I. INTRODUCTION

A. Purpose

The purpose of the Safety Element is to minimize loss of life and property in the event of a natural or manmade catastrophe. Safety Element policies are intended to prevent construction that would fail during such an event, and to minimize associated personal and financial suffering.

B. Consistency with Other Elements

The Safety Element is the primary vehicle for relating County land use policies to local safety planning. While the Land Use Element identifies areas where hazardous land uses may be located, the Safety Element contains policies for determining acceptable levels of public risk imposed by these land uses, as well as policies for mitigating the effects of natural or manmade catastrophes.

Because of this close connection between public safety and land use, Safety Element policies are also closely coordinated with the policies of the Open Space, Resource Conservation, Housing, and Circulation Elements as they relate to the locations of urban versus open land uses, housing concentrations, and transportation routes.

C. Scope and Organization

The Safety Element concentrates on those hazards which are within the responsibility of the County to mitigate: geologic, flood, and fire hazards; hazardous materials; and airport safety.

The Safety Element describes the location and extent of known hazards. Maps of hazardous land uses and recommended evacuation routes are included. Factors related to survival during and after a catastrophic event, such as the required width of roadways serving as evacuation routes, are described. Acceptable levels of exposure to hazards are identified.

D. Determination of Acceptable Risk

Any activity poses some risk. The question for public officials is whether hazards which fall within the scope of public responsibility can be mitigated to acceptable levels. Where there is a question as to whether sufficient mitigation can be achieved, development will be delayed until such measures are found.

E. Response to Disasters

Should Kings County experience an extraordinary natural catastrophe, the Emergency Operations Plan (EOP) will guide the County's response. The Kings County Office of Emergency Services is responsible for maintaining the EOP, which concentrates on procedures and operations to be carried out during and after large-scale disasters.

II. GEOLOGIC HAZARDS

The policies of the Safety Element relating to geologic hazards are intended to prepare the community for seismically induced surface rupture, groundshaking and ground failure, liquefaction, seiche, landslides, and subsidence (see Glossary for definitions of terms). The objective is to reduce loss of life, serious injury, property damage, and economic and social dislocation resulting from a seismic event. Further technical data can be found in the Five County Seismic Safety Element and the "Preliminary Fault Activity Map of California" prepared by the California Division of Mines and Geology. The following information is taken from the Five County Seismic Safety Element.

The greatest potential for geologic disaster in Kings County is posed by the San Andreas Fault, which is located approximately four miles west of the Kings County line (as shown in Figure 16). The Owens Valley fault group on the east side of the Sierra Nevada, and the White Wolf fault to the south of Kings County, pose smaller hazards.

The primary hazard due to seismic activity in Kings County would come from groundshaking, the most widespread and damaging effect of an earthquake. The potential for extensive surface rupture is considered to be minimal, since no major fault systems are known to exist in Kings County. Minor surface rupture could be expected in areas of minor faulting, primarily in mountainous portions of

southwestern Kings County. The danger of secondary natural hazards such as liquefaction, settlement, landslides, and seiches, which result from the interaction of groundshaking with existing ground instabilities, is considered to be minimal. Tsunamis, or tidal waves, are not considered a threat since the Pacific Ocean lies on the opposite side of the Coast Ranges and at a considerable distance from Kings County.

Figure 16 shows various seismic zones and areas where landslides, subsidence, or liquefaction could be expected to occur. These zones are categorized by the intensity of ground motion that could be reasonably anticipated if there were an earthquake in the San Andreas fault zone which affected Kings County. Table 16 further describes the characteristics of each seismic zone. As shown there, Zones V4, C1, and C2 would likely experience the greatest groundshaking. Consideration of future development proposals in areas of potential liquefaction should place primary emphasis upon communicating to developers the findings of the Five County Seismic Safety Element. The problem of potential liquefaction should be handled on a site-by-site basis by a licensed soils engineer. For further information on seismