Model is Important

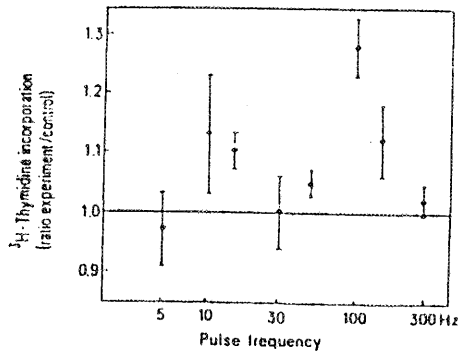
When this clustering of ELF and RFR effects are viewed together, a powerful, comprehensive set of studies emerges that has present day relevance, but which is normally left out of some review processes be- cause they don't all fit into the bands studied by one committee, i.e., the engineering model. Here is an example.

In 1968, it was reported that human response times changed under exposure to ELF fields. In 1970-76, monkeys were shown to exhibit changed response times during exposure to ELF, and that EEG patterns also changed. Additional work exposing cats to either ELF or RFR am- plitude modulated with ELF produced EEG changes and changes in the release at the surface of the brain of the neurotransmitter GABA, and of a surrogate chemical, calcium ions. In the latter 1970's and in the 1980's, calcium ion changes were observed in brain tissues from newly hatched chickens exposed to ELF and to RFR. Also in the 1980's, calcium efflux changes were observed when RFR-exposed human brain cells in culture,

and when frog hearts were exposed in vitro. More than ten years after these studies were reported, two theoretical papers were published (in the late 1990s) that may lead to improved understanding, because the papers provide some basis to examine the underlying mechanisms responsible for the results reported in these earlier papers. This series of reports represents a remarkable collection of coordinated studies but they have been essentially ignored because no evaluation group has the mandate to study them together.

There are different types of modulation that occur in our environment. I've mentioned effects from amplitude modulated (AM). Very few studies have been done using frequency modulation (FM), which is among the most prevalent type of exposure today. Similarly, few studies have been reported for pulsed modulation, which is used in the newer digital PCS telecommunications systems, although there is some indication this type of modulation might have effects similar to AM.

Influence of frequency on DNA synthesis



Takahashi et al., Experientia 42: 185-6, 1986

This figure is an example of the effects of different rates of EMF pulses (along the horizontal axis) on the incorporation of thymidine into DNA (vertical axis). Higher incorporation is interpreted as an increased synthesis of DNA, and thus faster growth of cells. The authors have shown that the intensity and width of the pulses also have non-linear effects. It is useful to remember that some cell phones use radiofrequency carrier waves mixed with low frequency analog signals, and in other types of transmissions, pulsed signals are mixed with the carrier waves.

Human Responses to Cell Phone Frequencies (1998-2000)

- **Preece et al.**
  - 915 MHz (IJRB 75:447, 1999)
  - Reduced reaction time during exposure
  - 50 Hz (IJRB 74:463, 1998)
  - Temporary deterioration in attention
- **Koivisto et al.**
  - 902 MHz (Neuroreport 11:414 & 761, 2000)
  - Reduced response time to simple tasks
  - Altered EEG during a memory task
- **Freude et al.**
  - Cell phone frequency (Eur J Appl Physiol 81:18, 2000)
  - Decrease in slow brain potential during a visual monitoring task

On the basis of the information I've just reviewed, it is interesting to revisit some recent reports of human exposures to cell phones. There are three publications since 1998 listed above from different countries in Europe (United Kingdom, Finland and Germany). They all show changes in brain function associated with changed reaction times. Could the previous thirty years of research publications (examining numerous frequency bands) help guide further study of these cell-phone induced effects? There is a low probability that these reports from different frequency bands will be examined together unless a biologically based evaluation practice is established.

What is the current exposure situation in cell phone communications? Because of the complicated modulation signal in the cell-phone technology, there is the possibility that effects could occur that are caused by unknown mechanisms of action. At the base stations — even though they produce intensities to humans that are substantially lower than those received from handheld devices — there are typically up to four independent companies per site, giving off simultaneous RFR signals, and the

exposures to nearby neighborhoods are continuous – often 24-hours a day. This combination of factors has not been tested in a laboratory environment for biological consequences.

Open, neutral-body guided discussions with all the stakeholders present and contributing would be very helpful for regulators who must evaluate the escalation of new types of EMF exposure scenarios. For example, if the RFR intensity of telecommunications base stations is reduced because of public concern, more antennas will be needed so that signals will be of sufficient strength to allow the technology to function. Micro antennas are already being placed in the interior of buildings to fill in "shadows" where cell phones won't work well. Further, wireless Internet connections (to replace wired computers) pose a potential major new source of exposure to the population.

A Recent Unbiased Review

Some of the concerns expressed by a British physicist, G. J. Hayland,[4] who took an unbiased look at the science, raised questions about the adequacy of the current exposure guidelines. He observed that there are limitations in the reports and conclusions of various review panels and that some of the evidence used to conclude safety is "less solid" than normally stated by government agencies and the telecommunications industry. He concluded that scientific justifications exist for non-thermal effects and that research into thermal effects will always be more robust than that of non-thermal effects, which are more subtle. He also concluded that non-linear systems need to be factored in because no one is effected in the same way by exposure to the same radiation; and that more care should be taken when siting base stations near schools, or allowing children to use cell phones.

Possible Regulatory Approaches

There are three possible regulatory approaches:

1. Accept only proof beyond reasonable doubt. This approach requires theory to support any premise. Therefore there are inherent problems because theoretical models may fail due to inaccurate assumptions. This is the current approach.
2. Accept proof based on the balance of probabilities. This approach proved to be the avenue for most of our industrial progress. But for RFR exposures, more information is needed to ensure the protection of the public health.
3. *Caution.* One major caveat that should guide all evaluations is that EMF may act more like a chemical mixture than a single agent. (Agent Orange is an example where the minor chemical contaminant — dioxin — caused the problems.) Adoption of this view would require a much more complex balancing of effects, theory, and awareness of the potential public health issues than is currently done, in that we are using exclusively the thermal model. We need to provide a sufficient measure of safety (in light of uncertainties), while still allowing technological advances.

The Current Research Situation

The data indicate more research is needed because EMF cannot be considered to act like a single chemical. In the past, civilian agencies both competed and coordinated research efforts under the Electromagnetic Radiation Management Council (ERMAC). At the present time, there is very little funding for research other than that provided by industry. In future research efforts, long-term funding should not come from a single agency. We do not need a "czar" to dispense EMF research funds focused on one agency because this could lead to only a few individuals guiding decision making. This situation has gotten the research area into trouble in the past. The best situation to advance research most efficiently is to employ the benefits of "marketplace competition;" to have managers from different agencies — each with their own independent processes to select projects submitted to them — compete to fund the best research. A coordinating council with an advisory role only (similar to the former ERMAC) could be established to ensure that there is no unproductive duplication of research efforts.

Approach to Regulation for Public Health: The Precautionary Principle

What have other knowledgeable sources urged to protect public health regarding EMF exposures? The concept of "prudent avoidance" was first proposed by Granger Morgan in an Office of Technology report, as well as in a science editorial in the late 1980s. It essentially calls for

[4] "Physics and biology of mobile telephony," *The Lancet*, 356:1833-36, Nov 25, 2000.

reducing exposures with uncertain health outcomes, as much as possible, without undue inconvenience or unreasonable expense.

Another similar concept that has been emerging from the European Union since the late 1990's is called the "Precautionary Principle." It has been embodied in numerous international treaties, including many signed by the U.S.

The Precautionary Principle holds that when an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause-and-effect relationships are not fully established scientifically. In the context of cellular phone technology, the proponent of the activity, rather than the public, should bear the burden of proof.

Both of these approaches require more publicly-funded research to resolve issues of concern.

Summary on Cell Towers Exposures

How does all of this information affect the siting of cell phone towers? Although the power output of a base station is considerably higher than for a cell-phone handset, as a general rule (depending on one's proximity), the exposure received by individuals from cell towers or other telecommunications antenna arrays, are relatively low when compared to a cell-phone antenna held directly against the head. Distance from the radiating source counts. But some experimental and theoretical work questions the common assumptions that hazards from such exposures only come from radiofrequency-induced heating. Other effects may occur below that heating threshold.

Blanket safety statements about tower exposures cannot be made because exposure conditions can be different for each tower. While biological effects do not "prove" public health problems, they help guide the planning of future research into the most product areas.

Advocates of a prudent approach are concerned about the uncertainties still remaining and wish to apply the precautionary principle to tower siting — maintaining a reasonable distance from schools, people's homes, workplaces, or wherever people congregate.

Lastly, such advocates believe is important support independent, multi-source funding of research on EMF effects. They believe it is the only way to better understand what these ubiquitous exposures may mean to us all.

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Lights for softball players dim residents' peace

BY ROSS FARROW
Neighbors staff writer

8 Oct 95

Is Bertelsen Park designed for neighborhood residents or for the entire El Dorado Hills community?

Some 20 residents of Park and Crescent Ridge, the two villages closest to U.S. 50, and representatives of the El Dorado Hills Community Services District grappled with that question Wednesday as residents complained of excessive noise, lights and partying at the community's only lighted softball field.

The issue arose during a neighborhood meeting in which district officials explained a proposal to improve the lights on the Bertelsen softball field, off Park and Arrowhead drives next to William Brooks Elementary School.

The lighting system, which is approximately 30 years old, is poor, said recreation director Tim Mero and Steve Overcashier, who serves on the community services district board. The lights for several years were tilted upward, which was good for the players but created unwanted glare into nearby homes, Overcashier said.

A few years ago, the lights were tilted downward, reducing glare into homes and yards but making it unsafe for players, said Overcashier, who plays recreational softball. Two years ago, the lights were tilted up again.

Community services district officials say they have found a new type of field lights that will improve conditions for players and eliminate glare for nearby residents.

"This is a public school playground, not a recreation facility," said Lou Serochi, a Crescent Ridge Village resident. "That's not what this neighborhood is about."

Several residents said the community park on El Dorado Hills Boulevard is much more appropriate for adult softball because it is centrally located on the main road within the community, and players and spectators don't have to drive through residential areas to get there.

Mero, Overcashier and Kent Oakley, the district's park superintendent, were asked why lights on the community park's two softball fields were removed when El Dorado Hills sorely needs lighted fields.

Overcashier explained that the community park lights, installed in 1989, drew complaints from a large number of residents, many of them from Stonegate Village, behind the community park.

Four of the five directors were defeated in re-election bids in 1990, while a fifth director declined to seek another term. The five new directors voted at their first meeting in December 1990 to remove the community park lights. Only one of the directors elected in 1990, Bob Verzello, remains on the board.

"Why are we forced to accept lights when there were lights at the community park?" Serochi asked.

"Is it because you don't want to go up against another neighborhood?" asked Park Village resident Lori Christensen.

Overcashier said he suggested almost a year ago that lights be re-installed on at least one of the community park diamonds, but he backed down when residents of Stonegate and other nearby villages protested.

Tim Halverson and other Park and Crescent Ridge residents requested that the Bertelsen softball lights be turned off by 9 or 9:30 p.m. instead of 10 p.m. because many nearby residents go to bed early.

"I'm an amateur astronomer," said Al Lundgren, who lives on nearby Montridge Way. "I can't use my telescope when the lights are on."

> *'This is a public school playground, not a recreation facility. That's not what this neighborhood is about.'*
>
> — LOU SEROCHI
> *Crescent Ridge Village resident*

Overcashier replied that turning the Bertelsen lights off at 9 or 9:30 would mean that fewer players, including many from El Dorado Hills, would have the opportunity to play softball.

"If that happens, you'll have lights over at Stonegate," Halyerson said.

Mero said that games at Bertelsen Park begin at 6, 7, 8 and 9 on weeknights. Four games per night are necessary at Bertelsen, he said, because, without lights, the community park can accommodate only two or occasionally three games each night during July and August.

The community park diamonds aren't available for adult softball the rest of the year, Mero said, because they are used for youth sports.

The community services district plans to build a multidiamond softball complex south of U.S. 50 near the El Dorado Hills Business Park, Mero said, but the project has been delayed because the El Dorado County Board of Supervisors hasn't adopted a new general plan for development in the county.

However, Mero said, "We are not going to abandon this field (at Bertelsen Park) once we build somewhere else."

After some debate among themselves, residents of Park and Crescent Ridge villages acknowledged that the Bertelsen lights will remain but said they don't want the park to be the major site for adult softball.

In addition to the glare, residents complained of players and teenagers loitering at and near the park, many of them drinking alcohol, making a considerable noise and speeding through the neighborhood.

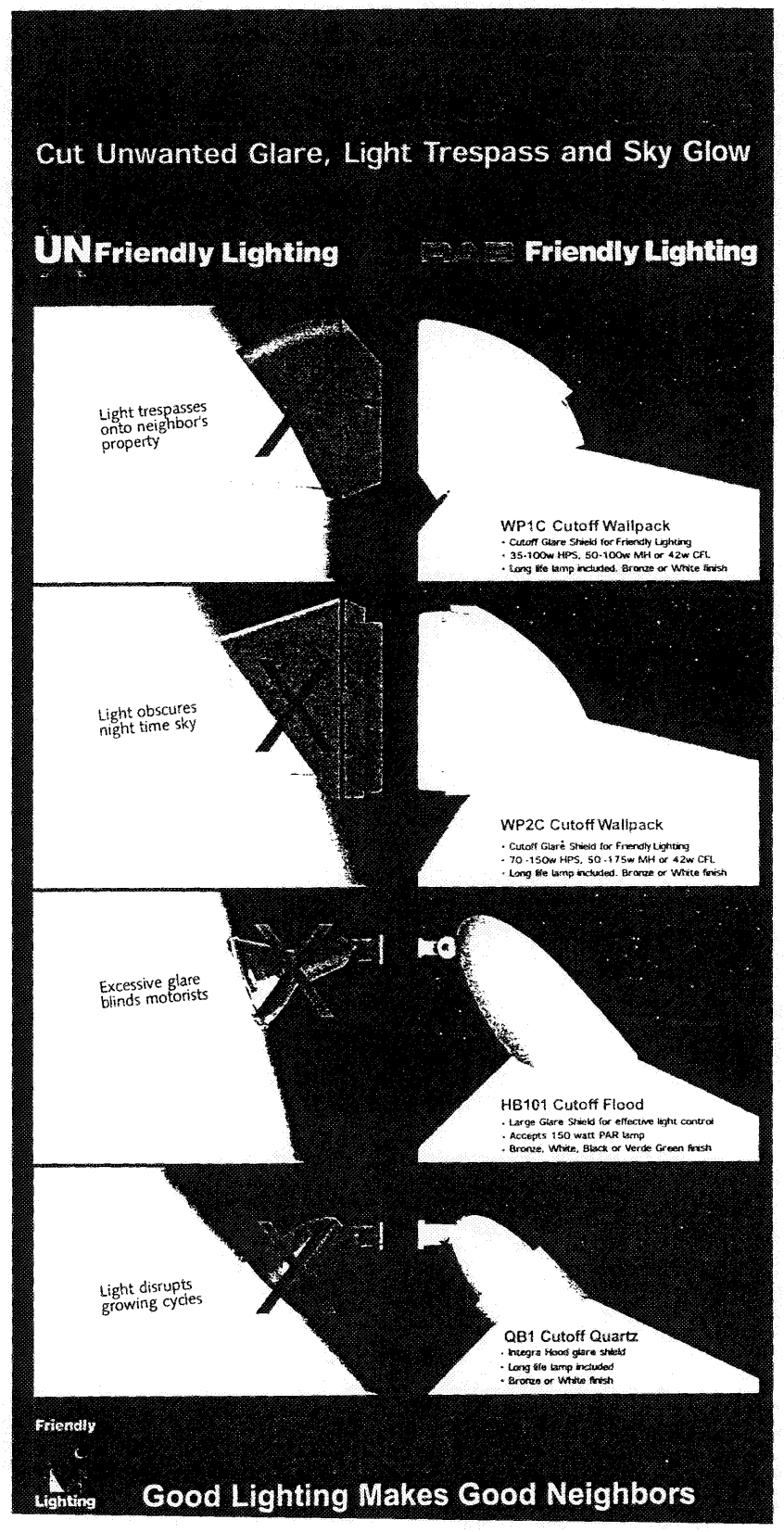
Mero attributed the noise problem to softball field 's location in a small canyon.

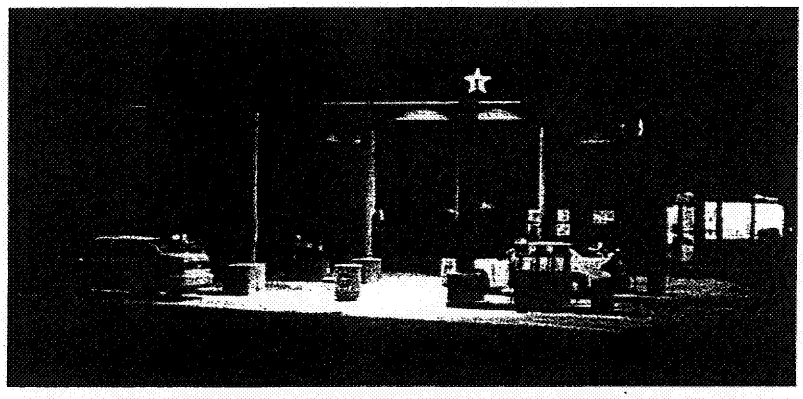
Overcashier said he will discuss noise, traffic and drinking problems with Sgt. Marty Hackett, who supervises the sheriff's new satellite office on Governor's Drive.

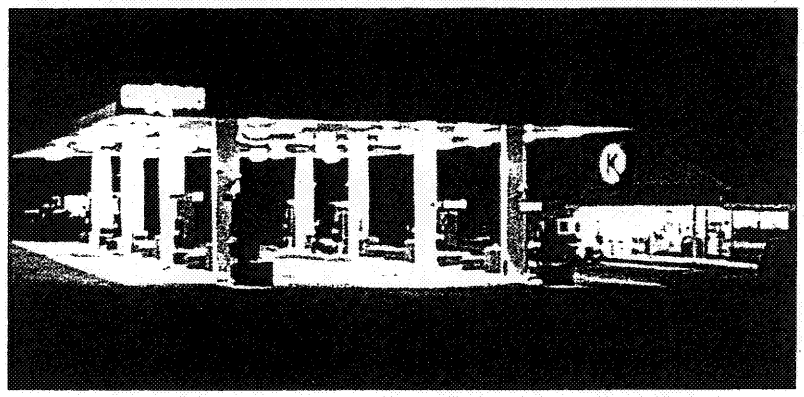
The district proposes to spend about $90,000 to improve the lights at Bertelsen Park, increase the height of the fence along the first base line so that foul balls are less likely to strike parked cars and improve the drainage along the first base line, which Oakley described as "a swamp."

Overcashier advised residents to present their concerns to the full community services district board at its next meeting, which will begin at 7 p.m. Thursday at the Pavilion, 1021 Harvard Way at El Dorado Hills Boulevard.

AR 13679


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Friendly Lighting
Light trespasses onto neighbor's property
WP1C Cutoff Wallpack
• Cutoff Glare Shield for Friendly Lighting
• 35-100w HPS, 50-100w MH or 42w CFL
• Long life lamp included. Bronze or White finish
Light obscures night time sky
WP2C Cutoff Wallpack
• Cutoff Glare Shield for Friendly Lighting
• 70-150w HPS, 50-175w MH or 42w CFL
• Long life lamp included. Bronze or White finish
Excessive glare blinds motorists
HB101 Cutoff Flood
• Large Glare Shield for effective light control
• Accepts 150 watt PAR lamp
• Bronze, White, Black or Verde Green finish
Light disrupts growing cycles
QB1 Cutoff Quartz
• Integra Hood glare shield
• Long life lamp included
• Bronze or White finish
Friendly
Lighting
Good Lighting Makes Good Neighbors





GLOW VS. GLARE: The Flagstaff Texaco station shown at top emits a dim glow from recessed fixtures. The station has been recognized for its good lighting by the Flagstaff Dark Skies Coalition, the county, and Texaco (John Grahame photo, FDSC). The Circle K, below, has lights that shine directly into the night (Christian Luginbuhl photo, FDSC).

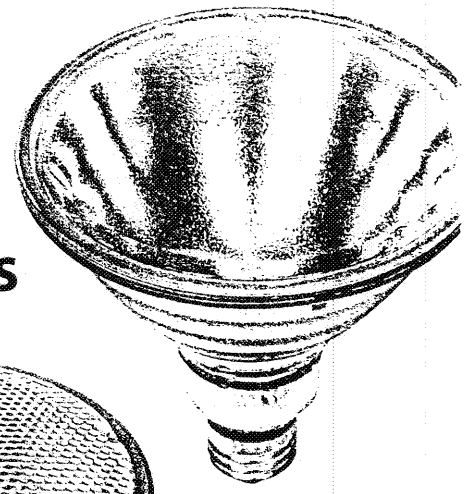
From High Country News
12/03/2001

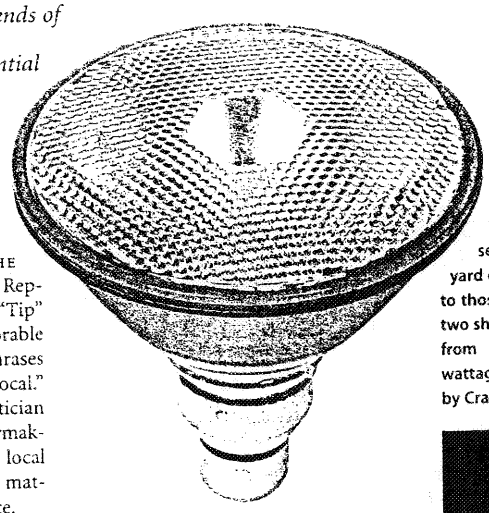
Light Pollution

S&T test report

Home Lighting for Amateur Astronomers

You don't have to search to the ends of the Earth to find exterior residential lighting that's dark-sky friendly. | **By Dennis di Cicco and J. Kelly Beatty**





Today's homeowners have many options for outdoor light fixtures. In our search for ones that are friendly to backyard observers we found that, when it comes to those fitted with floodlights similiar to the two shown here, there is little difference apart from the greater light output of higher-wattage lights. *Sky & Telescope* photographs by Craig Michael Utter and Dennis di Cicco.



THE LATE SPEAKER OF THE United States House of Representatives Thomas P. "Tip" O'Neill provided a memorable entry for the lexicon of modern phrases when he opined, "All politics is local." The legendary Massachusetts politician was reflecting on the tendency of lawmakers to be most influenced by their local constituency even when voting on matters of national or global importance.

With a bit of paraphrasing, his statement applies equally well to light pollution. As amateur astronomers we are concerned with the "big picture" issues of light pollution and how they affect the public's awareness and appreciation of the night sky. But when it comes to backyard observing, our concerns lie much closer to home. All annoying light pollution is local.

Here's a case in point. We both live on the outskirts of metropolitan Boston. While the city's rampant light pollution affects our entire sky, for me (di Cicco) it is worse toward the east in the direction of the city. But my sky is almost as bright to the south because of a cluster of back-to-back shopping centers straddling a mile or so of roadway only a fifth as far away as downtown Boston. When I'm at the eyepiece of a telescope, however, the lights that really annoy me are those illuminating porches and yards of nearby houses. Indeed, I occasionally suspend my observing when any of these with a direct line of sight are turned on as neighborhood dogs go out to answer nature's final call of the night.

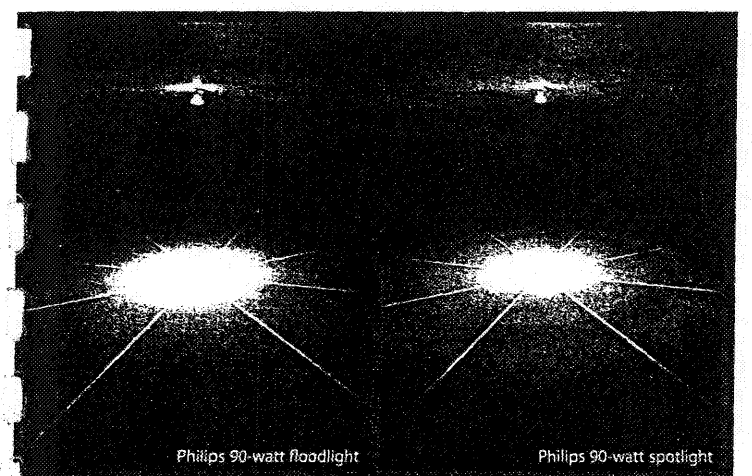
As explained in the article beginning on page 40, there are many approaches that today's homeowners can take to providing safe and effective residential lighting. We tested some of the most commonly chosen options as well as a few that seem particularly "astronomy friendly." Some of the things we discovered surprised us.

All Lights Are Not Created Equal

When it comes to lighting yards and driveways, it's probably a safe bet that the outdoor floodlight fixture is king. These typically hold one or two unshielded bulbs in sockets that can be swiveled to adjust the aim of the lights. Considering their popularity, it's not surprising that store shelves are stocked with bulbs for these fixtures from a variety of manufacturers.

Apart from the obvious differences in wattage and brightness output, some of

AR 13682



While the illumination pattern falling on the ground appears different (and that really is the spotlight on the right!), the 90-watt flood- and spotlights manufactured by Philips have a similar brightness level at the outer edge of their respective light cones. Neither one offers a significant advantage over the other for controlling light spill away from the beam's centerline.

these bulbs are called floodlights, while others are listed as spotlights. Any thoughts we had that the two terms were simply used interchangeably were dismissed when we found a pair of 90-watt halogen bulbs manufactured by Philips, one labeled "spot," the other "flood." Outwardly the only difference between them is the textured surface on the inside of the bulb's face. We assumed that the spotlight would have a tighter beam and thus be of interest to people trying to control the outward spill from these lights.

While our tests did reveal that the spotlight has a slightly more concentrated *overall* illumination pattern, the cone of light emerging from the bulb, measured at diameters of equal brightness, is only 12 percent smaller than that of the floodlight. More surprising is that at the center of the beam, the spotlight is actually 40 percent dimmer. Unless these bulbs are mounted side by side, however, it's unlikely that a homeowner will visually note much difference between them, especially when it comes to preventing light spill at large radii from the center of the beam.

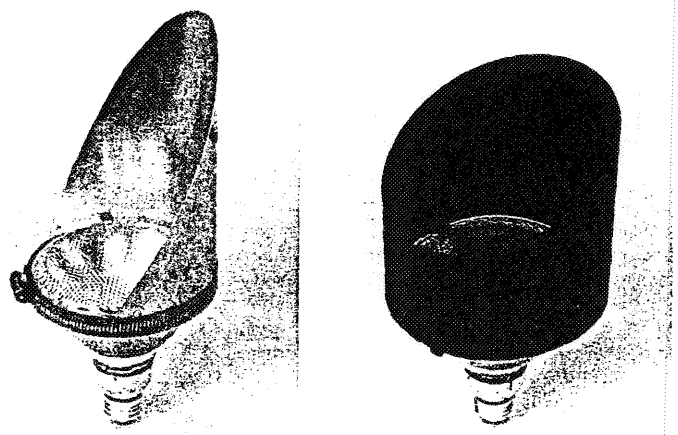
Although some of the bulbs we tested projected interesting rings and spikes of light on the ground, the most noteworthy trend involved the level of illumination at increasing distances from the center of the beam. As common sense suggests, the greater an incandescent bulb's wattage, the greater its light output, and the broader its cone of illumination at a given level of brightness. In our test setup we measured the diameter of each bulb's cone of light at a fixed progression of intensities out to a minimum of 0.5 foot-candle. At this level of brightness, which is sufficient to illuminate a yard area adequately in most situations, a 50-watt Sylvania halogen floodlight 7 feet (2.1 meters) above the ground produced a cone of light subtending a 104° angle; a 100-watt General Electric floodlight, 116°; and a 150-watt Westinghouse floodlight, 126°.

Shields

As mentioned above, while the illumination coming from a nearby light fixture is of concern to backyard observers, a direct line of sight to the face of an offending bulb can be far more annoying. In such cases a simple shield can dramatically improve the situation for the observer without significantly affecting the performance of a floodlight for the homeowner. We tried the two shields shown below.

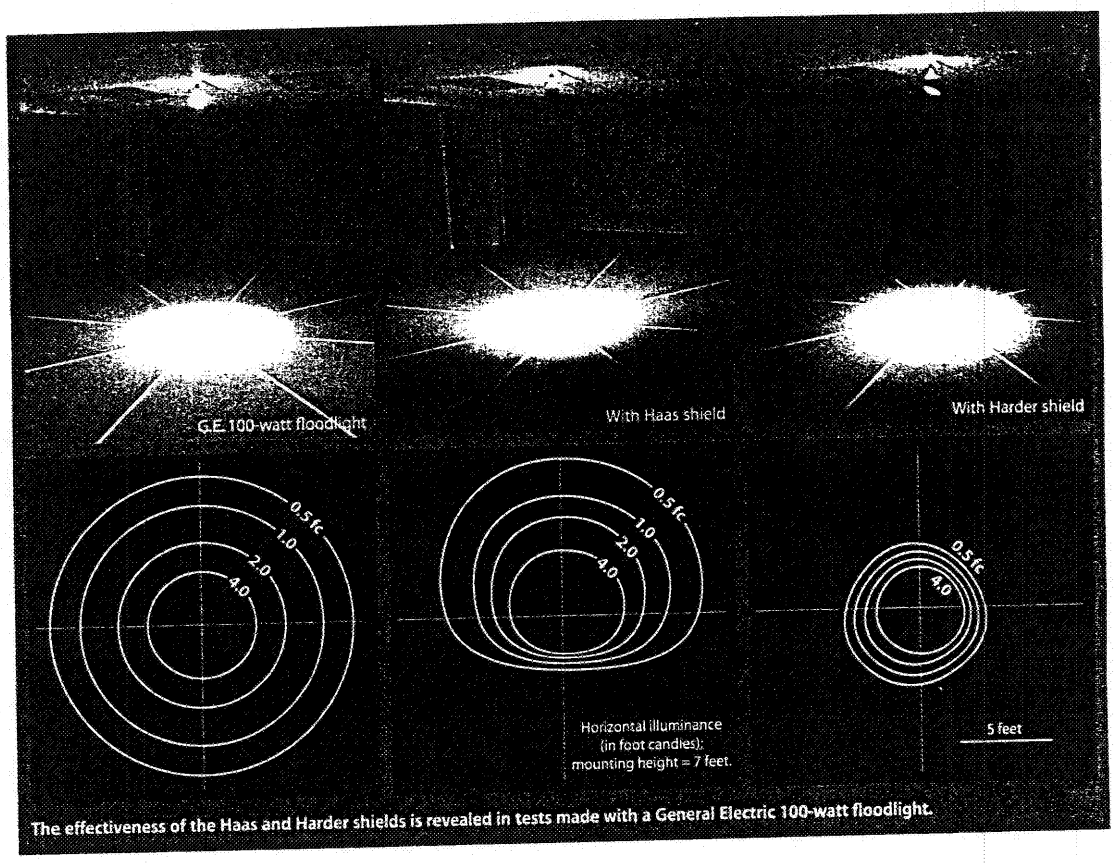
When correctly oriented, both are very effective at restricting a direct line of sight to a floodlight's front surface, especially when the observer is at a large angle to the beam's centerline. This is often the case for lights in neighboring yards. Cliff Haas's simple sheet-metal shield provided a substantial reduction in the light spreading outward from one side of a floodlight, and this asymmetric pattern gives some control to the homeowner illuminating an area close to the fixture. The clip-on shield created by Susan Harder offered a more uniform reduction of the floodlight's angular coverage. At the 0.5-foot-candle level, it reduced the light cone from the General Electric 100-watt halogen floodlight from 116° to roughly 70°.

It's not unusual to find porches, especially on older homes, illuminated by conventional incandescent bulbs fitted to simple, nonrecessed ceiling sockets. Unlike floodlights, the illumination from these bulbs is not aimed in a particular direction, and as such, any direct line of



The best way we found to control light spill from floodlights is with a shield such as the ones seen here by Cliff Haas *(left)* and Susan Harder *(right)*. More information about shields, as well as contact information for Haas and Harder, is available at http://members.aol.com/ctstarwchr/shielding.htm.

AR 13683



The effectiveness of the Haas and Harder shields is revealed in tests made with a General Electric 100-watt floodlight.

sight to these bulbs is vexing to observers. In such cases a do-it-yourselfer can often fabricate an effective shield — but important safety issues involving heat must be considered.

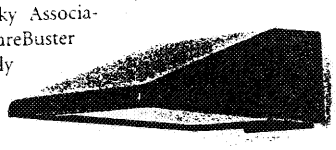
For example, we made a seemingly simple shield by removing the top and bottom from a 1-pound coffee can and fitting it around a standard 100-watt incandescent bulb mounted in the temporary ceiling fixture used for our tests. Within minutes there was enough heat buildup to melt a plastic fitting that had remained unscathed during hours of previous tests. Furthermore, insidious heat buildup behind a lighting fixture can be even more dangerous, damaging electrical wiring and creating a potential fire hazard. Any shield near an incandescent bulb needs to have provisions for ventilation and heat dissipation.

Commercial Fixtures

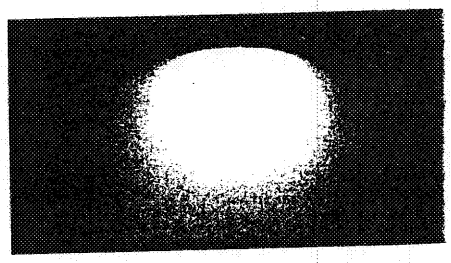
Of the many outdoor lighting fixtures that we encountered while working on this review, several seemed worthy of a closer look. Topping the list is the **GlareBuster**, since it alone is touted as an astronomy-friendly lighting fixture. Inside the box we found an instruction sheet that offers a mini-lesson on light pollution as well as information promoting the International Dark-Sky Association. The GlareBuster is an extremely effective full-cutoff fixture that accepts a variety of bulbs, from standard incandescents to energy-efficient compact fluorescents.

Another fixture that provides full-cutoff lighting is the **Regent RSM100** (mercury-vapor) fixture. This unit can put a lot of light on the ground while suppressing direct lighting at all angles above the fixture. The one we tested is a dusk-to-dawn model controlled by an "electric eye." Be alert: ours came with a 175-watt mercury-vapor bulb by mistake, a lamp that will prove too strong for virtually any homeowner application.

GlareBuster



The only light fixture marketed as friendly to astronomy is the full-cutoff GlareBuster sold by Lighting by Branford (contact information is on page 47) which accepts a variety of light sources.

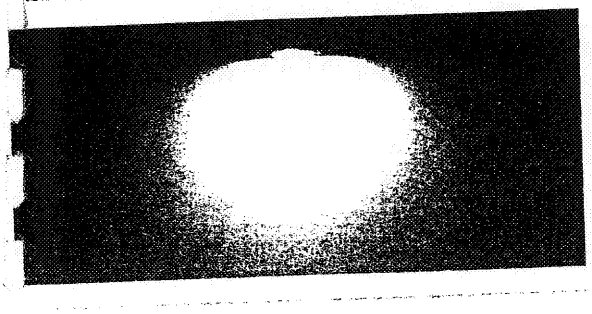


AR 13684

Regent RSM100

When you need a lot of light on the ground, the Regent RSM100 mercury-vapor light does the job with a full-cutoff fixture.





We found that it still offered substantial illumination when fitted with its proper 100-watt lamp. One disadvantage of any fixtures using mercury- or sodium-vapor lamps is that they require several minutes after being turned on before providing usable levels of illumination — they are not suited to applications where light is needed "instantly" or for short intervals.

Heath Zenith makes a large assortment of outdoor lighting fixtures. Two that caught our eye feature halogen bulbs and dual-brightness levels controlled by a motion sensor. The **Heath Zenith SL-5630** is a wall-mounted unit with a single bulb recessed under a shield that offers a decent amount of vertical cutoff. We removed a small angled reflector from inside the housing (see the accompanying photograph for details). Removing this reflector is easy, since you have to temporarily remove it in the process of installing the light. This reduced much of the stray light emitted to the fixture's sides. In fact, were it not for ribbing molded into the transparent plastic cover, this unit would keep almost all of its light directed toward levels at or below that of the fixture.

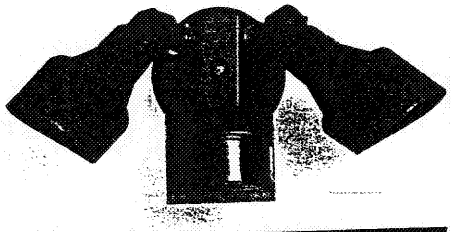
The unit is equipped with an electric eye for dusk-to-dawn operation. A few minutes after being turned on, this unit automatically dims but will instantly return to full brightness when the motion detector is triggered. Unlike motion-sensor lights that are either on or off, this one provides accent illumination in the "quiet" mode, which is desirable in many applications such as around doorways and walkways.

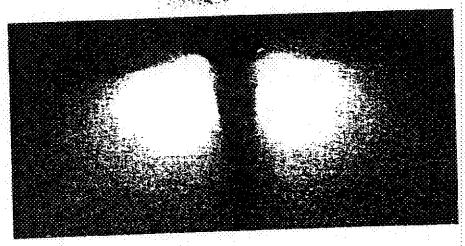
The **Heath Zenith SL-5597** looks more like a conventional twin-bulb floodlight. It too offers the motion-activated Dual Brite feature. Furthermore, the light will automatically turn on at dusk and off after either preset intervals of three or six hours or when dawn arrives. There is manual override of the automatic features, controlled by toggling the light switch (usually inside a house) that powers the unit. Both lamp heads on this fixture have adjustable shields that are effective at reducing the angle with a direct line of sight to the bulb.

While few of today's lighting fixtures have been designed with astronomy in mind, the conscientious homeowner can find lighting solutions that are more than adequate and, at the same time, friendly to any neighborhood skywatchers.

Heath Zenith SL-5597

In addition to the motion-activated dual-brightness features in other Heath Zenith lights we tested, this halogen floodlight can be preset to automatically turn off three or six hours after dusk.

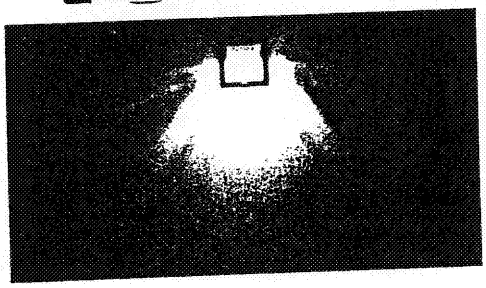


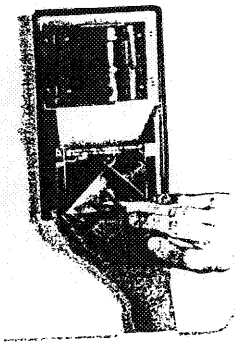


Heath Zenith SL-5630

This wall-mount fixture by Heath Zenith provides low-level "accent" illumination for doorways and walkways but automatically switches to full brightness when its motion detector is triggered. An electric eye provides dusk-to-dawn operation. We found that removing the unit's small pyramid-shaped reflector *(lower right)* greatly improved the effectiveness of the fixture's vertical cutoff.

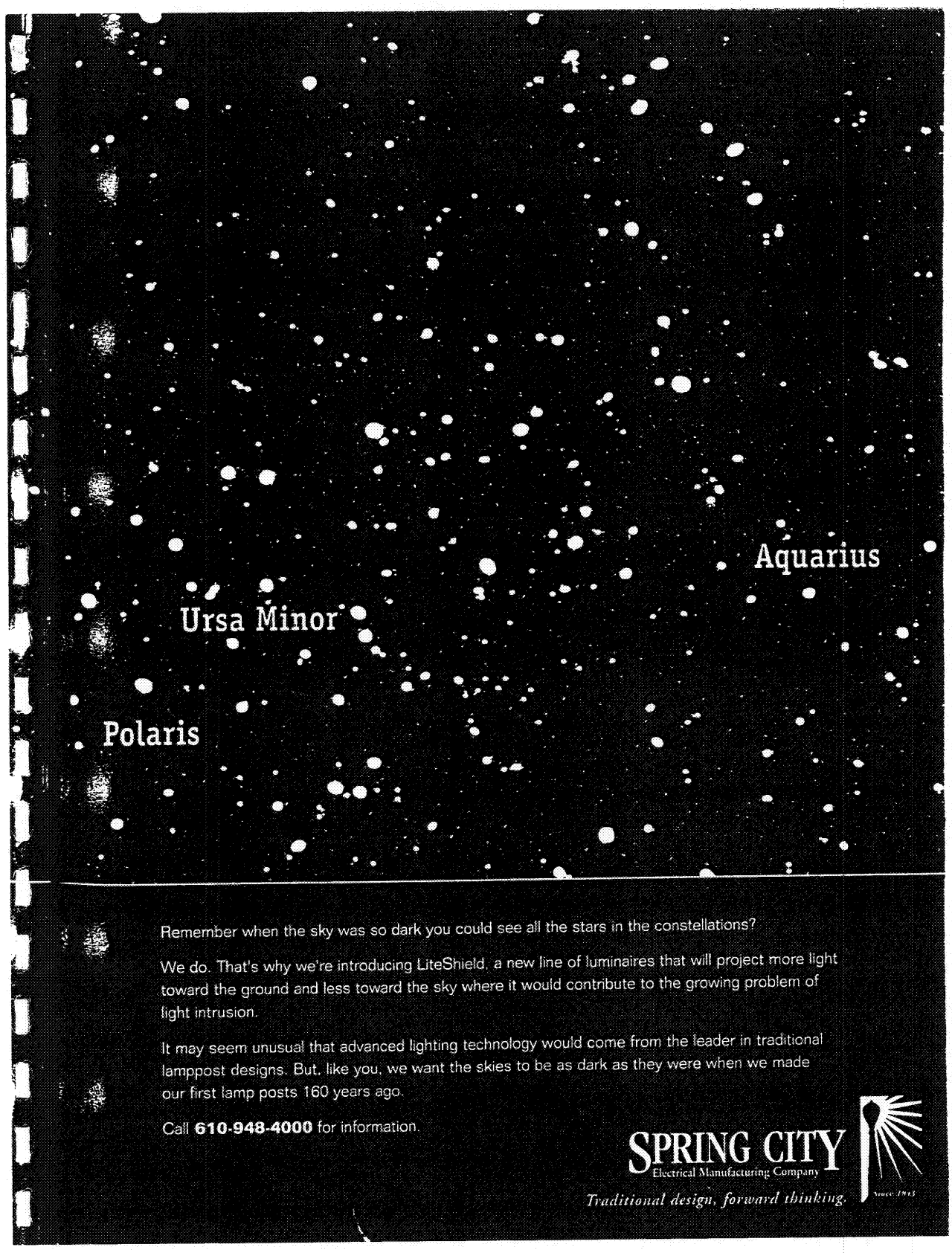






Dennis di Cicco and Kelly Beatty joined the editorial staff of Sky & Telescope *within weeks of each other as Saturn was crossing from Orion into Gemini. They're looking forward to that happening again next year.*

AR 13685



Remember when the sky was so dark you could see all the stars in the constellations?

We do. That's why we're introducing LiteShield, a new line of luminaires that will project more light toward the ground and less toward the sky where it would contribute to the growing problem of light intrusion.

It may seem unusual that advanced lighting technology would come from the leader in traditional lamppost designs. But, like you, we want the skies to be as dark as they were when we made our first lamp posts 160 years ago.

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We want the stars to shine as brightly as when we cast our first lamp post 160 years ago. The Spring City foundry has stood firmly along the banks of the Schuylkill River in Pennsylvania since 1843. We are widely known as the leader in traditional outdoor lighting and lamp post design. For decades, our products have allowed Americans to work, travel, or play safely at night, contributing to the lifestyle we all enjoy today. But, as the amount of outdoor lighting has increased, so has the amount of light intrusion in our skies, and light trespass onto nearby sites.

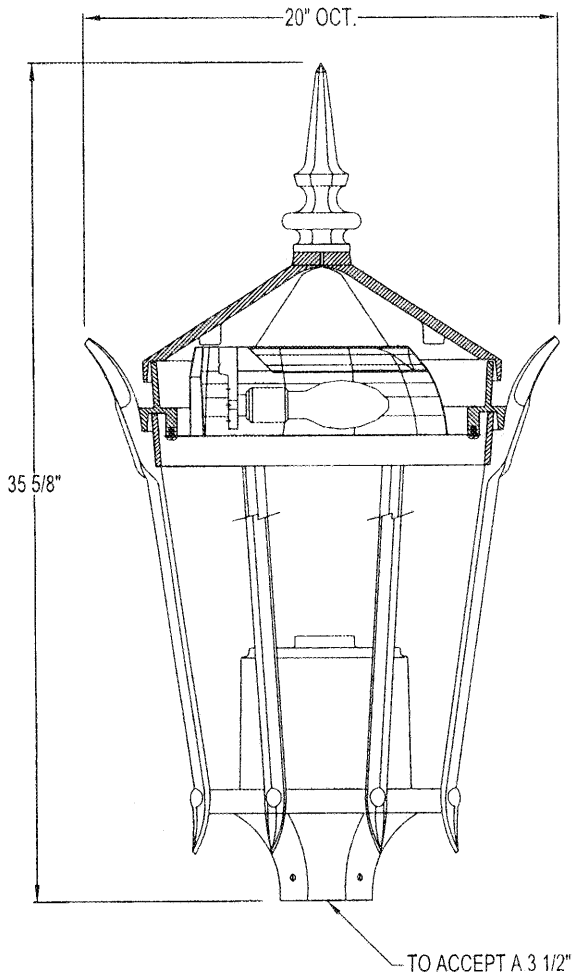
That's why Spring City is offering a product line that will combine our well-known, traditional styles with the latest light-control technology. None of the benefits of modern lighting will be lost. But, by controlling the light output at its source, LiteShield Luminaries will direct more light to places where it's needed and less light to where it's not. The technology is in place. Public awareness is growing. As enlightened designers, manufacturers, buyers and administrators, it is within our power to promote the change to controlled illumination on our streets and darker skies above them.

What is a cutoff luminaire?

The Illuminating Engineering Society (IES) defines luminaire performance by the amount of light (candela) that exits the luminaire above 80 degrees, when viewing the luminaire from the side. IES allows a luminaire to be classified as "cutoff" only if the candela per 1000 lamp lumens does not exceed 25 candela at or above an angle of 90 degrees, and 100 candela at or above 80 degrees. Photometric Testing should be Performed at the photometric center, which may or may not be the lamp Location, depending upon the construction of the optical system.

Coach Lantern Style : Luminaries for post top mounting

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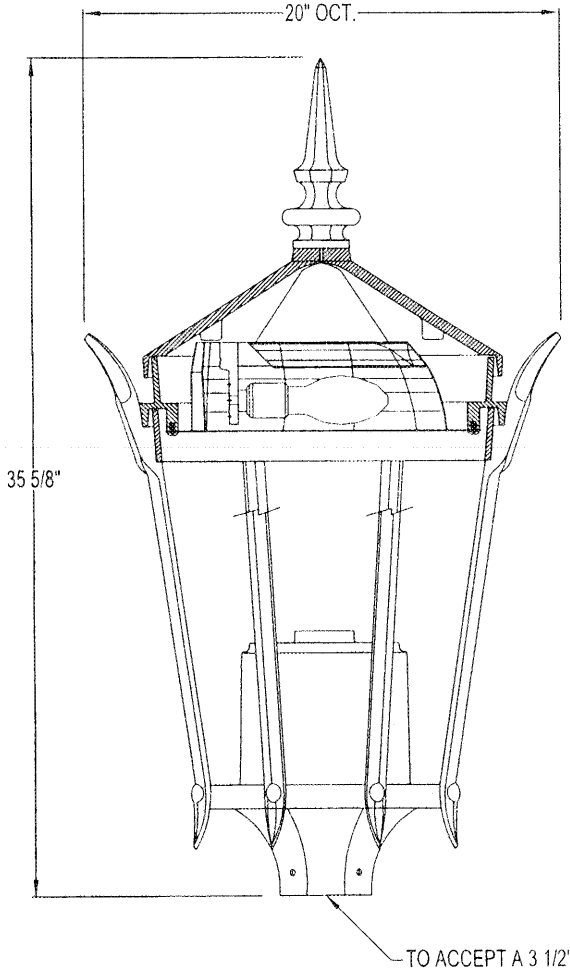
LUMINAIRE SPECIFICATIONS

STYLE:	EDGEWATER HORIZONTAL LAMP, TYPE III, CUTOFF
HEIGHT:	35 5/8"
WIDTH:	20" OCTAGONAL
MATERIAL:	CAST ALUMINUM ALLOY SR319 PER A.S.T.M. B26-95
PANEL:	CLEAR POLYCARBONATE
DISTRIBUTION:	TYPE III - ASYMMETRIC
FINISH:	PRIME PAINT THEN FINISH SHERWIN WILLIAMS ACROLON - PLEASE ADVISE COLOR
LAMPING:	_____ WATT ☐HPS ☐MH ☐MV ☐INC ☐OTHER_____
VOLTAGE:	☐120 ☐208 ☐240 ☐277 ☐480 ☐QUAD
SOCKET:	MEDIUM BASE
PHOTO CONTROL:	OPTIONAL - BUTTON TYPE

Spring City Electrical Mfg. Co.
SINCE 1943
HALL AND MAIN STREETS - P.O. BOX 19 - SPRING CITY, PA. 19475
PHONE (610) 948-4000 FAX (610) 948-5577
E-mail ADDRESS: sales@springcity.com

DESCRIPTION	ALMEDM-PPLO-HC3	PDF

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VOLTAGE:	☐120 ☐208 ☐240 ☐277 ☐480 ☐QUAD
SOCKET:	MEDIUM BASE
PHOTO CONTROL:	OPTIONAL - BUTTON TYPE

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DESCRIPTION	ALMEDM-PPLO-HC3	PDF

5.4 Traffic and Circulation

The following is taken from our scoping comments, incorporated by reference herein and to which please refer. Presented there are requests for analysis that we did not find in the DEIR. Also, it presents our approach to this challenging issue, which has been exacerbated by past patterns of development and by the approval of development of over 14,500 additional parcels between adoption of the 1996 general plan and issuance of the writ. Please see References for citations on the fallacy of building your way out of traffic congestion:

> *"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."*
> —Saving America's Countryside, *Stokes, Watson, and Mastran, , National Trust for Historic Preservation, 1997*
>
> *[V]ehicle fuel economy... has been consistently falling ...[since] the middle 1970s through the late1980s.... [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* [See also Air Quality herein under Human Health and Safety.]
>
> *"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* [See also Air Quality herein under Human Health and Safety.]
>
> *"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*

281-69

Thus solving the County's problem of traffic congestion has implications for development patterns, energy efficiency, dependence on foreign oil, global warming, and safety.

• In the FEIR, please describe any situation where enlarging road capacity has been known to solve a capacity problem over time. 281-70

• As congestion on US 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 US 50 and western slope businesses (including the rafting industry), and with SR 49 should also be analyzed in the DEIR. 281-71

• Effects of growth-induced traffic congestion 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 scanner traffic) because of traffic congestion on US 50 during evening commuting hours. 281-72

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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 State regulations affecting such surfacing, how can these roads be brought into compliance to eliminate the health risk? 281-73

• The proposed connector road from Missouri Flat Road to Pleasant Valley Road utilizes a portion of the old Southern Pacific railroad corridor, a violation of the federal Rails-to-Trails Act under which the corridor was acquired. What route changes have been made to correct this violation? 281-74

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 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. 281-75

• 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? 281-76

The DEIR commences with an overview of the basics of the transportation system— its dependence upon motor vehicles (89% of commuting travel is by automobile), dependence upon US 50 for east-west travel and consequent development patterns along that corridor, and for SR 49 and 193 for north-south travel. Employment is largely out of the county in the metropolitan Sacramento region. Congestion on US 50 during peak commuting hours is a problem in the westernmost part of the county. Traffic to and from the Tahoe Basin, and seasonally to the Apple Hill area, can back up through the signal lights at Placerville and overwhelm local roads in the fall on weekends.

The Lake Tahoe Basin, Eldorado National Forest, and local attractions generate recreation and tourism interest, served principally by US-50, which, in the steep-sided upper canyon of the South Fork American River, narrows to two lanes. 281-77

Level-of-service (LOS) next is defined on an A to F scale as it relates to the capacity of the roadway being measured. The El Dorado Business Park attracts workers from out-of-county and this fact contributes to congested conditions in *both* directions on US 50 and related on- and off-ramps during peak commuting hours.

LOS standards for the various types of roads are set by Policy 3.5.1.1 of the 1996 plan (now Alternatives 1 and 4) as LOS E or better on all roadways. Deterioration of operation is also capped by this policy: Those operating at LOS A, B, or C must not fall below C, and those operating at LOS D must not fall below D, except for 14 listed segments that may fall to LOS F.

Wording on p. 5.4-7 ("Roadway improvements across the county line have not kept pace with development in El Dorado County") should offend residents of Sacramento County in implying that 281-78

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their County was at fault in some way, rather than decisions made by El Dorado County government that overwhelmed its neighbor's roads.

Public transit in El Dorado County is quite limited (p. 5.4-8). Commuter bus is available to Sacramento, but apparently is limited by available park-and-ride space. Dial-a-ride bus service is available within 30 minutes of Placerville, but there is no equivalent service in the fairly heavily populated and rapidly growing El Dorado Hills area.

• Commercial bus service as described on p. 5.4-9 needs to be corrected as Greyhound no longer serves Placerville.

Two taxi companies serve El Dorado County. Car pools and van pools are other options for commuters.

Non-motorized transportation is outlined on p. 5.4-10 where it says that bicycles are not widely used except by students.

• Please present data to support that students make appreciable use of bicycles. We would speculate that the hazard of riding on fairly narrow and largely shoulderless roads and competing with commuting traffic dictate otherwise. School buses and, for older children, their own cars are, in our experience, more the rule. Dedicated bikeways are quite limited. In some parts of the county, terrain is also a constraint for biking.

• Analyze to what extent neighborhood schools are now planned to allow children walking or bicycling to them safely. How can the situation be improved by changes in design?

• The DEIR should analyze the potential for facilitating 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 example, schools or "park and ride" lots and incorporation into the design of the latter safe storage facilities for bicycles.

The four county airports are described on p. 5.4-11.

On p. 5.4-12 ff. Caltrans' "concept reports" for US 50 and SRs 49 and 193 are described.

• SR 153 isn't mentioned here, yet we've heard that there is a plan to reroute it so that it doesn't cut through the middle of Marshall Gold Discovery State Park. Please discuss.

The SACOG *Metropolitan Transportation Plan* is described on p. 5.4-13. Because of regional nonattainment status relative to ozone standards, the MTP has implications for transportation in El Dorado County. The discussion here fails to mention the dependency of the MTP on an outdated vehicle mix. The ability to use the mix, which fails to reflect the growing segment of SUVs and other light truck vehicles which are held to lower air pollution and fuel efficiency standards, expired at the end of 2002. See also the section on Air Quality herein.

• Please discuss in the FEIR the ramifications of this for the MTP, regional transportation planning, and availability of federal funding.

Local plans for alternative forms of transportation are discussed on pp. 5.4-14 to -15 and include the *Bikeway Master Plan* (1979), the *Hiking and Equestrian Trails Master Plan* (1990), the *El Dorado County Bicycle Transportation Plan* (1997), the *Sacramento-Placerville Transportation Corridor*

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Master Plan **(this has now been adopted and should no longer be referred to as "draft")**, and the *El Dorado County Long Range Transit Plan.*

Measure Y is mentioned on p. 5.4-15 (and is more fully discussed in Chapter 3 of the DEIR), followed by discussion of the various Traffic Impact Fee programs and the split of funding thereunder, set forth in Table 5.4-4 (p. 5.4-16):

- El Dorado Hills/Salmon Falls Area Road Impact Fees (1996) **(RIF)**
- West Slope Area of Benefit Traffic Impact Mitigation Fee (1996) **(TIM)**
- Transportation Impact Fee for State System's Capacity & Interchanges (1996) **(State TIM)**
- The Interim Transportation Impact Fee for Highway 50 Corridor Improvements (October 2002) **(Interim 50 TIM)**

No source of money for the shortfalls indicated in the table has been identified. Under Measure Y, tax revenues are not to be used "for any improvements required to support new development".

In the analysis of the General Plan alternatives beginning on p. 5.4-16, it is said that the LOS policies differ in the alternatives so that an attempt has been made to use a uniform LOS threshold of significance better to compare the alternatives.

• The FEIR should also discuss the difference in *definition* of LOS F used in the different alternatives. Refer to Quality Growth's comments on the SDEIR for the 1996 General Plan, Sec. III-C, p. 41 (see References).

For Alternatives 1 and 4, Policy 3.5.1.1 says that LOS E or better is called for on all roadways. Additionally, all road segments operating at LOS A, B, or C shall not be allowed to fall below LOS C at 2015, and those operating at LOS D shall not fall below LOS D. We note (p. 5.4-17) that for conditions like those in El Dorado County, both the Institute of Transportation Engineers and Caltrans recommend LOS C as the design threshold.

• The additional information should be included in the FEIR that Policy 3.5.1.6 allows certain road segments to operate at LOS F, just as in the case of Alternatives 2 and 3 (below).

For Alternatives 2 and 3, "County-maintained roads and state highways within the unincorporated areas of the county shall not be worse that LOS E in the Community Regions or worse that LOS D in the Rural Centers and Rural Regions" except those road segments allowed to go to LOS F as given in Table TC-2.

Examining Table TC-2 and its counterpart on p. 57 of Alternatives 1 and 4 in the Transportation Element, we note that the LOS information given in the latter, but not the former, after reaching LOS B, deteriorates to the next lowest LOS with every incremental increase of 0.10 in the volume to capacity ratio. Also, there is a spread of 1.07 to 1.73 (i.e., 0.66) in the "degrees" of LOS F V/C) depicted therein, which would appear equivalent to more than twice as much as a drop from B to F.

• Please discuss how worsened conditions within LOS F are acknowledged in rating LOS. How is the *duration* of LOS F conditions acknowledged?

The 2001 base conditions for these road segments may be extracted from Appendix D-3A, B, C, and D. But nowhere did we find what improvements are referred to in the footnote in Table TC-2: "Roads improved to their maximum width given right-of-way and physical limitations."

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• Please set these out in the FEIR so that we may better understand the implications of Table TC-2. Please also explain the differences noted by a single asterisk in the appendix listings wherein, e.g., a road segment listed as operating at LOS C in the base year is said by Caltrans to be operating at LOS F in actuality. Not all of these improvements seem to be identified in Appendix 3A. (See, for example, Cambridge Road, Segment 2, which, incidentally, was rated LOS D based on counts in 1992 in the DEIR for the 1996 General Plan.)

281-93

• When we asked Caltrans recently how LOS F was defined and how it related to V/C ratios, as used in Table TC-2, we were told that the definition differed for different types of facilities ("interrupted flow, uninterrupted flow, multilane highways, freeways"), yet the table mixes various types of roadways. Therefore, please define in the FEIR the meaning of LOS F for each of the types of road segments included in Table TC-2. What is the meaning of a rating of V/C that exceeds 1.0, i.e., the measured volumes exceed the roadway capacity? How does a V/C rating of 1.73 differ from one of 1.07 in what is happening on the roadway? Do the same considerations (i.e., definition varies with roadway type and condition) apply also to "better" levels of service and, if so, in what way? It would appear that apples and oranges are being compared in Table TC-2 and elsewhere.

281-94

The methodology of analysis is set forth on pp. 5.4-18 to -21. Key assumptions utilized in analysis are set forth on pp. 5.4-22 and -23:

- that the figure of 60% of residents that commute to Sacramento County would decline by about 10% and the number of commuting trips from Sacramento County to El Dorado County would increase by about 25%.

- changes in planning horizon, forecasting ability, and analysis methodology in line with the latest edition of the *Highway Capacity Manual* and other considerations.

281-95

• Why are figures from the 1990 census still being used rather than figures from the 2000 census? What are the figures from the 2000 census? Comparing the two would at least suggest a possible trend and thus serve as a check upon assumptions relative to commuting patterns, which, as presented here, lack any factual basis even for the speculation presented.

The Results of the Roadway System Analysis are presented beginning on p. 5.4-24.

• Are we correct in reading the second paragraph here to say that improvements to US-50 will occur "concurrently" with new development? Who is paying for this? There was a four-year interval between passage of Measure Y and institution of its fees, during which building proceeded apace. How does this meet the criterion of "concurrent"? How much shortage of money did this create? How will this shortage be made up? What is the actual likelihood that Caltrans will have any money to pursue these improvements in the near term?

281-96

• Relative to the 1996 General Plan, the cost of transportation infrastructure improvements needed by 2015 was estimated at $1.5 billion (EPS, *Fiscal and Financial Feasibility Analysis of Draft General Plan—2015*). (And these figures apparently failed to include right-of-way acquisition costs and financing costs.) Are these figures are still reasonably valid for Alternatives 1 and 4? If not, please present the revised figures. Surely comparable figures have been developed for Alternatives 2 and 3. What are those figures?

281-97

Some of the conclusions are:

- all four alternatives will result in an increase in vehicle-miles-traveled, vehicle-hours-of-delay, and

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daily-vehicle-trips.
- o all four alternatives will result in an increase in these factors per capita, as well.
- o all four alternatives will result in slower travel speeds.

Analysis of the Public Transportation System begins on p. 5.4-37. Some of the conclusions here are: 281-98

- o park-and-ride lots would need about a 60% expansion.
- o the land-use and circulation plans for the four alternatives "are not conducive for many types of public transit service (i.e, fixed-route bus service or light-rail transit); all would require denser development.
- o continuing the low-density pattern of development also increases the cost of providing roadway infrastructure.

• 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. 281-99

• The DEIR should analyze the various ideas advanced to utilize the railroad corridor for transportation extending into the County, including excursion trains and occasional freight trains serving businesses in the County, several of which have expressed interest in such a service. To what degree might offering rail transportation afford relief from heavy trucking on US 50? 281-100

• What studies have been made of dedicated express bus routes to serve commuters? (See References.) Regional cooperation by employers' in cessation of free parking at the place of employment to encourage van- and car-pooling? Peak period truck restrictions? What have been the results? 281-101

The Governor's Office of Planning and Research has numerous suggestions for Transportation System Management in its *General Plan Guidelines* (see References).

Four impacts are identified: 281-102

Impact 5.4-1: Potential Inconsistencies with LOS Policies (p. 5.4-38 to -39).
Impact 5.4-2: Increase in Daily and Peak Hour Traffic (p. 5.4-51 to -52).
Impact 5.4-3: Short-Term Unacceptable LOS Conditions Related to Generation of New Traffic in Advance of Transportation Improvements (p. 5.4-57 to -58).
Impact 5.4-4: Insufficient Transit Capacity (p. 5.4-65).

• With an aging population, is local van service adequate for the needs of non-driving seniors and others? How could it be better publicized? 281-103

Proposed mitigation includes: 281-104

- o construction of a new arterial from the Business Park to US 50 (this would be incorporated in Alternative 10). This is felt likely to generate opposition from Sacramento County and Folsom. Caltrans also would have to approve. It is likely to cause adverse impacts to neighbors in Sacramento County.
- o control growth that would access Latrobe or White Rock Roads. This would address LOS inconsistency in *that* area.
- o downgrade the LOS standards to be met. [*This isn't mitigation!* It is a change in standards.]
- o provide frequent transit service on dedicated right-of-way to the Business Park from Folsom and from El Dorado County residential communities. This, too, would require approvals from Sacramento County, Folsom, Regional Transit, and possibly Caltrans. It isn't stated whether utilization of at least part of the old Southern Pacific right-of-

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way is contemplated.

- ○ modify concurrency and tax revenue policies and transportation financing implementation measures. This would counter some of the Measure Y features. The feasibility of the available means of funding in the necessary amounts is unknown. (The EPS analysis relative to the 1996 General Plan was quite pessimistic.)
- ○ apply traffic concurrency policies to ministerial development projects. Feasibility of doing so is uncertain.
- ○ develop a funding mechanism for expansion of park-and-ride lots to expand transit capabilities. [This is *future* mitigation, if it happens at all, not *present* mitigation.]

Despite all these less than agreeable and very uncertain measures, impacts remain significant.

• The DEIR should also consider the possibility of Bus Rapid Transit to relieve congestions (see References).

281-104

• Environmental documents for the 1996 General Plan included an assessment of commuting time between Silva Valley Parkway and Sacramento at buildout with certain improvements to US 50. The conclusion was 2-1/2 hours at an average speed of 10 miles per hour. Nowhere in the present DEIR did we find a similar attempt to quantify this figure. Please supply one.

281-105

• Cumulative impacts for Traffic and Circulation are addressed at pp. 7-7 ff. Nothing in that chapter, however, discusses impacts to west slope businesses, including tourism and Apple Hill. An "economic or social effect of a project may be used to determine the significance of physical changes caused by the project." CEQA Guidelines, Sec. 15131(b). Excessive traffic congestion seems certain to affect the pleasantness of the experience that now attracts people. This must be included in the discussion in the FEIR.

281-106

• The discussion of cumulative effects in Sacramento County (p. 7-8) is weak. It needs to be quantified, not just dismissed as a "considerable contribution". How much will it worsen congestion on US 50 for inhabitants of Sacramento County?

281-107

• Neither are cumulative impacts on Human Health and Safety considered, such as fire safety, evacuation times, emergency response ability. This lack, too, must be remedied. Per CEQA, App. G , XIII (a) and XV (e), interference with these functions is a significant impact that has not been identified in the chapter on Traffic and Circulation.

281-108

• Cumulative impacts are addressed at p. 7-17 for the Lake Tahoe Basin. However, *only* traffic impacts are considered. Impacts to the Tahoe Basin economy must also be considered. (CEQA Guidelines, Sec. 15131(b)).

281-109

• The growth-inducing impacts of roadway expansion is dismissed in Chapter 7 with the argument that if "infrastructure is sized to accommodate already approved and expected growth based on the population projections of the General Plan alternatives, growth inducement would not occur." We find this argument fatuous. It isn't used in the discussion of water, where adoption of a general plan is regarded as removing an obstacle to growth. Similarly, expanding roadways would facilitate growth, as is recognized by transportation planners. It is quite possible that, in the absence of traffic improvements, developers will find their products increasingly difficult to sell.

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TRAFFIC CONGESTION

Build It And They'll Come

A growing body of research has shown that widening highways is only a temporary solution at best to the complex problem of traffic congestion. Indeed, research has pointed to a phenomenon known as "induced traffic" that suggests new and wider highways actually create additional traffic, above and beyond what can be attributed to rapid population increases and economic growth. In larger metropolitan areas, drivers will often abandon carpools and public transit when additional roadway space is made available through highway widenings or new road construction, thus creating additional trips and more traffic. In the longer term, the promise of more convenient transportation access allows commuters to live further from work, increasing development pressures and thus fueling even more traffic demand. (It should be noted that any form of transportation can produce this effect; whether it was "streetcar suburbs" at the turn of the 20th century or new commuter trains attracting Silicon Valley workers to live in the Central Valley with the promise of a more convenient commute.)

Metropolitan area (UZA)	Forecast annual growth rate in VMT (on freeways & arterials), assuming current growth trends	Forecast annual growth rate in VMT (on freeways & arterials), with no growth in roadway	Percent of total VMT growth attributable to "induced traffic"

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		capacity	
Bakersfield	9.0%	6.8%	24.6%
Fresno	5.8%	5.1%	12.4%
Los Angeles	-0.01%	-0.8%	100.0%
Sacramento	3.3%	1.5%	54.6%
San Diego	1.3%	0.4%	72.6%
San Francisco-Oakland	0.6%	-0.4%	100.0%
San Jose	1.3%	0.3%	73.6%
AVERAGE	3.0%	1.6%	45.2%

Note: VMT = vehicle miles traveled or overall mileage driven; Los Angeles and San Francisco have negative growth in VMT when no lane miles are constructed, thus 100% of growth is attributed to the induced travel effect. Source: Robert Noland, 2000.

The Federal Highway Administration has recently concluded that this phenomenon of "induced traffic" does in fact occur quite frequently in metropolitan areas throughout the United States. Another detailed study has also concluded that traffic in the Bay Area and Los Angeles would actually decrease if no new highway expansion took place. It also determined that two-thirds of the growth in traffic in San Jose and San Diego in the coming decades will be attributable to induced demand.

A recent study conducted by the U.C. Berkeley Institute for Transportation Studies concluded that 90 percent of all new highway capacity added to California's metropolitan areas is filled within four years, and 60 percent-70 percent of all new county-level highway capacity is filled within two years. This, authors Mark Hansen and Yuanlin Huang explain, means an additional highway lane-mile constructed in the San Francisco Bay Area, Los Angeles or San Diego regions would increase traffic by 10,000-12,000 vehicle-miles traveled per day; in Sacramento and Stockton would equate to 7,000-8,000 additional VMT; and in smaller but nonetheless rapidly growing areas like Modesto, Merced, Monterey and Bakersfield would translate into an additional 3,000-6,000 VMT per day. The authors conclude:

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"Our results suggest that the urban state highway lane miles added since 1970 have, on the whole, yielded little in the way of level of service improvements. Consistent with previous work, we find that increasing highway supply results in higher vehicle miles traveled (VMT). An induced traffic impact of such magnitude must be considered when assessing road capacity enhancements, whether in a broad policy context or on a project specific basis."

Several other reports in recent years have pointed to similar conclusions. In 1998, the Legislative Analyst's Office revealed the results of its own research on the issue and cautioned policymakers about the promise of relying solely on new highway construction in order to reduce traffic congestion throughout California:

"New road capacity will typically lead to new traffic, especially in urban areas, because people and businesses benefit from the mobility that the transportation system provides and seek to use it to their benefit. Ultimately, road use will increase, leading to congestion of new road capacity. For this reason, expansion of the existing transportation will rarely alleviate congestion permanently; however, by restraining demand this tendency can be offset and existing congested roads, as well as new roads, can be made to operate efficiently."

The growing belief that induced traffic largely offsets any short-term congestion relief gains also led authorities in the United Kingdom to cancel more than 70 planned highway construction and road expansion projects in the 1990s alone. Similar experiences have been reported by transportation officials in Germany, Holland and Japan. Many of these countries have retooled their transportation programs to incorporate a more balanced approach to managing traffic congestion as well as a new emphasis on growth management techniques, more compact development patterns, and other land use strategies as a way of beginning to combat what officials and experts see as the underlying cause of increasing traffic volumes.

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5. Excerpt from *General Plan Guidelines*, Governor's Office of Planning and Research.
6. *Express Buses: A Low Cost Cure for Congestion.* Surface Transportation Policy Project.
7. *Hybrid transit faster than bus, cheaper than rail.* Sacramento Bee, 28 Jan 2002.

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ANALYSIS OF APPROACHES TO RELIEF OF TRAFFIC CONGESTION
Adapted from *Maidu Messages*, Spring 2003

Voter-approved (1998) Measure Y requires developers to pay fees to fund road improvements to mitigate traffic congestion caused by increasing numbers of new homes. HOV lanes, partially funded by $15 million paid by El Dorado County, have recently opened for portions of Highway 50 enroute to Sacramento. Because of a four-year delay by the Board of Supervisors in implementing Measure Y fees, none of this cost was paid by developers of El Dorado County properties.

Caltrans proposes to widen Highway 50 through Placerville in part by taking space just south of the freeway that is part of the old railroad corridor that prior plans had proposed to use as part of a multipurpose trail extending west to the county line and beyond. Caltrans admits that post-construction traffic will be relieved for only a few years by this project.

Are these approaches to solving traffic congestion likely to succeed? Many of us have heard the expression, "It only encourages them," referring to road-widening improvements. Is there research bearing out this view? Emphatically yes. In fact, transportation authority Anthony Downs first set forth his *Principle of Triple Convergence* in the 1960s and elaborated upon it in a 1992 book, *Stuck in Traffic*, written for a non-technical audience.

The Principle of Triple Convergence

Briefly, Downs's *Principle* states that, unless a community is essentially stagnant in growth, which El Dorado County emphatically is not, adding new road capacity is doomed to fail because that new capacity will attract three groups who had avoided (and thereby eased) peak-hour congestion by:

- using alternative routes
- traveling at off-peak hours
- using public transit.

As Downs says, "Expansion of road capacity — no matter how large, within the limits of feasibility — cannot fully eliminate periods of crawling along on expressways at frustratingly low speeds." Rapid growth, as El Dorado County has been experiencing, overwhelms any remedies to reduce congestion, such as highway capacity improvements.

Supply-Side Remedies

Downs divides proposed remedies into those affecting supply and those affecting demand. On the **supply side**, he lists several ways of increasing capacity: 1) building more roads, 2) increasing efficiency of existing roads in any of several ways, 3) adding HOV lanes, 4) making more public transit available, and 5) administering public transportation systems. None of these is likely to prove effective, he argues, as follows:

BUILDING MORE ROADS: This tends to be counterproductive because of triple convergence.

INCREASED EFFICIENCY: This would include improved maintenance, better timing of signals, patrol by a fleet of repair vehicles, television monitoring, upgraded arterials, one-way streets, ramp signals, provision of real-time traffic information, and changed parking patterns. Nevertheless, traffic increasing with growth will soon overpower any of these factors.

HOV LANES: Conversion of existing lanes, Downs says, is ineffective: it reduces capacity and fosters cheating and driver anger.

MORE PUBLIC TRANSIT: It is most used by those who have no car, live in a central city and work in the central business district, or live in densely-settled communities. It is little used in suburbs. Even if policy changes could double the numbers of suburban users, growth would soon wipe out any gains. Only restraints on car use and increased density of development are likely to

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have a positive effect. The cost of rail without federal subsidies is prohibitive, while increased bus service, though less costly, needs to be done in association with HOV or other reserved lanes for their use. Light rail, Downs judges, though less costly than heavy rail, probably is little, if any, more effective.

ADMINISTRATION OF PUBLIC TRANSPORTATION SYSTEMS: Most public transit systems, notes Downs, require large subsidies.

Demand-Side Remedies

Downs divides **demand-side** remedies into ones that don't change housing/job locations and ones that focus on behavior. Of the former, he cites *peak-hour road pricing*. This has never been completely tried in any metropolitan area because of issues of *equity* (it favors the economically better off, though the fees collected could be redistributed to subsidize low-income people or to improve the road and transit systems), issues of *efficiency* (technology exists to use electronic sensors rather than have delays at toll booths), issues of *privacy* (these could be overcome by using pre-paid cards that would record a vehicle's whereabouts only when the value is exhausted), and issues of *transient vehicles* (toll booths could be used for these). A variation would be zone pricing, whereby there would be a charge for entering heavily congested areas, again tracked by electronic sensors. Private toll roads, says Downs, are usually priced to generate a profit, not to relieve congestion.

As to demand-side remedies that focus on *behavior*, Downs lists 1)shifting peak-hour trips to other times by means of staggered work hours and "flextime", 2) working at home, 3) restricting use of vehicles to certain days, 4) ride-sharing, 5) raising the cost of using private cars, 6) raising the cost of parking, 7) encouraging use of public transit for trips associated with work, and 8) exploring so-called Intelligent Vehicle Highway Systems.

SHIFTING PEAK-HOUR TRIPS: Policies such as cooperatively staggered work hours, flextime policies, or shortened work weeks possibly combined with longer work days. The potential for improving congestion is limited, but perhaps could be increased by combining this approach with others, Downs says.

WORKING AT HOME: So-called "telecommuting" has contributed to growth of this practice, though it is likely to remain part-time for several practical reasons. However, Downs gives several means by which it could be fostered. A regional, perhaps even state-wide approach (if tax provisions were to be used to encourage it), would be needed.

RESTRICTING VEHICLE USE: Tried in some places is restricting vehicle use to certain days by some means such as license number. Those restricted would have to stay home or use other transportation. This would be a hardship on those who had to go to work.

RIDE-SHARING: One way to accomplish this would be by strong pressure on employers to persuade workers to ride-share. Having to pay for parking if one drives alone, while providing free parking to those using car- or van-pools would be one way. Downs discusses several others.

RAISING THE COST OF USING PRIVATE CARS: Downs judges this approach as having the most potential but notes that it is the least popular. It undoubtedly would be hard on low-income families, though techniques exist to mitigate the effect. Relative to the cost in other countries, the cost of gasoline is low in the United States. Increasing the tax and allowing the cost to rise could at least drive a switch to vehicles with better mileage, just as the crisis of the early 1970s did, and would encourage ride-sharing or use of transit, where it is available. Raising sales or import taxes on vehicles, tried in Denmark, would discourage vehicle ownership rather than focus on peak-hour traffic, but is likely to prove very unpopular in the United States.

RAISING THE COST OF PARKING: Free parking, often offered by employers, encourages the use of private cars. Its elimination would discourage driving alone and encourage at least car-pooling, if not use of public transit. Another approach would be to raise parking fees for those entering facilities during peak commuting hours and reserving lower fees for mid-day shoppers and others.

ENCOURAGING USE OF PUBLIC TRANSIT: Unfortunately, especially in areas where

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public transit is limited to non-existent, it is very difficult to persuade solo drivers to give up the convenience and comfort of personal cars.

INTELLIGENT VEHICLE HIGHWAY SYSTEMS: This high-tech approach involves gathering information on conditions in real-time, adjusting signals and ramp metering devices accordingly, effectively making information available to drivers, and automated control devices on vehicles, roadways, or both. Because these approaches are costly and do not reduce numbers on the highways, they may not be particularly cost-effective, Downs judges. At any rate, any implementation is probably years away.

Braess's Paradox

Another pessimistic view about curing traffic congestion comes from *Braess's Paradox*, first expressed by a German mathematician in 1968 and supported by several studies reported since by German theoretical physicists in journals like Physical Review Letters, Journal of Physics, and Nature. This says, essentially, that increasing road capacity can itself cause increased congestion, even without the addition of more drivers.

Applicability

Unfortunately, in the metropolitan Sacramento area and counties such as El Dorado, past and on-going sprawling, automobile-dependent development patterns have created conditions that make it very difficult to cure traffic congestion. Approaches by governmental entities, such as SACOG's (Sacramento Area Council of Governments) Metropolitan Transportation Plan, and that of the general plan alternatives, continue to emphasize road improvements in both planning and funding approaches to traffic congestion.

Hidden in an appendix to the environmental documents associated with the invalidated general plan adopted by El Dorado County in 1996 was the little-noticed projection that, even with certain improvements to Highway 50, by buildout travel from Silva Valley Parkway to downtown Sacramento would take two and a half hours at an average speed of about ten miles an hour. It is anticipated now that, based exclusively on already-approved large developments and allowing none else, the county still cannot comply with Measure Y.

Though developers have benefitted from four years of not having to pay road-improvement fees required by Measure Y (see first paragraph), they are beginning to be hit by them. Will the price tag encourage them to take another look at their existing project designs and make them less automobile dependent and more transit friendly? Only time will tell.

Is the only likely "successful" approach simply to allow congestion to deteriorate to the point that people opt to live closer to work? Roger Lewis, a professor of architecture at the University of Maryland, practicing architect, and columnist for the Washington Post, writes, "One could argue that, in the long run, it's theoretically desirable to promote development and allow traffic friction to reach the point at which people willingly choose not to drive everywhere. Ultimately, the theoretical argument continues, congested road networks will decongest as more people become accustomed to using transit and other modes of transportation." Something along that line is now being practiced In Vancouver and, locally, by the City of Davis.

It would appear that some very hard choices are in store for El Dorado County.

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You can view the original page on the Sierra Club's website at
http://www.sierraclub.org/sprawl/transportation/seven.asp

stop sprawl

Induced Traffic Confirmed

The jury is in! Recent studies show that building or widening highways induces more traffic, called induced travel. Shortly after the lanes or road is opened traffic will increase to 10 to 50% of the new roadway capacity as public transit or carpool riders switch to driving, or motorists decide to take more or longer trips or switch routes. This is short-term induced travel. In the longer term (three years or more), as the new roadway capacity stimulates more sprawl and motorists move farther from work and shopping, the total induced travel rises to 50 to 100% of the roadway¹s new capacity. This extra traffic clogs local streets at both ends of the highway travel. The following table summarizes these studies.

Elasticity -- % new capacity filled with induced traffic

	Short-term	Long-term (3+ years)
SACTRA		50 - 100%
Goodwin	28%	57%
Johnson and Ceerla		60 - 90%
Hansen and Huang		90%
Fulton, et al.	10 - 40%	50 - 80%
Marshall		76 - 85%
Noland	20 - 50%	70 - 100%

Fulton, Lewis, Daniel Meszler, Robert Noland and John Thomas. "A Statistical Analysis of Induced Travel Effects in the U.S. Mid-Atlantic Region," forthcoming in the Journal of Transportation and Statistics.

Goodwin, Phil. "Empirical Evidence on Induced Traffic," Transportation, Vol. 23, No. 1, Feb. 1996, 35-54.

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Standing Advisory Committee on Trunk Road Assessment, Department of Transport (UK). Trunk Roads and Generation of Traffic. HMSO, London. 1994.

Noland, Robert. "Relationships Between Highway Capacity and Induced Vehicle Travel," forthcoming in Transportation Research A.

Noland, Robert, and William Cowart. "Analysis of Metropolitan Highway Capacity and the Growth in Vehicle Miles of Travel," presented to the annual Meeting of the Transportation Research Board, 2000.

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http://www.sierraclub.org/sprawl/transportation/gridlock.asp

stop sprawl

Expansion Induces Traffic

Do Widened Roads Create Their Own Gridlock?

By Neal R. Peirce
Washington Post Writers Group

"Build it and they will come."
"New roads just trigger more congestion."
"There's no way to build your way out of highway gridlock."

Are the charges of the transportation skeptics right?

Fresh findings on the impact of a major expansion on Interstate 270, a 12-mile stretch outside of Washington, D.C. suggest so.

In the mid-'80s congestion became close to unbearable on the roadway, which runs northwesterly from the (in)famous Capital Beltway into prosperous suburban Montgomery County. So the county applied to the Maryland state government for $200 million to expand the road up to 12 lanes. The state -- tapping chiefly federal funds -- agreed.

Now, less than eight years after the expansion was completed, the highway is again reduced to what one official described to the Washington Post as "a rolling parking lot." The daily auto and truck usage is running as high as 210,000 vehicles a day, beyond the official capacity of 190,000, in fact more than state highway officials had projected for 2010.

Welcome to what many transportation experts are now calling "induced roadways create excess capacity. Drivers anxious to cut their driving times switch from other roads. Where roads (like I-270) lead to less developed outer suburbs, homebuilders see opportunity, there's a rush of residents out of the city and older suburbs, and congestion mounts.

In the five years before I-270 got widened, 1,745 new homes were approved in the 12 miles north of Rockville, the major community on the route. In the following five years, 13,642 were approved.

Other studies bolster the induced traffic thesis. In California, University of California researchers checked 30 urban counties from 1973 to 1990 and found that every 10 percent increase in new lane-miles generates a 9 percent increase in traffic.

Says David Walters, transportation expert at the University of North Carolina-Charlotte: "The availability of the transportation acts as a catalyst for more movement, so that the more roads we build, the more places we can drive, the more we drive."

The added traffic generated may be relatively small in the short run. But it grows and grows over the long term as people travel further and further on the new or widened roads to take advantage of less expensive land.

So government actually pushes sprawling development, siphoning growth and vitality from existing cities and closer-in suburbs. City and established suburb residents pay most of the bill. Longer commutes and trips end up generating more congestion, more energy consumption, more pollution.

But highway departments, anxious to justify road expansions, are rarely willing to feed induced travel into their calculations. "Engineering driven, developer and road builder backed, these agencies use an elaborate set of outdated models and design standards to deliver preordained answers," charges Hank Dittmar, former director of the Washington-based Surface Transportation Policy Project.

Induced travel has its skeptics. Highways don't cause traffic, they claim; increased population growth and increased economic activity are the drivers.

But the evidence for the theory isn't just U.S.-generated. Great Britain has been busy reinventing its basic transportation policy in the wake of a study by an official expert panel concluding that "induced travel can and does occur."

The British team even found, based on analysis of 60 cases worldwide, that where roads have actually been closed, or their capacity severely reduced, an average of 20 percent and as much as 60 percent of the former traffic disappears entirely -- isn't even siphoned off onto other roads.

Americans might scoff, suggest abandonment of any roads here would be unthinkable. But after a portion of Manhattan's West Side Highway collapsed in 1973, forcing closure of most of the route, 53 percent of the prior trips simply disappeared. No one can argue New York was seriously damaged.

San Francisco's Embarcadero Freeway collapsed in the 1989 Loma Prieta earthquake. Citizens and local officials decided not to rebuild it. Horrific traffic jams were predicted; they never materialized. Ditto seven years later, when the upper deck of San Francisco's unstable Central Freeway was torn down. The widely predicted Bay Area gridlock didn't happen. Nor has Portland ever regretted closing the six-lane Harbor Drive beside downtown in order to build its handsome Tom McCall Waterfront Park.

Some areas would have a tougher time with highway closures. But at least we need to ask, much more critically, about each piece of highway construction or expansion: What will it really achieve? Could we use the money better-- for transit, for example? Or for subsidizing housing so that moderate-income folks don't feel forced to move to less expensive, far-out suburbs?

The "induced traffic" research at least gets us closer to an honest debate about those issues.

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stop sprawl
Highways Cause Sprawl

NEW & WIDER HIGHWAYS WORSEN CINCINNATI'S TRAFFIC GRIDLOCK AND SPRAWL: NEW STUDY SAYS NEW HIGHWAYS CAUSE, NOT RELIEVE, UP TO 43% OF TRI-STATE TRAFFIC JAMS

CINCINNATI-Widening and building new highways actually causes, not relieves, traffic congestion in Cincinnati and other major U.S. metropolitan areas, according to a new study presented today to the 79th Annual Transportation Research Board in Washington, DC. The study estimated that up to 43% of traffic in Greater Cincinnati is caused just by expanding the area's road network. The study also says that Tri-State traffic congestion would have grown less rapidly if no new or wider highways were built at all, contrary to what highway planners have predicted.

The study, "Analysis of Metropolitan Highway Capacity and the Growth in Vehicle Miles of Travel," used data from the Texas Transportation Institute's most recent database for 70 urbanized areas from 1982-1996. Using three models with different variables, the study found that highway-induced traffic in the Cincinnati area (including Northern Kentucky) increased by 14%-43%. Highway-induced traffic estimates for nearby metropolitan areas were 12%-35% in Columbus; 13%-30% in Cleveland; 20%-50% in Indianapolis; and 34%-77% in Louisville. The national average was 15%-45%.

"Simply put, this study adds to the growing evidence that traffic congestion has been made worse, not alleviated as road builders claim, by more and bigger highways. It follows that to reduce traffic congestion, and therefore air pollution and suburban sprawl, we need to stop building and widening sprawl-causing highways," said Glen Brand, director of the Cincinnati office of the National Sierra Club. "Instead it would be smarter to plan our communities better so that we aren't forced to drive everywhere, and to provide greater transportation choices such as commuter light rail and expanded bus service."

The study's authors, Robert Noland, University of London Center for Transport Studies and William A. Cowart, ICF Consulting in Fairfax, VA., conclude that "induced travel effects strongly imply that pursuit of congestion reduction by building more capacity will have short-lived benefits. This may be evidence for a strong sprawl inducing impact of large increases in lane mile capacity relative to the existing infrastructure. Recognition of these impacts implies that the benefits of new highway construction are less than would be calculated from a static analysis that included no induced travel impacts."

Currently, highway expansion is occurring all over the Tri-State, including widening of I-71 and I-75, the new Butler County Regional Highway, and a proposed Eastgate highway in Clermont County.

"In the light of this new research, policy-makers, including County commissioners and engineers, Ohio Department of Transportation, and Ohio-Kentucky-Indiana Council of Regional Governments, need to re-calculate the benefits and costs of highway expansion, said Sierra Club's Brand. "We are calling for a balanced transportation program that spends as much on travel choices such as clean buses and light rail trains as on building new sprawl-and-congestion-causing highways."

Haynes Goddard, Professor of Economics at the University of Cincinnati with expertise in transportation economics, said that "this study is a careful statistical analysis of the perverse effects of insufficiently considered highway investments, and how they can make our region a less desirable place to live. It makes it clear that putting all of our proverbial transport eggs in the highway basket reduces the economic vitality of our region".

One study in Oregon showed that by planning development so that people have easy access to commuter trains and other public transportation choice, traffic for new development can be reduced from 10 car trips per day to 6 trips per day.

"If people are tired of being stuck in sprawl mall traffic, we need to promote smarter planning and increase travel choices, not just build more highways," said Brett Hulsey, coordinator of the Sierra Club Challenge to Sprawl Campaign. "More roads lead to more traffic like bigger pants tend to lead to more weight gain. We

need to change our philosophy to reduce, not increase sprawl and traffic."

The Sierra Club is calling on state and local leaders to spend at least half of their transportation money on safety improvements to existing streets and roads, and for public transportation alternatives, and promote traffic impact analysis on new sprawl development, and good planning measures to minimize traffic.

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SURFACE TRANSPORTATION POLICY PROJECT - STPP California

The Link Between Traffic Congestion and Sprawl

One of the more important realities in California's decision-making processes is that the decisions regarding how and where to grow, and the equally important choices in terms of how to provide mobility and access to relevant destinations, are made separately. While land use authority has historically been a hot button issue in the United States, the separation between local land use decisions and regional and statewide transportation planning decisions has been one of the greatest barriers to successfully managing traffic demand in conjunction with sustainable commercial and residential growth. As a 1998 LAO report on transportation describes:

"Transportation demand is also influenced by local land use decisions that determine the locations of new housing and jobs, and which in turn determine whether communities will be compact and densely populated or sprawling and sparsely populated. Land use in many of California's communities is defined by lower-density development and ever-expanding urban boundaries that make pedestrian, bicycle and transit travel impractical, and that increase trip length and VMT (vehicle miles traveled). Coordinating land use and transportation policies is made more difficult because many large urban areas include several city and county jurisdictions, and land use decisions of one jurisdiction can impact traffic in other jurisdictions."

Suburban sprawl has tremendous implications for how and even if California can indeed handle its projected population increases and housing, jobs, and transportation needs in the next forty years. The amount of land consumed - much of it in the form of productive farmland or valuable open space - as well as physical infrastructure that current growth patterns require per capita comes at a tremendous cost both economically as well as environmentally.

Consider the experience of Los Angeles, where between 1970 and 1990 the population grew 45 percent but the developed land area grew 300 percent. If these types of development trends continue, in the next twenty years, areas like the Central Valley will lose much of its productive farmland and yet experience levels of traffic congestion similar to those faced by Los Angeles commuters today. The American Farmland Trust in a recent study found that the current model of growth and development for the Central Valley threatens to consume a million acres of prime farmland by 2040, reducing farm and ranch profits by $5 billion annually and requiring such massive amounts of new transportation and other public infrastructure that it will run city and county budgets into a $1 billion deficit.

California is truly at a crossroads in deciding not only how we're going to grow, but just as importantly how we're going to pay for that growth. The type of transportation investments and policies that the state pursues will likely be a critical component in shaping that growth, and will significantly impact what our communities and our quality of life will be like in future decades. While there are many uncertainties in this equation, one thing appears definite: we must dramatically change our planning and decision-making frameworks at the state, regional, and local levels, or we may indeed be doomed to failure. There may well be a strong case for increased funding for transportation statewide, particularly for congestion management, public transit and local street and road maintenance projects. But if that's all we accomplish - spending more money on transportation - we'll have slapped an even higher price tag on a system that won't address the core issues and needs of California's communities because it will have once again treated only the symptoms and ignored the larger root causes of the problem.

The rate of land consumption in California has actually outpaced the growth in population by a factor of five to one or more since the 1960s. This trend alone is closely linked with the similar exponential increase in the growth in driving. Source: United States Geological Survey (USGS).

TRANSPORTATION

Impact 9.2.1: Increase in Roadway LOS Deficiencies. LTS. By what extraordinary reasoning process has this been judged LTS? Has the County redefined Level of Service? Table 7-2, page 7-15, Revised Baseline Report, July 1991, does not have the same definition as is given at the bottom of Table III-2 (SDEIR, p. III-27). The previous definitions have been used consistently in development of all General Plan documents heretofore; why are they being changed now? What are the LOS values based on the previous definition for the road segments in Table III-2? How is "capacity" now defined?

For a typical 24-foot-wide road:

OLD SCALE	VOLUME*	V/C	"NEW" SCALE
LOS A	<1,026	0.063	A
B	<2,644	0.163	A
C	<4,870	0.30	A
D	<7,305	0.45	A
E	<16,247	1.0	E Capacity

* maximum daily traffic volumes

Therefore, the "new" definition used in the SDEIR makes roads in the County look better than they really are. The old methodology, developed in the County's *Draft Interim Circulation Element* (1989), has been used in all calculations, reports, and general plan documents from that time up to now. It is based on carefully weighed assumptions and prevailing standard procedures used in the United States for the analysis of highway capacity and level of service for most types of facilities and is contained in the 1985 *Highway Capacity Manual*.

The above comparison assumes that the "capacity" of the roadway was comparable to the maximum Average Daily Traffic Volume for the traditional LOS E. However, as the definition of LOS seems to have changed (?) drastically in the SDEIR, that assumption is probably not valid either. No definitions are given in the SDEIR for LOS E or LOS F. What are those definitions? If changed from previous documents, why were they changed?

Listed below are various TSM techniques aimed at improving the efficiency of circulation on highway and transit systems by improving flow, reducing congestion, and increasing the carrying capacity of existing facilities. Caltrans has divided these techniques into seven categories containing particular measures which may be applied to specific TSM cases.

- **Programs to Improve Traffic Flow**
  - Signalization
  - Traffic signal synchronization
  - One-way streets
  - Changeable message signs
  - Computerized traffic systems
  - Integrated single-system traffic operations systems
  - Reversible lanes
  - Ramp meters
  - Intersection widening
- **Preferential Treatment for Transit and Other High Occupancy Vehicle (HOV) Strategies**
  - Exclusive Highway Bus or Bus/Carpool Lanes
  - Contra-flow HOV Lanes
  - Reserved Lanes or Dedicated Streets for Buses/HOV
  - Bus Turnouts
  - Bus Actuated Signals
  - Ramp meter bypass lanes for HOVs
- **Provision for Pedestrians/Bicycles/Handicapped**
  - Bicycle Lanes/Paths
  - Bicycle Storage
  - Pedestrian/Transit Malls
  - Pedestrian Signals
  - Bicycle Actuated Signals
  - Bicycle/Transit Integration
  - Weather and theft resistant bicycle parking facilities at employment sites, shopping areas, etc.
  - Shower and locker facilities at places of employment for bicycling employees
  - Handicapped Access Improvements
- **Management/Control of Parking**
  - On-Street parking controls
  - Increased parking fees
  - Park and ride facilities
  - Preferential parking for carpools/vanpools
  - Residential permit parking
  - Removal of on-street parking
  - Stricter enforcement of on-street parking codes
  - Graduated parking fees with higher fees for single occupant vehicles
  - Metered on-street parking
- **Changes in Work Schedules, Fares and Tolls**
  - Work hour management (compressed work week, flexible work hours)
  - Transit/HOV bypass at toll plazas
  - Bus fare restructuring/subsidies
  - Peak period truck restrictions
  - Telecommuting
- **Actions to Reduce Motor Vehicle Use in Congested Areas**
  - Carpool/vanpool matching program
  - Carpool public information
  - Carpool/vanpool incentives
  - Neighborhood ridesharing
  - Driver advisory
  - Highway surveillance
  - Subsidized rideshare vehicles
  - Guaranteed ride home for carpoolers, transit riders, etc.
  - Work location alternatives
  - Transportation management associations
  - Inter-city urban commuter rail
- **Improved Public Transit**
  - Feeder services improvements
  - Demand responsive system
  - Shelters and other passenger amenities
  - Rehabilitated/expanded bus fleet
  - Passenger information system improvements
  - Transit marketing

allowed. For references on Proposition 218's requirements, see the list following benefit assessments.

- Taxes are either general or special taxes. A *general tax*, such as the ad valorem property tax (which is capped at one percent of assessed valuation by Proposition 13), utility tax, or a hotel tax, is collected and placed in the city or county general fund. It is not dedicated to any specific purpose. A general tax can only be imposed if approved by a simple majority of the voters within the jurisdiction. General taxes are usually imposed to pay for capital improvements or

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PUBLIC TRANSIT

Express Buses: A Low Cost Cure for Congestion

Imagine boarding an express bus just a short walk from your home. Your monthly pass eliminates the need to carry exact change. As you settle into your comfortable reclining seat, with a power port to plug in a laptop computer, a reading light, and overhead storage bins, the bus reminds you of an airplane cabin - except it's not cramped like today's aircraft. With traffic lights that stay green for buses and a bus/carpool lane on the highway to cruise past solo drivers, the bus whisks you quickly to your workplace. You arrive on-time and ready to start your day, happy that your days of battling traffic are over.

An express bus system can often serve as a very cost-effective transit option for many metropolitan regions of the country. In addition, although they are often perceived by the public as poor substitutes for trains, buses with a slew of amenities would more closely resemble airplane cabins, except they would be more spacious than today's jets.

Particularly in more dispersed suburban areas, express buses are sometimes faster, less expensive, available sooner, and can carry many more people than new rail extensions. Express buses are already in use in some regions of the country and are so successful they are covering all of their operating costs.

Express buses or vans are becoming more and more attractive as metropolitan areas complete HOV networks now. However, there are still often key gaps in regional bus/carpool lane systems that would force buses to inch along with all other traffic. This problem can be overcome by strategically converting existing regular "mixed

flow" to HOV lanes (during peak hours) rather than adding expensive new lanes. Conversions should be done on highways that already have at least eight lanes. This would provide the region with an integrated express bus web at extremely low costs.

The Benefits Of Regional "Express Bus Webs"

- Low capital costs save taxpayer dollars. Unlike building new highways or rail lines, which entail huge sums, these buses make use of existing infrastructure.
- Use it sooner. Rail extensions and highway projects typically take ten to twenty years to move from concept to final product. The bus web could be operational within six months, as the only required elements are new signs, new buses and the re-striping of existing highway lanes.
- Travel faster. By using bus/carpool lanes, buses can move along unimpeded by traffic congestion, while simultaneously reducing highway congestion for drivers in the remaining mixed-flow lanes.
- Modular. The bus web can be created in stages and put into place in the most congested areas first to get the maximum payoff.
- Adaptable. Routes can be reconfigured as needs change over time. Vehicle size can be adjusted to demand, increasing from vans and mini-buses to full-size or even articulated buses as demand along a route increases. This ability to match demand keeps operating costs low.
- More people can walk to the bus. Buses, unlike rail, get close to where people live. This proximity decreases the need for short, "cold-start" car trips, which are the most polluting. And because people can walk to them, buses donÕt require large parking lots.

Adapted from the Bay Area Transportation and Land Use Coalition's "World Class Transit." For more information about express projects in the San Francisco Bay Area, visit www.transcoalition.org

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AR 13713

Hybrid transit faster than bus, cheaper than rail

By Matthew Barrows
BEE STAFF WRITER

It's not light rail, it's *like* rail.

This according to Graham Carey, who arrived last week at an Arden area Sunday school classroom to sing the praises of something called bus rapid transit, or BRT.

Carey, who works for a Eugene, Ore., transit agency, told a crowd of interested residents and area transit officials that public transit districts for years have been limited to two options: the plodding, box-shaped bus or the budget-busting light-rail line.

BRT is a little of both.

While buses are the main component, BRTs zip past traffic because, like light rail, they have their own right of way.

They don't have meandering routes. They don't stop every two blocks. They have stations, not stops. And they have the ability to turn red lights green.

With sleek designs, low-pollution motors, entrances on both sides and low floors for speedier boarding, the vehicles even look like trains.

But the real attraction for transit officials is that BRT systems can be built without the sticker shock of a light-rail project.

According to the U.S. Government Accounting Office, bus rapid transit lines cost an average of $13.5 million to build, while light-rail lines average $34.8 million *per mile*.

Carey's Lane Transit District is building a system from downtown Eugene to downtown Springfield.

Los Angeles has 120 bright-red "Metro Rapid" buses that have their own lanes, get green lights wherever they go and stop once a mile, not once a block.

In the East Bay, AC Transit officials want to build an 18-mile BRT system to connect Berkeley, Oakland and San Leandro. Santa Clara has a BRT, as does Charlotte, N.C. And they're everywhere in Canada and Europe.

So what about Sacramento?

A Capital City BRT – or at least elements of one – is a strong possibility.

In the next 10 years, the Sacramento Regional Transit District envisions rapid bus technology on three routes: Stockton Boulevard, Watt Avenue and Sunrise Boulevard.

A study due in March will concentrate on Stockton Boulevard – which already has some of the highest bus ridership numbers in the RT system – to see whether exclusive busways, bus stations and automatic fares are feasible.

And on Watt Avenue, a traffic signal preemption project is scheduled to start running between Arden Way and Marconi Avenue this summer.

Have you ever dreamed of having traffic signals turn green as soon as your car reaches an intersection?

That's the concept behind the experimental system on Watt: Sensors at about 10 major intersections will pick up a signal from an approaching RT bus and give it the go-ahead.

"It basically manipulates the green times to allow the bus a broader green band," Sacramento County Transportation Director Tom Zlotkowski said.

But transit officials warn that rapid buses and the gizmos that come with them are not panaceas for the region's traffic woes.

Zlotkowski said it may be difficult to sell a BRT system to the public if it requires taking a lane away from a road already packed with vehicle traffic.

And Carey said signal preemption devices like the one planned for Watt Avenue tend to get foiled by heavy traffic. Even if a bus has a green light, he said, it won't budge if there are a hundred cars and trucks in front of it.

In other words, the light may be green, but passengers still will be seeing red.

Back-seat driver



A weekly column about transportation issues in the region

AR 13714

5.5 Water Resources

"How is it that water, which is so very useful that life is impossible without it, has such a low price—while diamonds, which are quite unnecessary, have such a high price?"
—The Wealth of Nations, Adam Smith

"Only by managing water demand, rather than ceaselessly striving to meet it, is there hope for a truly secure and sustainable water future."
—Conserving Water: The Untapped Alternative, Sandra Postel. Worldwatch Institute, Sep1985.

SURFACE WATER AND GROUNDWATER RESOURCES

281-111

• Please refer to our scoping comments, incorporated herein by reference, p. 25, under Surface Water Resources, for questions therein that remain unanswered.

Surface water supplies are provided in the County by three purveyors, the El Dorado Irrigation District (by far the largest), the Georgetown Divide Public Utility District (GDPUD), and the Grizzly Flat Community Services District (GFCSD) (p. 5.5-1). Their service areas are mapped at p. 5.5-13. When their service is not available, groundwater must be relied upon, either from private wells or from small local water systems drawing water from wells and springs. The El Dorado County Water Agency (p. 5.5-10) is responsible for water planning for the entire County.

Streams supplying surface water supplies to the purveyors are , for EID, the South Fork American (storage in Caples , Silver, and Aloha Lakes), Echo Lakes in the Lake Tahoe watershed, Weber Reservoir, and the Cosumnes River watershed (Jenkinson Lake and Crawford Ditch); for GDPUD, the Middle Fork American (Stumpy Meadows Reservoir); and for Grizzly Flats CSD, Its watershed being at a relative low elevation, the Cosumnes River and Jenkinson Lake depend mainly on rainfall, not snow melt.

El Dorado County has only small, scattered alluvial deposits in which groundwater is stored; primarily surface deposits are underlain at shallow depths by bedrock with limited and poorly predictable water stored in fracture systems. Recharge of water so stored generally occurs locally. As the fractures tend to diminish with depth, yield also tends to diminish with depth of the well. Long-term well yield is hard to anticipate; yield testing following digging a well is too short-term to give reliable long-term forecasts.

281-112

California's water law is a complex mix of riparian (water flowing in a stream adjoining the property) and appropriative (water diverted for nonriparian use) rights. Water rights are administered by the State Water Resources Control Board (SWRCB), though pre-1914 rights have precedence over later rights.

Most developed water in the state is used by agriculture. Water supply and its adequacy and reliability have increasingly become a focus of legislative attention in the state as the population has boomed and large residential development projects have been undertaken. Senate Bills 901 (effective in 1995), 610 (effective in 2002) and 221 (also effective in 2002) have made increasingly stringent requirements for verifying adequate water supply for development projects (p. 5.5-9).

The Local Agency Formation Commission (LAFCO) regulates local-agency boundary changes, such as annexations to water purveyors' service districts. The County's Environmental Management Department, Environmental Health Division, regulates well drilling and enforces the Well Standards Ordinance (p. 5.5-11).

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EID is described beginning on p. 5.5-11 and GDPUD and Grizzly Flats CSD on p. 5.5-12. Their service boundaries and spheres of influence are depicted in Exhibit 5.5-2 (p. 5.5-13). EID operates both water and wastewater treatment plants, delivers both treated and untreated water for agriculture, and reclaimed water for landscape irrigation in a small portion of its service area(p. 5.5-18). It will soon also be generating electricity by means of Project 184, a small hydropower system purchased a few years ago from PG&E and being repaired ever since the New Year's Day Flood of 1997. EID also wholesales water to the City of Placerville. 281-112

• **EID serves about 97,000 people, not the 87,000 stated here—perhaps a typo?** 281-113

GDPUD only delivers water, both raw (for agriculture) and treated. It operates no wastewater treatment plants, though it does oversee a community septic system (Auburn Lake Trails). GFCSD treats and distributes drinking water. 281-114

Several State agencies oversee water use: the SWRCB, already mentioned in connection with water rights, also issues water-quality certifications and, with nine Regional Water Quality Control Boards (the Central Valley RWQCB for the western slope of El Dorado County and the Lahontan RWQCB for the Tahoe Basin) , enforces pollution control standards. The California Department of Fish and Game issues lake and streambed alteration permits; reviews water-rights applications in line with its duty to protect fish, wildlife, and instream resources; and sets minimum bypass flows from impoundments. CDFG also, with the federal Fish and Wildlife Service, enforces the Endangered Species Acts (see p. 5.5-15).

Federal agencies involved in water supply issues include the aforementioned Fish and Wildlife Service, the Bureau of Reclamation (which operates Folsom Lake and which built EID's Jenkinson Lake (soon to be transferred to the ownership of EID, which has operated it since its construction)), the Federal Energy Regulatory Commission (which oversees the operation of hydroelectric generating facilities), the Army Corps of Engineers (which regulates placement of fill or discharge of material into "waters of the United States" and also bears flood-control responsibilities), and the Geological Survey (which accumulates water-use information) (see pp. 5.5-16 to -17). 281-115

An anticipated new supply of water authorized under the Central Valley Project Improvement Act several years ago is the so-called "Fazio water" in the amount of 15,000 acre-feet awarded to the El Dorado County Water Agency and anticipated to be shared by EID and GDPUD (p. 5.5-18).

• **Please correct the erroneous implications here in the DEIR. PL 101-514 (b)(1)(B) [not (c)(1) as the DEIR states] authorizes a "municipal and industrial water supply contract with the El Dorado County Water Agency" in an amount not to exceed 15,000 acre-feet annually, for diversion from Folsom Lake or for exchange upstream on the American River or its tributaries...." It says nothing about a 50:50 split between EID and GDPUD; indeed, it doesn't mention the two purveyors. (See References for the pertinent text of PL 101-514.)**

• It is our understanding that the proposed 50:50 split is based upon an agreement between EID and GDPUD to split the paperwork costs **associated with obtaining this water in that ratio. The FEIR should analyze how rational it is for the water to be split on that basis. The Georgetown Divide is not the area of the County undergoing rapid growth. What is GDPUD's present need for more water? What is its expectation for growth?** 281-116

• **Also, it is our understanding that the EIS is essentially finished and merely awaiting adoption of a general plan by the County to be issued, yet this paragraph says that it "has been put on hold".** 281-117

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• We have also understood that a factor in consummating this water contract was satisfactory resolution on the part of the County of a means to arrest deterioration of the status of the gabbro-soil rare plants under the Endangered Species Act. Thus appropriate provisions in an adopted general plan would be required. Please address this in the FEIR, and discuss how the fact that the Gabbro-Soil Plant Preserve is not yet as large as U.S, Fish and Wildlife Service's recovery plan calls for might influence availability of the Fazio water. 281-118

• The allusion to water planners needing to ascertain whether this project remains a preferred option is curious. Please clarify what is meant. 281-119

Next, the DEIR discusses Project 184, EID's hydropower generating facility currently in the relicensing process and late stages of repair so as to resume operation. Again there is some curiously vague wording pertaining to potential use of the 17,000 afa water rights that are the subject of Decision 1635 and Water Rights Order 2001-22 by the SWRCB. As the DEIR notes (p. 5.5-19), certain aspects of these decisions have been challenged by various parties and are awaiting a ruling by the court. In addition, the 1999 EIR has been challenged. Relicensing of Project 184 is also in process. The Collaborative process referred to on p. 5.5-20 concluded with a Settlement Agreement among most of the participants, signed on April 28. 281-120

• The DEIR is in error in implying that the Forest Service's 4(e) conditions are something FERC may or may not include in license conditions. By law, they are mandatory, and they were part of the Settlement Agreement that EID signed. Further review will occur under the National Environmental Policy Act, however. FERC has issued its EIS and the comment period on it has closed.

EID:

The DEIR next considers water supplies available to the west slope purveyors in relation to present and anticipated demand, beginning with EID (p. 5.5-21). The results appear in Table 5.5-2 (p. 5.5-142). But these figures do not include water from reconstructed Weber Dam, from rediversion of ditch waters (gradually being converted to piped water with intent of having these waters flow down the natural creeks into the South Fork and eventually into Folsom Lake, where they would then be taken to augment supplies available from that source), from the so-called Fazio water (PL 101-514). These amounts are all reasonably certain. The additional 17,000 afa from D-1635 as modified by WR 2001-22 is being challenged, so is somewhat uncertain. 281-121

• At least the first three amounts should be incorporated into this table, with the fourth at least acknowledged. This would also change the figures in Table 5.5-1.

EID's service area is split into three districts, from west to east: El Dorado Hills, Western Region, and Eastern Region. Average water use declines going east. This is probably the case, in part, because of declining landscaping. 281-122

• What is the value of an EDU (equivalent dwelling unit) in the El Dorado Hills region, the Western region, and the Eastern region? How have these values changed over time through periods of drought and diminished use and into the recent era of "monster" house building? Please state how these numbers are calculated including how the methodology has changed over time, if it has. Give the numbers for the last 15 years.

• How many unserved parcels exist in the El Dorado Hills region east as far as reasonable uphill pumping costs would allow for delivery from Folsom Lake? 281-123

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• Applying the appropriate EDU to this figure, how much water would be needed to serve all these parcels?

281-123

Total agricultural deliveries by EID were 5,950 af in 2000. EID generally turns ditch water on for agricultural customers once a season and off once a season. It finds that ditch customers would rather let water they can't use merely flow through unused than pay the $20 charge for a ditch tender to come to turn the water off, only to later want it turned back on again.

281-124

• What portion of these deliveries was treated water and what portion was untreated water?

• Please have EID provide an estimate of how much water is not put to beneficial use because of reluctance of ditch customers to pay to turn water off for a short time and then back on. Use acre-feet for ease of comparison, not miner's inches.

281-125

• What ditches are now still delivering water to customers? Which have been abandoned as customers have been converted to piped water? How much water is delivered to customers by each of the latter and how much is diverted at the source? What are the estimated losses for each of these ditches?

281-126

• What is EID's estimated time for completion of conversion of all ditch customers to piped water? What is its estimated time for conclusion of paperwork associated with the change in point of diversion?

281-127

• Please analyze the possible effects on plant/animal communities that may have become dependent upon water available from ditches or leaks therefrom if all ditches are converted to piped water, and formerly diverted water is returned to normal creekbeds to flow into the South Fork and eventually into Folsom Lake.

281-128

When prolonged drought or other factors reduce water supply adequacy, EID has policy language to invoke voluntary or mandatory conservation levels up to as much as a 30% cutback in usage (p. 5.5-22)

EID produces recycled water (p. 5.5-22) at both the Deer Creek and El Dorado Hills Wastewater Treatment Plants. This water is used in the El Dorado Hills service area for residential landscaping (some houses are dual-plumbed) and public landscaping, as well as for golf course irrigation and some industrial application (cooling water at a lumber mill). In 2000, 1,671 af were delivered for these purposes. This use is expected to increase with continuing building activity.

281-129

• Although this water can reduce demand for potable water that would otherwise be used for these purposes, it is not truly a "supply" and should not be added to the amount shown in Table 5.5-2 as the DEIR suggests. Its availability is less in times of water shortages because less "used" water is available to treat for reuse.

Availability of recycled water is estimated at ca. 3000 afa by 2010. Treatment capacity is now adequate to produce ca. 4,900 af in a dry year, 5,400 af in a normal year, and 5,900 af in a wet year, depending upon availability of "used" water. This figure could be upped with expansion of both treatment and distribution facilities.

281-130

• Please give the amount of treated effluent EID is currently discharging into Deer Creek.

EID also has had an active water conservation program for a number of years (p. 5.5-25),

281-131

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offering rebates for replacement of toilets with ones of lower usage, assistance with scheduling agricultural use for maximum efficiency, water audits, and other programs. All water is metered.

281-131

GDPUD:

The discussion of GDPUD begins on p. 5.5-25. This purveyor serves ca. 10,000 people. In 2001, there were 3,215 residential and commercial customers and 377 irrigation accounts. Total demand was 10,914 af. Latent demand (unserved or with inactive meters) amounted to 1,504 parcels. GDPUD's demand figures from its report for 2001 are shown in Table 5.5-3 (p. 5.5-142). Agricultural demand was for 4,351 af in 2000 per Table 5.5-7 (p. 5.5-144).

281-132

• Please provide equivalent figures for GDPUD through 2002. Is all agricultural water untreated? If not, please break down the agricultural usage by treated and untreated amounts.

GDPUD's water source is Stumpy Meadows Reservoir on Pilot Creek (and by diversion from Onion Creek) in the Middle Fork American River watershed. Its capacity is 20,000 af; the firm yield is 12,200 af. The firm-yield criteria differ from EID's, however; it is the yield "that its system can reliably deliver in 95 out of 100 years, while incurring shortages of no more than 10% annually for domestic service and 50% for untreated water in 5 out of 100 years".

281-133

GDPUD lacks a drought-contingency plan but in a critically-dry year would expect to provide 50% less water to agricultural users. It does not have a formal water conservation plan but does encourage xeriscaping and water-conserving irrigation techniques. Construction within its service district must, as elsewhere, conform to code requirements calling for water-conserving plumbing fixtures.

281-134

• Please describe the program(s) by means of which GDPUD encourages xeriscaping and other water-conservation measures. Does it have any program to assist agricultural customers in efficient irrigation techniques? If so, please describe.

GFCSD:

Supplies for this small district come from tributaries to the North Fork Cosumnes River under pre-1914 rights and are conveyed by Eagle Ditch to a reservoir and water treatment plant for distribution to an unnamed number of customers . The net safe yield—defined as "the available water supply during the most critical hydrological season of the historical period of analysis"--- is calculated at 144 afa. In 1999-2000, demand was for 157 af (p. 5.5-30). In addition, up to 3 afa are diverted from Grizzly Creek into Porters Pond for fire suppression purposes.

281-135

GFCSD operates no sewage treatment plant and has no drought contingency plans, but would expect to apply a moratorium on building and limits on outdoor watering in event of a drought.

281-136

OTHER:

There are a number of small community or private water systems on the west slope serving ca. 3,700 connections and drawing water primarily from wells or springs.

281-137

• Who oversees the operation and safety of these systems? Have there ever been any

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complaints or problems? How have they been responded to?

• How are the numbers of these systems expected to change with growth in the County?
• Please develop an estimate of how much water is now supplied by such systems and assess of this figure is expected to change under each of the general plan alternatives.

281-137

Impact 5.5-1: Increased Water Demand and Likelihood of Surface Water Shortages Resulting from Expected Development (p. 5.5-31).

• While we agree with application of all policies intended to conserve water, we think the entire discussion following this impact needs to be revised in light of our prior comments upon the supply figures presented in Table 5.5-2. The shortages projected without inclusion of these additional supplies are erroneous.

281-138

• In the jurisdictional part of El Dorado County, how much water is used by agriculture (broken down into raw water and potable water), how much by residences (broken down into potable and recycled), and how much by commercial/industrial (broken down into potable and recycled)? Please give in both acre-feet and percentages of the total.

281-139

• What are the principal irrigated crops and how much water do they use, by crop, per year? We are interested in grapes (broken out) in particular because the number of vineyards has been expanding. They are lumped with several other crops in the DEIR.

281-140

Recent statements have appeared in the press that future water needs for agriculture in the County would amount to a160,000 acre-feet.

• Please in the FEIR examine this assertion relative to the amount of agricultural land available and the water needs of the principal crops (fruit and nut crops, vineyards) and assess its reasonableness.

281-141

• Economic conditions are currently such that vineyards are overplanted and the economic return has dropped drastically. Please reevaluate the projected rates of expansion of vineyard acreage in light of this information and break out their effect on water demand.

281-142

Please see earlier questions about the details of PL 101-514. We questioned whether this law mandated a 50:50 split of the 15,000 afa between EID and GDPUD (it does not). Rather, it assigns the full 15,000 to the El Dorado County Water Agency, which, in turn, would divide the amount. It has been our understanding, as we said, that a proposed 50:50 split is an outgrowth of the agreed-upon split between EID and GDPUD relative to supporting the paperwork (DEIS) needed to complete the deal.

281-143

• As we believe that GDPUD is unlikely to be able to use an additional 7500 afa, please analyze this in the FEIR. How would GDPUD access its share, whatever it turns out to be?

281-144

Proposed mitigation measures are:

MM 5.5-1(a) (p. 5.5-46), which would extend review for adequacy of supply to ministerial projects. We support this.

MM 5.5-1(b) (p. 5.5-46) is adapted from provisions in recent state legislation but goes a bit beyond them. The Kuehl bill requires copies of an adopted capital outlay program for financing the

281-145

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delivery of said water supply; securing of applicable federal, state, and local permits for construction of necessary infrastructure for delivery of said water supply; and any necessary regulatory approvals. MM 5.5-1(b), however, requires that the water be "physically available" prior to granting approval of a development proposal. Though well-intentioned, we think this may have some undesirable implications. Not all development proposals go forward as planned.

281-145

MM 5.5-1(c) (p. 5.5-47) supports conservation of water and reclamation of wastewater, both of which we support. Presumably this would affect mostly those areas of the County outside service areas of purveyors that have such programs already. There is, however, no need for concern that the license-renewal process for Project 184 will affect water supplies for consumptive use, as the DEIR states (p. 5.5-48).

281-146

• This statement should be corrected. Municipal and industrial uses have priority over other uses. It is power generation that would be cut back.

‡ We made several suggestions for mitigation directed at water conservation in our scoping comments, p. 31, which see. These include dual plumbing such that household "gray water" could be used for landscape irrigation. This would be available in areas unable to avail themselves of EID's reclaimed water supplies.

281-147

Impact 5.5-2: Potential Environmental Impacts Associated with Development of New Surface Water Supplies and Related Infrastructure, p. 5.5-50.

281-148

• The premise of this impact and the following discussion should be reexamined in light of our prior comments upon Table 5.5-2 and about apportionment of water available under PL 101-514.

• Discussion of Project 184 (pp. 5.5-53 ff.) should be corrected in light of our earlier comments on applicability of 4(e) conditions and the conclusion of the Collaborative process with a signed Settlement Agreement. Table 5.5-9 is outdated.

281-149

Impact 5.5-3: Increase in Groundwater Demand and Related Impacts (p. 5.5-61).

> *"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.
>
> *"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

281-150

• Please see our comments on groundwater, p. 31 ff., in our scoping comments, incorporated herein by reference, for numerous unanswered questions.

The DEIR discusses the general nature of groundwater in fractured-rock geology on pp. 5.5-62 ff. We dispute the accuracy of some of the statements there. Deepening wells does not necessarily increase production in fractured-rock geology. Cracks become fewer and tighter as depth increases until unfractured rock is encountered.

281-151

AR 13722

• An updated well ordinance was thought to be way overdue during evolution of the 1996 General Plan. It is now several more years overdue. See our scoping comments on p. 33. 281-152

• There are areas of the County where failing wells have resulted in a water purveyor's being asked to assume delivery of piped water. These areas should be mapped for inclusion in the FEIR. (Greensprings Ranch is one that has recently asked EID for annexation.) 281-153

• Placer County's general plan includes maps of where groundwater is deficient in either quantity or quality. The FEIR should do the same for El Dorado County. This factor has affected parcel size (e.g., 10 acres in the Latrobe area reflects the scarcity of water there). 281-154

• The DEIR appears not to recognize that the increasing amounts of impervious and poorly permeable surfaces associated with increasing development (rooftops, driveways, roads, even lawns)will affect groundwater recharge and hence its availability in addition to the "more straws into the glass" factor. This aspect should be analyzed. 281-155

‡ Mitigation would be to augment recharge of groundwater. Several ways to approach this would be to use porous paving materials (porous asphalt, porous concrete, pavers with holes, etc., depending upon the specific site), "rain gardens" —landscaping that keeps runoff on site to replenish groundwater, etc. (See References.) 281-156

MM 5.5-3 (p. 5.5-6), to Increase the Likelihood That Groundwater Supplies Are Conserved and Physically Available to Meet the Needs of Future Development by extending review as to adequacy to ministerial, as well as to discretionary applications, and would direct new development to areas where public water service exists. We support these measures. 281-157

Treatment of cumulative effects of increasing groundwater withdrawal is completely absent from the discussion of water resources in Chapter 7 (pp. 7-9 to 7-11). Why? More straws into the same supply (and more likely a diminishing supply because of the spread of impervious surfaces with development and the consequent reduction in infiltration) will eventually cause shortages for all those dependent upon this source. There also may be effects upon surface expression of water, and this may affect wildlife. 281-158

• Please remedy this lack in the FEIR.

WASTEWATER SYSTEMS P. 5.5-71 (includes OWTS: onsite wastewater treatment systems)

SEWAGE TREATMENT PLANTS

• Please refer to our scoping comments on sewage treatment, pp. 34-36, incorporated herein by reference, and respond to unanswered questions therein. 281-159

Only EID operates sewage treatment plants on the west slope (the City of Placerville also does, but it is nonjurisdictional). EID's primary plants are the Deer Creek and the El Dorado Hills Wastewater Treatment Plants (WWTP). Both of these produce reclaimed water to provide to customers. We don't believe tertiary treatment is yet installed at the Deer Creek plant, contrary to the DEIR. 281-160

• EID does, however, operate other small ones wastewater treatment facilities, including that at Camino Heights (disposal of treated water by spray irrigation), at Rancho Ponderosa (evaporation ponds), and at Gold Ridge Forest (leachfields). None of these is mentioned in the 281-161

AR 13723

DEIR. As the Camino Heights system was supposed to be over capacity for the size of the spray fields in 1994 (Background volume of 1996 General Plan), please in the FEIR discuss what is being done to expand its capacity in relation to anticipated growth in its service area.

281-161

Sludge remaining from the treatment process at EID's two main WWTPs is disposed of at Silva Farms, according to the DEIR (p. 5.5-75).

281-162

• Where is Silva Farms and what sort of operation is it?

• Please see our scoping comments, p. 36, re sewage sludge, where we said, "Some processing methods are less likely to remove or reduce pathogens than are others." The National Academies of Science National Research Council in 2002 released a study of EPA standards relative to use of sewage sludge on soil and concluded the science was outdated. (See NAS press release of 2 Jul 2002, References.) The inspector general of the EPA agreed (See References). Where do the EID WWTPs stand in this regard? Is its sludge Class A or Class B? Does it contain lead? What does analysis of its contents show?

281-163

• We further commented on the growing number of Central Valley counties that are banning disposal of sewage sludge on farmlands and asked what environmental concerns were causing this and what EID would do if it met such resistance or amounts grew so large that the present disposal site no longer could accommodate all the sludge. (See, e.g., References.) As of 2000, San Joaquin and Stanislaus counties had banned applying sewage sludge to land, Kings and Kern were allowing only "exceptional quality" sludge on their lands, Tulare had adopted such stringent permit requirements as to effectively ban new applications for such disposal, and a partial ban had been imposed in five counties of the Sacramento-San Joaquin Delta. How will growth, both in population and economic, affect the situation for EID? What thought is being given to the type of economic growth relative to the possible impacts upon the sewage system and treatment of sludge?

281-164

SEPTIC SYSTEMS

> *"[M]ore than half the systems in the United States were installed more than 30 years ago when onsite rules were nonexistent or poorly enforced. Few systems receive proper maintenance because homeowners are either unaware of the need for maintenance or find it a distasteful task. In addition, most regulatory programs do not require homeowner accountability for system performance after installation."*
> —USEPA *Guidelines for Management of Onsite and Clustered (Decentralized) Wastewater Treatment Systems,* April 2003

> *"Development under the General Plans will probably be associated with some septic system failures on substandard existing parcels, which will lead to increased demands on existing WWTP capacity. ....Septic system failures have been documented in ... El Dorado County since at least 1970 due to the poor site quality of many soils. Almost all classified soils in ... El Dorado County... have been rated with a 'severe' soil limitation rating for standard conventional deep trench septic systems due to shallow depth to bedrock (less than 4 ft.), steep slopes (more than 9%), slow soil permeability, rock outcroppings, and/or high shrink-swell potential."*
> —*Human Settlement,* 1850-2040, Timothy P. Duane, Sierra Nevada Ecosystem Project Report, *v. II, p. 319. 1996.*

• Please see our scoping comments, incorporated herein by reference, on septic systems, p. 36 ff., and respond to unanswered questions therein.

281-165

AR 13724

We believe the County is lax in oversight and homeowners are lax in proper maintenance of septic systems. (See References: RWQCB Resolution No. 82-036 waiving jurisdiction over single-family septic systems (No. 23) where County enforces the Board's Guidelines; the Guidelines; letter dated 30 Aug 1996 to Environmental Management re the definition of "soil"; excerpts from photographs of field inspection, 9 Jul 2002, by RWQCB showing bedrock under one foot of soil and evidence of high water table, both relative to installation approved by the County.) In the case of homeowners, ignorance may play a sizable role. (A neighbor of the writer parks vehicles atop his leach field, and he is a contractor who should know better.)

281-166

The County's revised ordinance pertaining to septic systems does little to inspire confidence (refer to our scoping comments). **None of this bodes well for growth's relying upon these systems and it should be discussed in the DEIR.** Despite Mr. Morgan's comment quoted on p. 5.5-95, failing septic systems were the original cause for construction of EID's sewage collection system and WWTPs. (See also Timothy Duane's *Human Settlement* in the introductory quotation.

Wastewater generated outside of EID's collection area and the City of Placerville on the west slope is treated by septic systems, either individually sited or in small communal systems. The latter must be overseen by some responsible entity. For example, GDPUD operates a system serving ca. 150 homes (out of 1,100) for Auburn Lake Trails, under the oversight of the Regional Water Quality Control Board. Gold Ridge Forest is another such system, administered by EID.

281-167

• What other sizable private systems are there and who administers them?

The DEIR states (p. 5.5-77), "Individual property owners with OWTS [Onsite Wastewater Treatment Systems] pay the County a fee to use the [Union Mine Septage Treatment and Disposal Facility] once a year."

• As owner of such a system, the writer is unaware of any such provision. Few OWTS are pumped anywhere nearly that often— in fact, inadequate maintenance is a common reason for failure of such systems. It is our understanding that those service providers who pump septic tanks pay something like a tippage fee when discharging loads to the Union Mine Facility and that charge is no doubt reflected in what they charge the homeowner for pumping. Please correct this information.

281-168

• Duane said in the source cited at the beginning of this section that widespread septic system failures had not been well studied in the DEIR (he was referring to the DEIR for the 1996 General Plan but the statement is true for the current DEIR). Such a study should be used to formulate land-use designations in the proposed alternative plans. Explain how this sort of study was utilized in formulating land-use designations, if at all.

281-169

• The discussion of the Union Mine Facility on pp. 5.5-77 to -78 is somewhat confusing. Do we interpret it correctly that the treatment facility is to be expanded to ca. 30,000 gpd capacity within the next two years, that the spray field also will be expanded by two acres, but that the sludge (i.e., the solids remaining after liquids are disposed of by spraying) disposal site is of sufficient size, being the Union Mine Landfill? Nothing is said here or in the following section on the Regulatory/Planning Environment or the need for a revised Waste Discharge Requirement Permit from the Regional Water Quality Control Board if capacity is expanded. This omission should be corrected in both places and language clarified.

281-170

• The discussion of regulation of OWTS on p. 5.5-79 should be augmented with inclusion of the conditions under which the Regional Board delegates regulatory jurisdiction to the County for

281-171

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single-family residences. (See References.) (Note that this waiver is pending revised standards being developed by the State Water Resources Control Board.)

281-171

Impact 5.5-4: Increase in Wastewater Flows and Related Infrastructure Impacts (p. 5.5-79).

We agree with Mitigation Measure 5.5-4, to encourage mitigation of the environmental impacts related to future expansions in wastewater treatment capacity. **However, the large expansion in projected volume of discharges to OWTS and related potential for environmental consequences has been completely ignored! No mention is made of it in Chapter 7 under cumulative impacts.**

281-172

‡ This problem should be addressed with a much more vigorous oversight and enforcement program along the lines of those in the EPA Guidelines in the list of references. Please refer to our scoping comments. Homeowners should be accountable for proper operation and maintenance of their septic systems. The EPA Guidelines present five management models: The least stringent model calls for the regulatory authority to mail maintenance reminders to owners at appropriate intervals. We'd add a requirement that evidence be provided to the regulatory authority that the maintenance has been performed. With computers, we think this is feasible. Considering that nearly all El Dorado County soils have severe restrictions—and too thin topsoil—truly to meet RWQCB *Guidelines*, we think this sort of oversight is called for, especially as growth introduces more systems into the County.

281-173

Again, there is no discussion in Chapter 7 of the possible cumulative impacts of increase in use of septic systems in the county, though soil conditions are such that failure and pollution of ground and surface water could be expected.

281-174

- **Please remedy this lack in the FEIR.**

WATER QUALITY

281-175

Please refer to our scoping comments, incorporated by reference, p. 54 ff.

The DEIR says, p. 5.5-89, that "surface water quality on the west slope is generally very good". Though we have no reason to disbelieve this, nevertheless, relative to the 1996 General Plan, the County admitted that it had no systematic monitoring plan to verify such a statement. We have not heard of any such program's having been established since then, though we are aware of some programs operated out of schools as part of the science curriculum. We are aware of a private complaint alleging water quality issues at a specific site on the South Fork that were supposedly connected to the rafting industry. We also recall a complaint connected to activities of a lumber mill. And there is the contamination associated with the Hazel Creek Mine.

281-176

- **Please provide the source of data to support the quoted statement. Please also discuss the aforementioned instances of actual or alleged degradation of water quality.**

The DEIR next reviews certain sources that can contribute to degraded water quality, including sedimentation and pollutants associated with construction activities (p. 5.5-89); transport of various kinds of chemicals in agricultural tail water, as well as improper use and disposal of farm chemicals, together with agricultural practices that could contribute to sedimentation; wineries and their waste as a special component of agricultural practices; confined animals (though the numbers seem modest); urban runoff; discharges from sewage treatment plants; industrial activities; and

281-177

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recreational activities.

• To the forgoing list, we'd add domestic livestock such as horses. Auburn Lake Trails has recently received a Request for Corrective Action from the Regional Water Quality Control Board for, among other things, improper disposal of horse manure in a way that was "running downhill into the American River watershed". (See References; note that this letter refers to a number of situations over which the County has authority delegated from the Regional Board, but is apparently not exercising it.) A few years ago, the State Department of Health Services came down hard on EID for conditions in the vicinity of open, unlined reservoirs in which it had stored treated water for distribution to customers for 15 years! As we recall, one of the photographs accompanying the report was of a horse urinating on a slope that led down to such a pond.

281-177

• Describe the situation concerning agricultural-irrigation tail water in the County. Are there any places where such water enters a system leading to discharge into protected waters? If so, what regulatory enforcement is occurring?

281-178

• What is the situation relative to wineries and their waste?

281-179

The DEIR, p. 5.5-94, makes similarly unverified statements about the quality of groundwater in the County, though here it admits there is "no reliable database".

• What of the incidence of hard water in the County? Available chemicals in local grocery stores would indicate that it exists. It does so in Placer County and the areas of occurrence are mapped in its general plan. How does Placer County manage to do this and El Dorado County seemingly cannot?

281-180

The DEIR examines OWTS on p. 5.5-94.

• Please see our prior comments above regarding these. We very much doubt that many septic systems in the County meet RWQCB criteria for 5 feet of soil below leachfield trenches. Please discuss this with references to the descriptions of depth of soils given in the 1974 Soil Survey for Western El Dorado County. As noted there, and by Duane and others, most soils in the County have significant drawbacks for siting of leach fields.

281-181

• In view of the statements in the new EPA Guidelines (see References), the DEIR should attempt to quantify how many substandard septic systems now exist in the County and discuss ways of assuring they do not lead to contamination of either surface or groundwater.

281-182

Mr. Morgan is quoted as saying (p. 5.5-95) that failing septic systems are "not known to have significantly contaminated any water sources in the past". With all due respect to Mr. Morgan, as we have stated before, failing septic systems were the impetus for EID's construction of WWTPs. So what is meant by "significant"?

281-183

On p. 5.5-95, the DEIR discusses underground storage tanks. We believe there was a program under the RWQCB to remove all such leaking tanks and the contaminated soil by a date now past.

281-184

• Please clarify this in the FEIR.

The discussion of well water quality on pp. 5.5-95 to -96, where a "local water treatment system purveyor indicates that it performs more than 300 water tests each year with 90% of the tests

281-185

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exceeding secondary water quality standards for contaminants" seems at odds with the statement in the DEIR at the top of p. 5.5-94 that groundwater quality is "good to excellent".

• Please clarify.

281-185

The Clean Water Act is the basic regulatory device protecting water quality. Construction sites greater than 5 acres are governed by a General NPDES permit, and must have a Storm Water Pollution Prevention Plan identifying the Best Management Practices to be implemented relative to stormwater runoff. Beginning March 10, 2003, when the County sent its Tentative Storm Water Management Plan for the west slope to the RWQCB, construction sites of 1 to 5 acres also must have an NPDES permit. Per the description in the DEIR (p. 5.5-98), application of the plan is triggered by the need for a "grading, building, or other development permits" from the County.

• This means that when grading is less than 250 cu yds (when no permit is needed), this program is not instituted. Please present an estimate of how many instances of grading are thus unregulated. Ministerial projects appear to be exempt because grading seldom reaches that volume. (See References for the text of the *County Design and Improvement Standards Manual* governing who needs a grading permit for a single-family residence.) Please analyze the implications of this for water quality.

281-186

The DEIR on p. 5.5-99 discusses Section 303(d) of the Clean Water Act relating to impaired water bodies and says none is in El Dorado County.

• Lake Tahoe is on the SWRCB's list of impaired water bodies adopted in February 2003 and is in part in El Dorado County. Please correct the DEIR. Please also discuss pollution connected with the Hazel Creek mine.

281-187

Section 404 of the Clean Water Act is administered by the Army Corps of Engineers and governs discharge of material into "waters of the United States", including wetlands. Section 401 requires certification by the state that the activity complies with all applicable water quality standards and is administered through the SWRCB. (See References for the letter to Auburn Lake Trails, where fill was improperly placed in a wetland.)

281-188

On p. 5.5-101, the State Antidegradation Policy is described, as well as a 1992 resolution adopted by the State Water Resources Control Board concerning cleanup of contaminated sites.

• Please state what is taking place concerning remediation of the Hazel Creek Mine site. Will this be affected by the El Dorado Irrigation District's wish to make the Hazel Creek tunnel operative again to transport water to Jenkinson Lake/Sly Park Water Treatment Plant?

281-189

• The conditional waiver for agricultural discharges described on p. 5.5-102 was very controversial and has been challenged by a lawsuit. This section of the DEIR needs amp;ification.

281-190

A number of possible sources of pollution are regulated at the County level through waivers by the Regional Water Quality Control Board. The County's Grading, Erosion, and Sediment Control Ordinance applies to grading at the threshold of 250 cu yd or cuts and fills greater than 5 vertical feet in depth or that meet other criteria (p. 5.5-104). More stringent criteria apply in the Lake Tahoe Basin. Subdivisions are reviewed in separate procedures, and public agencies are exempted from the requirement for a permit but are otherwise expected to obey law and regulations. This ordinance, however, does *not* apply to single family residence construction "unless exceeding prescriptive standards as defined in the County of El Dorado's 'Design and Improvement Standards Manual'."

281-191

(County Code Section 15.14.030; the standards in the Design and Improvement Standards Manual are set forth on p. 46a.)

• This ordinance potentially exempts a great number of small grading projects from any review. Please refer to our prior comments herein and our scoping comments, bottom of p. 57 under Conservation and Open Space, and evaluate the merits of a lower threshold for the County. In the Tahoe Basin, it is 3 cu yd. We have recently observed cases where County oversight was lax and considerable pollution of local streams draining into the South Fork American River occurred before the Regional Water Quality Control Board intervened. But it shouldn't have had to. (Moreover, the 250 cu yd threshold is simply untenable for asbestos-containing substrates. See comments in the Human Health and Safety section.)

281-191

The DEIR next discusses regulations governing Onsite Wastewater Treatment Systems (OWTS). Please see our prior comments earlier in this section and under Wastewater. (It is unfortunate and confusing that treatments of the same topic jump around so much in this DEIR!) The RWQCB's Waiver 82-036 (see References) delegates approval authority to the County provided the County uses Board *Guidelines*. (See References.) We are told here (p. 5.5-105) that the County's regulations for OWTS were accepted by the RWQCB.

281-192

• Please supply documentation of this in the FEIR. (Refer to letter in References from RWQCB to State Clearinghouse dated 12 Jun 2003, which contradicts this statement.)

• In the FEIR, please discuss the explicit nature of OWTS to which a waiver of the need for a WDR permit from the RWQCB would apply (e.g., size and origin of discharge, numbers of such connections in a given subdivision, for local systems [such as Auburn Lake Trails] who oversees compliance, etc.). Does the waiver include wineries? How does the County enforce compliance with RWQCB Guidelines? (Refer again to the letter in References from RWQCB to State Clearinghouse dated 12 Jun 2003.)

281-193

A even more pertinent question is whether or not the County follows the RWQCB's Guidelines and its own regulations. We believe there is considerable evidence that it does not and have presented some already herein. As previously requested, refer to our scoping comments to respond to unanswered questions, as well as to our prior discussion of this topic here. Also see References. Though the RWQCB wrote the County's Department of Environmental Management in 1996 to provide a definition of "soil" relative to application of the Guidelines, the County appears still to interpret "soil" in a creative way. See, e.g., photographs taken of trenches relative to the Cool Village development in 2002, where both bedrock at shallow depth and evidence of high groundwater were demonstrated in a prospective installation approved by the County.

281-194

• In the FEIR, please explain how these incidents occur in view of the County's regulations. It would seem abundantly clear that having good regulations doesn't mean anything in the absence of proper enforcement thereof.

281-195

• It should also be noted that per AB 885, which added Sections 13290 to 13291.7 to the Water Code, the SWRCB is developing new standards for OWTS for incorporation into the Guidelines developed by RWQCBs, the due date being 1 Jan 2004. (See References.)

281-196

The DEIR next discusses wells (p. 5.5-107). Please see our scoping comments, p. 31 ff, and prior discussion herein following Impact 5.5-3. It has been our contention, as discussed in these places, that the present Well Ordinance is inadequate (and it was felt to be inadequate in 1994). The permitting process is an opportunity to collect much useful information in a systematic way but is

281-197

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apparently still not being used for that purpose.

RWQCB Resolution No. 82-036 (see References) includes among the discharges for which permits are waived "drilling muds"—when "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." The writer has in the last two years observed drilling of four wells within a mile and a half all of which discharged drill mud to the local environment. In one of those cases, the discharge was to a roadside ditch down which it flowed heading toward draining into a creek. The Regional Board had to intervene.

281-197

281-198

• **Where was the County? What County program exists to inform well drillers of regulations governing their activities and how are these regulations enforced by the County?**

Impact 5.5-5: Increase in Water Pollutants from Construction-Related Activities p. 5.5-109.

We disagree that present policies, along with County and State regulations, reduce this impact to Less Than Significant. See, e.g., letter, RWQCB to Auburn Lake Trails Property Owners Association dated 18 May 2003 in References. Enforcement is too lax and projects less than 250 cu yd escape what oversight there might be. We support extending oversight to ministerial projects, but even the 1-acre disturbance of Phase II of the NPDES Permit Program would not eliminate the potential for off-site pollution.

281-199

We support prohibition of grading on slopes > 30% and setbacks from water bodies. But only with the following mitigation and information as to the amount of setback could this impact become LTS.

281-200

‡ **Enforcement should be much more aggressive and the 250 cu yd threshold should be greatly reduced.**

281-201

Impact 5.5-6: Increase in Water Pollutants from New Impervious Surfaces and New Urban and Agricultural Uses p. 5.5-115.

We strongly disagree that this impact is Less Than Significant before mitigation, let alone after it. What measures address cleansing of automotive pollutants in runoff from roads, driveways, and parking areas? of horse manure on roads when it rains? of dog feces from sidewalks, roads, and fields? We don't have answers yet to what measures might pertain to or be required in the future for agricultural tailwater. Phase II NPDES permits kick in only at 1 acre. And without much better enforcement of existing regulations, we would foresee nothing but more pollution in the offing. Some of the discussion under the several alternatives refers to future (unknown at present) mitigation, such as BMPs "to be developed" and the future adoption of "new waste discharge requirements" for agriculture. In the absence of information about what these measures will consist of, no judgment can be made as to efficacy. There is a difference between the theoretical and what actually happens.

281-202

‡ The following measures are all part of the State Water Resources Control Board's *Nonpoint Source Pollution Control Program*, approved by the EPA and NOAA in 2000 and incorporated here by reference:

281-203

Plan, design, and develop sites to:

- o Protect areas that provide important water quality benefits, necessary to main riparian and aquatic biota, and/or are particularly susceptible to erosion and sediment loss;
- o Limit increases of impervious areas;

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- Limit land disturbance activities such as clearing and grading, and cut-and-fill to reduce erosion and sediment loss; and
- Limit disturbance of natural drainage features and vegetation.

Develop and implement watershed management programs to reduce runoff pollutant concentrations and volumes from existing development:
- Identify priority local and/or regional watershed pollutant reduction opportunities (e.g., improve existing urban runoff control structures);
- Specify a schedule for implementing appropriate controls;
- Limit destruction of natural conveyance systems; and
- Where appropriate, preserve, enhance, or establish buffers along surface water bodies and their tributaries.

Protective setbacks from water bodies should be established. Impervious surfaces could be reduced by several means, such as greater use of porous paving materials (porous asphalt and concrete, open-cell pavers, crushed rock—non-serpentine, of course!), narrower subdivision roads (which would also reduce speeding), driveways of paved strips with median vegetation rather than a swath of uninterrupted pavement, discouragement of lawns—which are poorly permeable. (See References.)

Improved site design would incorporate natural drainage measures (drainage swales, vegetated filter strips, natural detention basins). Dramatic improvement is possible on even a single lot (see References: *Sun Valley Sets Out to Harness Rainfall).*

‡ Compact development, as in Alternative 12, also reduces impervious surfaces.

Some of the foregoing could be part of a conditional approval process (e.g., large parking lots in commercial development). DOT paving procedures could be changed in other cases. Still others would become part of public outreach. Overall, these measures would serve not only to reduce water pollution but also to improve infiltration that replenishes groundwater.

281-203

281-204

281-205

281-206

Impact 5.5-7: Increase in Surface Water Pollutants from Additional Wastewater Treatment Plant discharges p. 5.5-121

These plants are closely regulated by the RWQCB and can be expected to expand with need. However, exceedances have happened and no doubt there will be occasional mishaps in the future. Perhaps of greater concern is that they now discharge into quite small streams, whose natural flow may be overwhelmed as discharges increase in volume despite increasing use of reclaimed water. We therefore agree that the impact will remain Significant. We agree that expansion of use of reclaimed water should be encouraged and that additional off-season storage will probably be needed. Please note that if the present WWTPs are expanded, revised permits will be needed from the RWQCB.

281-207

Impact 5.5-8: Increase in Groundwater Pollutants from Onsite Wastewater Treatment Systems p. 5.5-128

We disagree and have presented evidence herein that the County's "current regulatory program is effective in providing for adequate design and construction of OWTS." Moreover, post-construction use and proper maintenance is, we believe, a very big issue that remains unaddressed except for the mandated inspection at time of sale. There are numerous substandard, aging systems in the County already that in all likelihood are poorly maintained. Moreover, soil conditions are such in most places that performance of even newer systems could be only marginal. Moreover, as the DEIR acknowledges (p. 5.5-129), OWTS don't remove all pollutants, which may reach groundwater and from there affect wells or surface waters. We agree this impact is Significant and believe *it is likely to remain so with increasing numbers of OWTS.*

281-208

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‡ Again we quote from the SWRCB's *Nonpoint Source Pollution Control Plan* (p. 72), relative to new OWTS:

- Ensure that new OSDS (i.e., OWTS) are located, designed, installed, operated, inspected, and maintained to prevent the discharge of pollutants to the surface of the ground and to the extent practicable reduce the discharge of pollutants into ground water. Where necessary to meet these objectives: (a) discourage the installation of garbage disposals to reduce hydraulic and nutrient loadings; (b) install low-volume plumbing fixtures in existing developments. Implement OSDS inspection schedules for pre-construction, construction, and post-construction.

- Direct placement of OSDS away from unsuitable areas. Where OSDS placement away from unsuitable areas is not practicable, ensure that the OSDS is designed or sited at a density so as not to adversely affect surface waters or ground water. Unsuitable sites include, but are not limited to, areas (a) with poorly or excessively drained soils; (b) with shallow water tables or high seasonal water tables; (c) within floodplains; or (d) where nutrient and/or pathogen concentrations in the effluent cannot be sufficiently treated or reduced before the effluent reaches sensitive water bodies.

- Establish protective setbacks from surface waters, wetlands, and floodplains for conventional as well as alternative OSDS. The lateral setbacks should be based on soil type, slope, hydrologic factors, and type of OSDA. Where uniform protective setbacks can not be achieved, site development with OSDS so as not to adversely affect water bodies and/or contribute to a public health nuisance.

- Establish protective separation distances between OSDS system components and groundwater. The separation distances should be based on soil type, distance to ground water, hydrologic factors, and type of OSDS.

    - Where conditions indicate that nitrogen-limited surface waters may be adversely affected by excess nitrogen loadings from ground water, prohibit the installation of OSDSs or require the installation of OSDS that reduce total nitrogen loadings to meet water quality objectives.

Relative to new OSDS, the same source provides this guidance (p. 75):

- Establish and implement policies and systems to ensure that existing OSDSs are operated and maintained to prevent the discharge of pollutants to the surface of the ground and, to the extent practicable, reduce the discharge of pollutants into ground water. Where necessary to meet these objectives, encourage the reduced use of garbage disposals, encourage the use of low-volume plumbing fixtures, and reduce total phosphorus loadings to the OSDS by 15% (if the use of low-level phosphate detergents has not been required or widely adopted by OSDS users). Establish and implement policies that require an OSDS to be repaired, replaced, or modified where the OSDS fails or threatens or impairs surface waters.

- Inspect OSDSs at a frequency adequate to ascertain whether the OSDSs are failing.

- Consider replacing or upgrading OSDS to treat influent so that total nitrogen loadings in the effluent are reduced to meet water quality objectives. This provision applies only where: (a) conditions indicate that nitrogen-limited surface waters may be adversely affected by significant ground water nitrogen loadings from an OSDS, and (b) nitrogen loadings from OSDS are delivered to ground water.

281-208

Please see also the recommendations of the new EPA Guidelines, previously mentioned (see References) and our scoping comments. Some aspects of the revised County ordinance we find questionable.

281-209

‡ In particular, *enforcement* of design and siting standards should be tightened to meet RWQCB and SWRCB Guidelines and the foregoing features of the State's Nonpoint Source Pollution Control Plan.

281-210

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‡ Institute mandatory management of private OWTS in accordance with recommendations of the new EPA guidelines. (See References.) This should include more education as to proper use and required maintenance subsequent to construction. These measures are also indicated in the State's Nonpoint Source Pollution Control Plan. 281-211

We thus support the proposed Mitigation Measure 5.5-8(a) to conduct a monitoring program, though we think annual inspection is probably more frequent than necessary. 281-212

Impact 5.5-9: Increase in Surface Water Pollutants from Additional Recreational Activities p. 5.5-135. 281-213

We don't follow the reasoning expressed here that lack of data suggesting water quality problems associated with use of recreation facilities leads to the conclusion that there are none.

•What program to collect such data has there been?

Unacceptable conditions existed along the Rubicon Trail at one time. There was an allegation of a water quality problem related to river rafting (see prior comments). There is no information presented in the DEIR as to how human waste is handled relative to river rafting at pull-outs. Nor has there been information about pollution of waterbodies connected with recreational use of motorized watercraft (MTBE aside, the motors discharge oil). Some off-road vehicle enthusiasts are known to churn through creeks and wet meadows. We, therefore, disagree that this is now a Less Than Significant impact nor that it will remain so with increasing population. And there is the issue of body-contact recreation in Jenkinson Lake, a source of drinking water (water treatment plants don't remove pathogens), where the treatment plant is now on EID's capital improvement program for a costly upgrade. 281-214

REFERENCES

1. *Public Law 101-514, Title II, Sec. 206-207.*
2. *Sewage Sludge Standards Need New Scientific Basis.* National Academies of Science-National Research Council. 2 Jul 2002,
3. *EPA Review Cites 'Gaps' In Research on Sludge.* Washington Post, 7 Feb 2002.
4. *Valley counties fight use of sewage sludge.* Fresno Bee, 4 Sep 2000.
5. *Resolution No. 82-036,* RWQCB, Waiving Waste Discharge Requirements for Specific Types of Discharge.
6. *Guidelines for Waste Disposal from Land Developments.* RWQCB, 25 Jul 1975.
7. Letter, RWQCB to County Environmental Management, 30 Aug 1996.
8. Excerpts from photographs taken during field inspection by RWQCB of site of proposed septic system to serve Cool Village. Note presence of bedrock in photo 22 only one foot deep and indications of high water table in photos 23 and 47. Both are conditions that violate the Regional Board's Guidelines for leach fields. The County had approved a normal septic system at this locality but the Regional Board is requiring a specialized system appropriate for the conditions found.
9. *EPA Provides Tools to City and County Public Health Officials to Improve Septic System Managment.* USEPA, March 3, 2003.
10. *EPA Voluntary Guidelines Aid City and County Septic System Managment.* USEPA, April 15, 2003.
11. *Voluntary National Guidelines for Managment of Onsite and Clustered (Decentralized) Wastewater Treatment Systems. Executive Summary.* EPA
12. Letter, RWQCB to Auburn Lake Trails Property Owners Association dated 15 May 2003.
13. *Design and Improvement Standards Manual,* p. 46a., concerning grading and single family residences
14. Letter, RWQCB to State Clearinghouse dated 12 Jun 2003.
15. AB 885.
16. California Water Code, Sections 13290-13291.7
17. *Hardscaping the right way.* San Francisco Chronicle, 6 Apr 2002.
18. *Architects and Urban Planners Can Help Solve Flood, Drought and Water Pollution Problems.* Washington Post, 7 Sep 2002.
19. *Sun Valley Sets Out to Harness Rainfall.* Los Angeles Times, 6 Jun 2003.
20. *Pollution. Southland Stormwater Lessons.* Estuary, Aug 2001.

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Public Law 101-514
101st Congress

An Act

Nov. 5, 1990
[H.R. 5019]

Making appropriations for energy and water development for the fiscal year ending September 30, 1991, and for other purposes.

Energy and Water Development Appropriations Act, 1991.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, for the fiscal year ending September 30, 1991, for energy and water development, and for other purposes, namely:

TITLE I

DEPARTMENT OF DEFENSE—CIVIL

DEPARTMENT OF THE ARMY

Corps of Engineers—Civil

The following appropriations shall be expended under the direction of the Secretary of the Army and the supervision of the Chief of Engineers for authorized civil functions of the Department of the Army pertaining to rivers and harbors, flood control, beach erosion, and related purposes.

General Investigations

For expenses necessary for the collection and study of basic information pertaining to river and harbor, flood control, shore protection, and related projects, restudy of authorized projects, miscellaneous investigations, and when authorized by laws, surveys and detailed studies and plans and specifications of projects prior to construction, $146,435,000, to remain available until expended: *Provided,* That with funds herein appropriated the Secretary of the Army, acting through the Chief of Engineers, is directed to undertake the following items under General Investigations in fiscal year 1991 in the amounts specified:

Casino Beach, Chicago, Illinois, $220,000;
McCook and Thornton Reservoirs (CUP), Illinois, $2,000,000;
Lake George, Hobart, Indiana, $125,000;
Little Calumet River Basin (Cady Marsh Ditch), Indiana, $220,000;
Ste. Genevieve, Missouri, $600,000;
Red River Waterway, Shreveport, Louisiana, to Daingerfield, Texas, $1,900,000;
Miami River Sediments, Florida, $200,000;
Monroe County Beach Erosion (Smathers Beach), Florida, $193,000;
Wyoming Valley Levee Raising, Pennsylvania, $1,000,000:

Provided further, That not to exceed $27,200,000 shall be available for obligation for research and development activities: *Provided*

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SEC. 202. The Secretary may authorize the expenditure or transfer (within each bureau or office) of any appropriation in this title, in addition to the amounts included in the budget programs of the several agencies, for the suppression or emergency prevention of forest or range fires on or threatening lands under jurisdiction of the Department of the Interior.

SEC. 203. Appropriations in this title shall be available for operation of warehouses, garages, shops, and similar facilities, wherever consolidation of activities will contribute to efficiency, or economy, and said appropriations shall be reimbursed for services rendered to any other activity in the same manner as authorized by the Act of June 30, 1932 (31 U.S.C. 1535 and 1536): *Provided*, That reimbursements for costs of supplies, materials, equipment, and for services rendered may be credited to the appropriation current at the time such reimbursements are received.

SEC. 204. Appropriations in this title shall be available for hire, maintenance, and operation of aircraft; hire of passenger motor vehicles; purchases of reprints; payment for telephone services in private residences in the field, when authorized under regulations approved by the Secretary; and the payment of dues, when authorized by the Secretary, for library memberships in societies or associations which issue publications to members only or at a price to members lower than to subscribers who are not members.

SEC. 205. (a) AUTHORIZATION.—The Secretary is authorized and directed to enter into a contract with the McGee Creek Authority, Oklahoma City, Oklahoma, accepting a payment in an amount to be determined by the Secretary after appropriate investigation.

(b) CONTRACT TERMINATION.—Upon receipt of the payment specified in subsection (a), the McGee Creek Water Authority's obligation under contract between the Authority and the Secretary numbered 0-07-50-X0822, dated October 11, 1979, shall be terminated.

(c) TITLE TO PROJECT FACILITIES.—Notwithstanding any payments made by the McGee Creek Water Authority pursuant to section 205 (a) and (b) of this language or pursuant to any contract with the Secretary, title to project facilities of the McGee Creek Project, Oklahoma, shall remain with the United States.

California. Government contracts.

SEC. 206. (a) Except as provided in subsection (b) of this section, none of the funds appropriated in this or any other Act shall be used to execute new long-term contracts for water supply from the Central Valley Project, California.

(b)(1) The Secretary of the Interior is authorized and directed to enter into the following contracts: (A) a municipal and industrial water supply contract with the Sacramento County Water Agency, not to exceed 22,000 acre-feet annually, to meet the immediate needs of Sacramento County and a municipal and industrial water supply contract with the San Juan Suburban Water District, not to exceed 13,000 acre-feet annually, for diversion from Folsom Lake, with annual quantities delivered under these contracts to be determined by the Secretary based upon the quantity of water actually needed within the Sacramento County Water Agency service area and San Juan Suburban Water District after considering reasonable efforts to: (i) promote full utilization of existing water entitlements within Sacramento County, (ii) implement water conservation and metering programs within the areas served by the contract, and (iii) implement programs to maximize to the extent feasible conjunctive use of surface water and groundwater; and (B) a municipal and industrial water supply contract with the El Dorado County Water

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Agency, not to exceed 15,000 acre-feet annually, for diversion from Folsom Lake or for exchange upstream on the American River or its tributaries, considering reasonable efforts to implement water conservation programs within areas to be served by the contracts. The contracts required by this subsection are intended as the first phase of a contracting program to meet the long-term water supply needs of Sacramento and El Dorado Counties. The Secretary shall promptly initiate the necessary analysis for the long-term water supply contracts. The Secretary shall include in these contracts terms and conditions to ensure that the contracts may be amended in any respect required to meet the Secretary's obligations under applicable State law and the Federal environmental laws.

(2) Prior to entering into the contracts specified in subsection (b)(1) of this section, the Secretary is directed to comply with the provision of the National Environmental Policy Act by preparing joint Environmental Impact Statements and California Environmental Quality Act Environmental Impact Reports. The Sacramento County Water Agency shall be the joint lead agency with the Bureau of Reclamation in the preparation of the environmental documents required under (b)(1)(A) of this section and the El Dorado County Water Agency shall be the joint lead agency with the Bureau of Reclamation in the preparation of the environmental documents required under (b)(1)(B), with the Bureau of Reclamation cooperating in all aspects of the environmental review process, but not controlling that process.

(3) Diversions from the American River under the contract for the Sacramento County Water Agency shall, to the maximum extent reasonable and feasible, take place at or near the mouth of the American River.

SEC. 207. The Secretary of the Interior is authorized and directed to pay, without reimbursement, $1,000,000 to the Fall River Rural Electric Cooperative in reimbursement for environmental protection requirements in connection with the development of hydroelectric power at the Island Park Dam and Reservoir, Idaho. Such payment shall be made on the date the hydroelectric electric power facilities are placed in service and shall not affect cost allocations or repayment provisions for the Minidoka Project.

TITLE III

DEPARTMENT OF ENERGY

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT ACTIVITIES

For expenses of the Department of Energy activities including the purchase, construction and acquisition of plant and capital equipment and other expenses incidental thereto necessary for energy supply, research and development activities, and other activities in carrying out the purposes of the Department of Energy Organization Act (Public Law 95-91), including the acquisition or condemnation of any real property or any facility or for plant or facility acquisition, construction, or expansion; purchase of passenger motor vehicles (not to exceed 21 for replacement only), $2,527,082,000, to remain available until expended, of which $89,842,500 shall be available only for the following facilities: Advanced Technology Center, Indiana State University; Center for Energy Resources Management, University of New Orleans; Biomedical Research

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Rain Gardens - Gardening to Improve Water Quality

by Nicole Gaug

Most places rely on rainfall to replenish the local water supply. Unfortunately, due to air pollution and urban sprawl, a large portion of the rain that reaches our waterways and wildlife habitats is polluted. It is all too common to see water running down rooftops, into driveways, down streets and into storm drains rather than soaking into the ground. Along the way, this water picks up motor oil, fertilizers, pesticides and other harmful chemicals. However, there are things you can do to improve the water quality in your backyard and community. One easy and effective project is to create a "rain garden" so rainfall can be routed to an area where it will be naturally filtered. In addition to filtering the water, rain gardens also control the volume of water flowing into our waterways and recharge ground waters.

Rain gardens use a combination of soils and water-tolerant native plants that catch and hold above-average amounts of water, a concept known as bioretention. The soils and plants then naturally filter out chemical pollutants found in rain and runoff. Rain gardens naturally clean our freshwater resources and provide great wildlife habitat.

Rain gardens are easy to create in your backyard, front yard, or side yard, wherever you find water runoff or low-lying areas that naturally collect water. Begin by digging or locating a depression about 3-6 inches deep and filling it with a mixture of organic matter, sand and topsoil. Next, carefully choose native plants for your rain garden by considering the amount of sun exposure and water they will receive.

Your rain garden will hold water during rainfalls and then allow it to slowly soak into the ground over the next few days. This will prevent mosquito breeding while still allowing native plants a chance to absorb the water. Don't worry about the size of your rain garden. Even one small rain garden in your neighborhood will help to make an impact and improve local water quality!

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U.S. Environmental Protection Agency

EPA Voluntary Guidelines Aid City and County Septic System Management

April 15, 2003

EPA Assistant Administrator for Water, G. Tracy Mehan, III announced the release of new guidelines that are designed to help local governments strengthen their management of septic systems and other small, privately-owned wastewater treatment systems.

"Proper septic system maintenance is a commonly overlooked responsibility," said Mehan. "Failing systems are a significant threat to our health and our water quality."

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 use these systems – making proper maintenance essential for protecting America's waters.

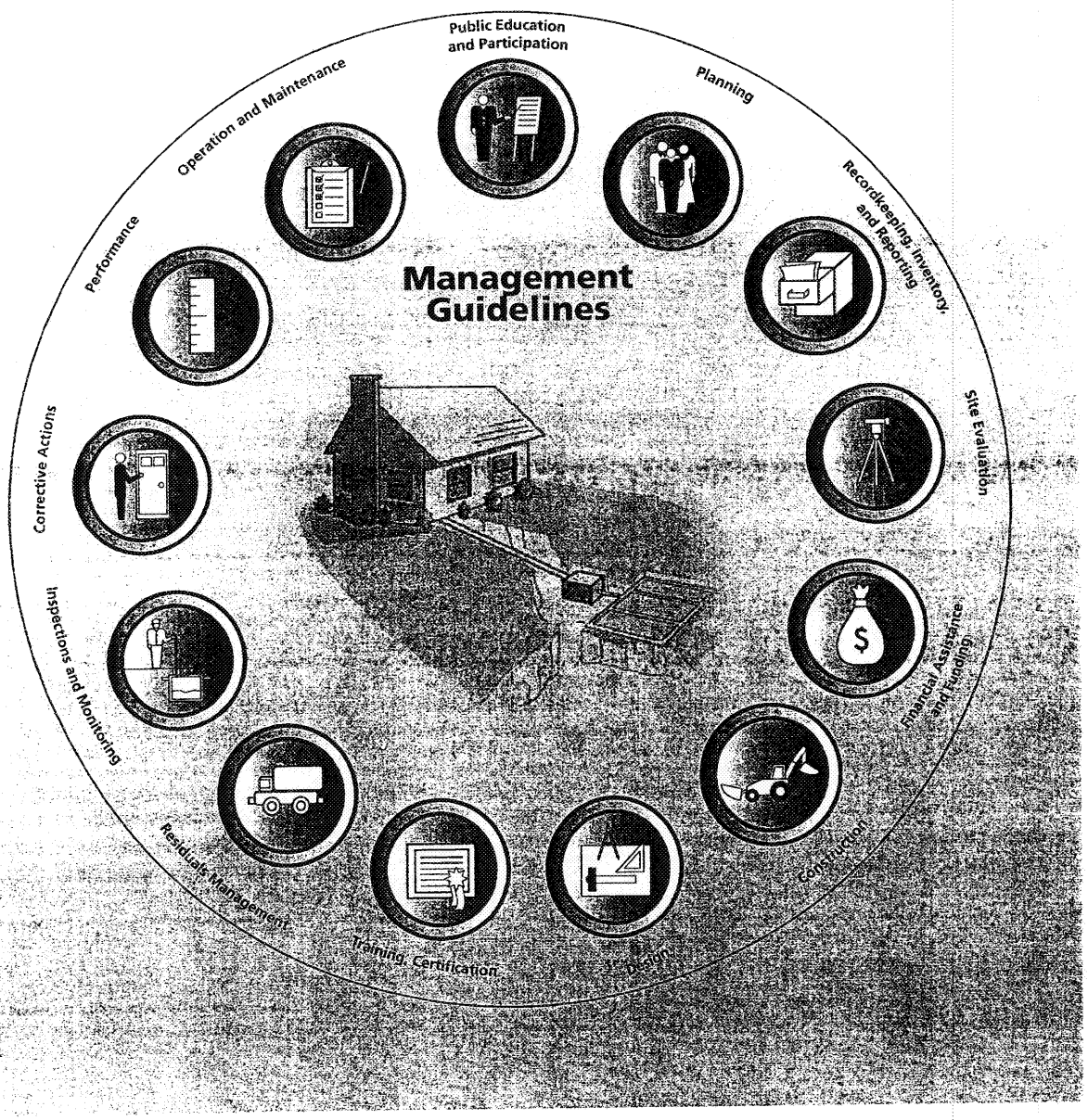
The Voluntary Guidelines for Management of Onsite and Clustered (Decentralized) Wastewater Treatment Systems complements EPA's efforts to help state and local governments strengthen their oversight of septic systems and other small, privately-owned wastewater treatment systems. EPA worked with stakeholders from the public and private sectors to develop these voluntary management guidelines. The guidelines and an accompanying Management Handbook, which is now available for public comment, provide local governments with a risk-based model for evaluating local conditions and then a five-tier system developing an appropriate management program to address local conditions.

EPA has been working to help local governments build better septic system management programs. EPA recently released a CD-based outreach kit to assist communities in their efforts to educate citizens about proper septic system management.

The Voluntary Guidelines document (EPA 832-B-03-001) is available for download at www.epa.gov/owm/onsite. Copies are also available by calling 800-490-9198. The public is also invited to review and comment on the companion Handbook for Management of Onsite and Clustered (Decentralized) Wastewater Treatment Systems. The public comment period closes on May 27, 2003. For more information, please contact Joyce Hudson at 202-564-0657 or Steve Hogye 202-564-0631.

This page originally created: Tuesday, April 15, 2003

Voluntary National Guidelines for Management of Onsite and Clustered (Decentralized) Wastewater Treatment Systems



EXECUTIVE SUMMARY

The performance of onsite and clustered (decentralized) wastewater treatment systems is a national issue of great concern to the Environmental Protection Agency (EPA). Decentralized systems are used in 25 percent of the homes in the United States and 33 percent of new development, and they are permanent components of our nation's wastewater infrastructure. Decentralized wastewater treatment systems are defined here as managed individual onsite or clustered wastewater systems (commonly referred to as septic systems, private sewage systems, individual sewage treatment systems, onsite sewage disposal systems, or "package" plants) used to collect, treat, and disperse or reclaim wastewater from individual dwellings, businesses, or small communities or service areas. Unfortunately, many of the systems in use are improperly managed and do not provide the level of treatment necessary to adequately protect public health and surface and ground water quality. Proper management of decentralized systems involves implementation of a comprehensive, life-cycle series of elements and activities that address public education and participation, planning, performance, site evaluation, design, construction, operation and maintenance, residuals management, training and certification/licensing, inspections and monitoring, corrective actions, recordkeeping/inventorying/reporting, and financial assistance and funding.



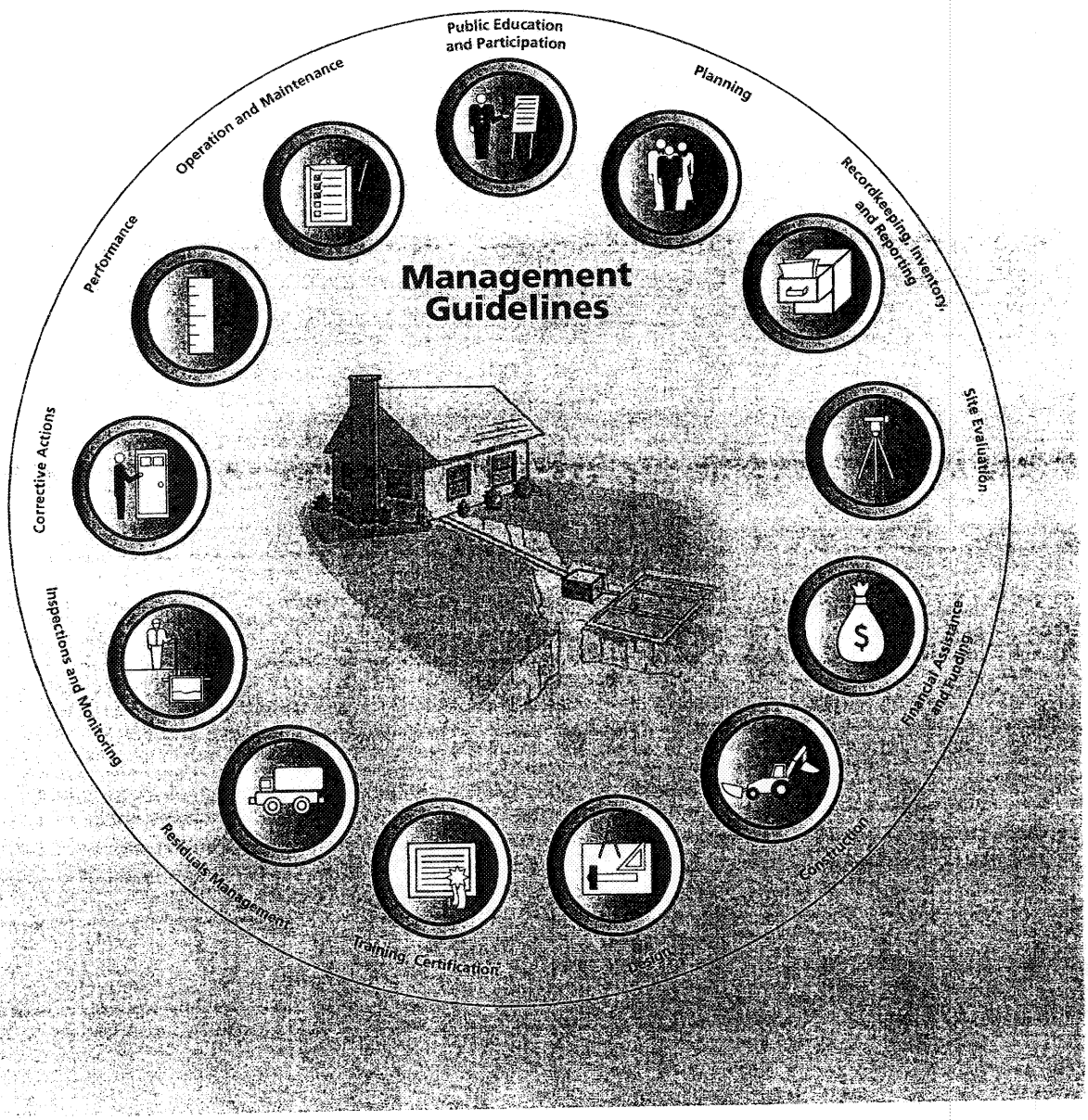
Therefore, EPA is issuing *Voluntary National Guidelines for Management of Onsite and Clustered (Decentralized) Wastewater Treatment Systems* (referred to as the Management Guidelines) to enhance the performance and reliability of decentralized wastewater treatment systems through improved management programs. The Management Guidelines will help improve system performance by encouraging institutionalizing the concept of management; raising the quality of state, tribal, and local management programs; and suggesting minimum levels of activity. Adequately managed decentralized systems that protect the environment and public health can provide an alternative to centralized wastewater treatment systems. EPA continues to support the most sustainable approach to implementing protective water pollution control solutions whether it be centralized or decentralized. The Management Guidelines are intended to be used when a decision to implement a decentralized approach is or has been made. They complement any other applicable federal, state, tribal, or local government requirements, including the National Pollutant Discharge Elimination System (NPDES) program under the Clean Water Act (CWA) and the Underground Injection Control (UIC) program under the Safe Drinking Water Act (SDWA).

Decentralized systems are used in 25% of U.S. homes and are permanent components of our nation's wastewater infrastructure.

EPA intends that state, tribal, and local authorities use the Management Guidelines, along with other applicable federal requirements, to help communities in meeting water quality and public health goals. The Management Guidelines can be integrated into a comprehensive watershed approach at the state, tribal, or local government level. The benefits of an adequate

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Voluntary National Guidelines for Management of Onsite and Clustered (Decentralized) Wastewater Treatment Systems



EXECUTIVE SUMMARY

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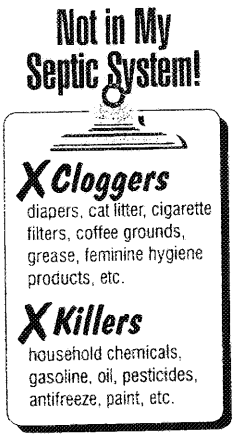
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management program include protection of water quality and public health, protection of consumers' investment in home and business ownership, increased onsite system service life and replacement cost savings, avoidance of transfers of water away from the source by conserving ground water, and elimination of the need to use a community's tax base to finance sewers. As noted above, and in more detail later in this document, proper management is a comprehensive term for achieving the long-term sustainability of a system, including adequate operation and maintenance of the system. Although implementation of the Management Guidelines is voluntary, EPA strongly encourages considering them as a template in strengthening existing management programs and implementing new ones.



Unfortunately, although some management programs are effective, many existing state, tribal, and local rules that regulate onsite systems are not adequate to ensure proper performance. "Failure" of onsite systems is a term subject to much debate; however, 1995 U.S. Census data report that over 10 percent of all systems back up into homes or have wastewater emerging on the ground surface, and that more than half the systems in the United States were installed more than 30 years ago when onsite rules were nonexistent or poorly enforced. Few systems receive proper maintenance because homeowners are either unaware of the need for maintenance or find it a distasteful task. In addition, most regulatory programs do not require homeowner accountability for system performance after installation. Although it is difficult to measure and document specific cause-and-effect relationships between onsite wastewater treatment systems and the quality of our water resources, it is widely accepted that improperly managed systems contribute to major water quality problems. The *National Water Quality Inventory 1996 Report to Congress* states that "improperly constructed and poorly maintained septic systems are believed to cause substantial and widespread nutrient and microbial contamination to ground water." Ultimately it is the absence of a comprehensive management program addressing each of these issues that prevents onsite and clustered (decentralized) systems from being considered as an effective and reliable wastewater treatment strategy. Consequently, the potential for health and water quality problems from poorly managed systems is increasing.

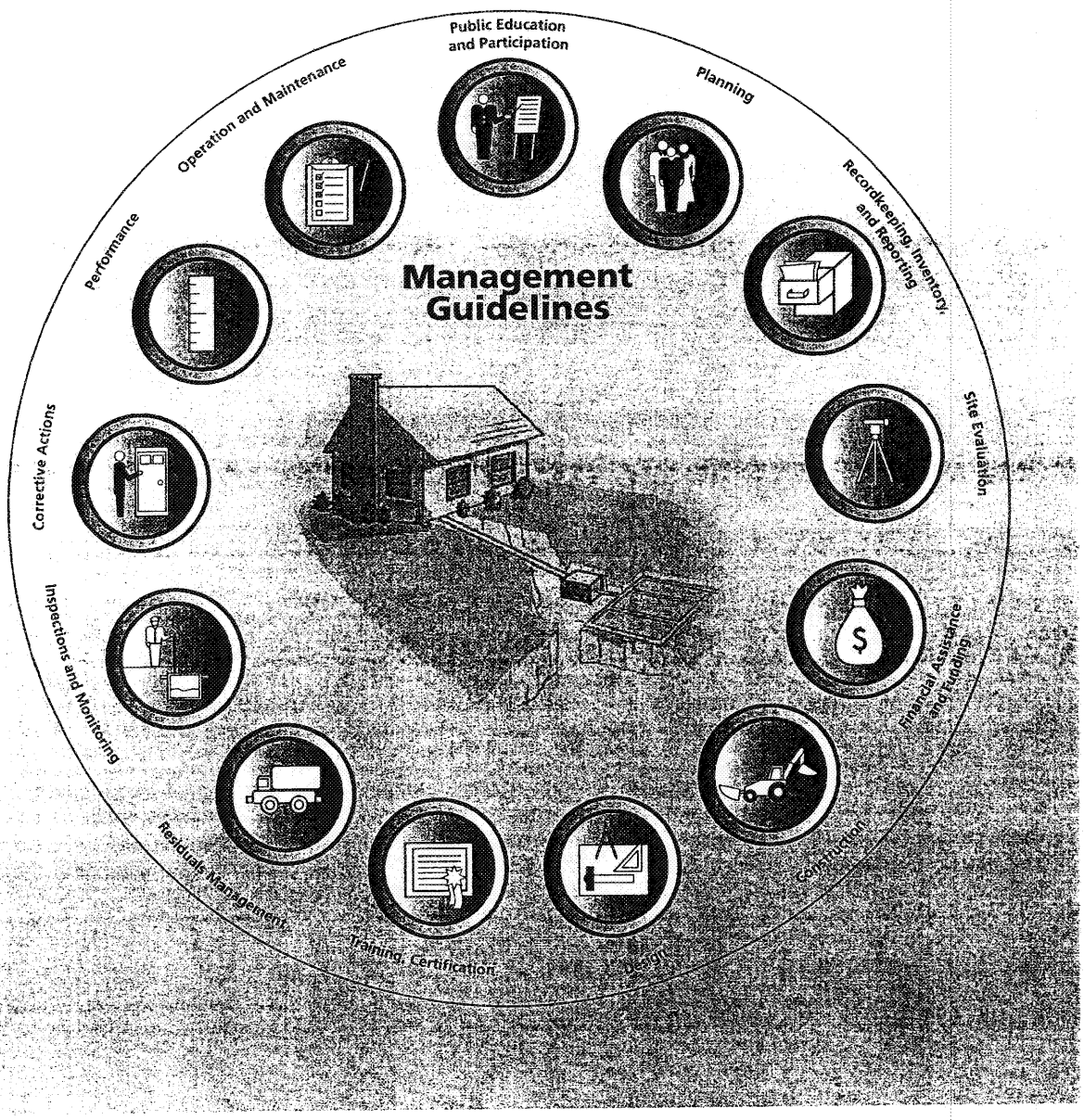
Few systems receive proper maintenance... most regulatory programs do not require homeowner accountability for system performance.

If effectively implemented by state, tribal, and local governments, the Management Guidelines might provide for a viable, long-term option for meeting public health and water quality goals, particularly for small and rural communities. In addition, appropriate management programs will support the activities and approaches being used in other EPA programs and contribute toward achievement of mutual water quality and public health goals. These programs include Watershed Management, National Pollutant Discharge Elimination System, Biosolids and Residuals Management, Storm Water Management, Water Quality Management (including Total Maximum Daily Loads, or TMDLs), Water Quality Standards, Source Water Assessment and Protection, Underground Injection Control, Coastal Zone Management, Nonpoint Source Control Program, and Technology Transfer.

In deciding whether to use onsite systems, it is important to consider the risks they might pose to the

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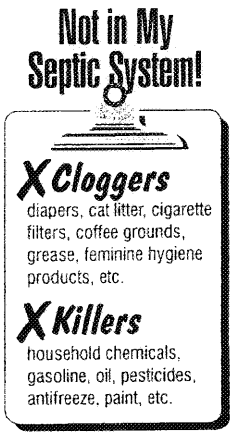
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AR 13745

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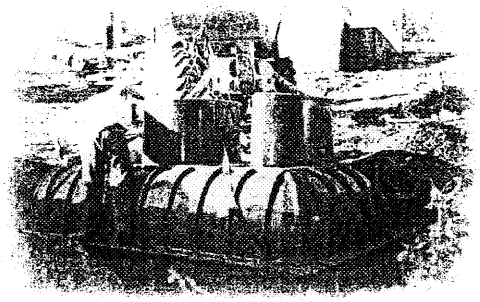
environment and public health. There may be cases where onsite systems are not appropriate because of the environmental sensitivity or public health concerns of an area. In the cases where onsite systems are appropriate, it is critical that they be managed to prevent environmental and public health impacts.

Five management models are provided as conceptual approaches with progressively increasing management controls as sensitivity of the environment and/or treatment system complexity increases (see box below). Each model consists of 13 critical elements that describe activities to be performed to achieve the management goal. The purpose of the models is to provide a guide to match the needed management controls to the potential public health and water quality risks presented by decentralized systems in a particular area. The models are flexible so that programs can be customized by substituting elements of one program into another to accommodate local needs, practices, and conditions. The models are built around ensuring the accountability and competency of regulators and service providers through certification and continuing education, owners through education and/or inspection requirements, and third-party managers through contract and permit stipulations to achieve their goals. The "best" model program for a community is not necessarily in the higher levels, but rather is the model that provides the most appropriate management controls for the potential risks.

The Five Management Models

- **Management Model 1 - "Homeowner Awareness"** specifies appropriate program elements and activities where treatment systems are owned and operated by individual property owners in areas of low environmental sensitivity. This program is adequate where treatment technologies are limited to conventional systems that require little owner attention. To help ensure that timely maintenance is performed, the regulatory authority mails maintenance reminders to owners at appropriate intervals.
- **Management Model 2 - "Maintenance Contracts"** specifies program elements and activities where more complex designs are employed to enhance the capacity of conventional systems to accept and treat wastewater. Because of treatment complexity, contracts with qualified technicians are needed to ensure proper and timely maintenance.
- **Management Model 3 - "Operating Permits"** specifies program elements and activities where sustained performance of treatment systems is critical to protect public health and water quality. Limited-term operating permits are issued to the owner and are renewable for another term if the owner demonstrates that the system is in compliance with the terms and conditions of the permit. Performance-based designs may be incorporated into programs with management controls at this level.
- **Management Model 4 - "Responsible Management Entity (RME) Operation and Maintenance"** specifies program elements and activities where frequent and highly reliable operation and maintenance of decentralized systems is required to ensure water resource protection in sensitive environments. Under this model, the operating permit is issued to an RME instead of the property owner to provide the needed assurance that the appropriate maintenance is performed.
- **Management Model 5 - "RME Ownership"** specifies that program elements and activities for treatment systems are owned, operated, and maintained by the RME, which removes the property owner from responsibility for the system. This program is analogous to central sewerage and provides the greatest assurance of system performance in the most sensitive of environments.

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The legal authority for regulating onsite and clustered (decentralized) wastewater treatment systems generally rests with state, tribal, and local governments. EPA recognizes that these units of government need a flexible framework and guidance to tailor their programs to the specific needs of communities and watersheds. Although each management program model stands alone, the models are intended only to be guides in developing an appropriate management program. Activities in program elements of higher-level models may be incorporated into lower-level programs to assist the local program in achieving its desired objectives. Also, it is possible to implement more than one management program model within a jurisdiction as appropriate for the circumstances encountered, such as housing density, receiving environment characteristics, new development, high-volume or high-strength wastewaters, and so forth. Management models may also be implemented in conjunction with centralized wastewater treatment and collection. It is important to note that the management program models are not intended to supersede existing federal, state, tribal, or local laws and regulations, but rather to complement them in protecting public health and water quality.

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To assist state, tribal, and local units of government in evaluating and upgrading their onsite and clustered (decentralized) wastewater management programs, a draft *Handbook for Management of Onsite and Clustered (Decentralized) Wastewater Treatment Systems* (referred to as the Management Handbook) complements the Management Guidelines. The draft Management Handbook includes case studies and examples of materials used by communities that have implemented management programs effectively.

Substantial resources are available as well, including EPA's *Onsite Wastewater Treatment Systems Manual*, to assist regulatory agencies and communities in assessing the technical foundation of the elements and activities in their existing or considered management programs.

AR 13748

California Regional Water Quality Control Board

Central Valley Region

Robert Schneider, Chair

Winston H. Hickox
Secretary for Environmental Protection

Gray Davis
Governor

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

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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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

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:		

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 creak 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:		

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.

Patrick G. Gillum, Area Inspector

Approved:		

California Regional Water Quality Control Board

Central Valley Region

Robert Schneider, Chair

Winston H. Hickox
Secretary for Environmental Protection

Gray Davis
Governor

Sacramento Main Office
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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.

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

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

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:		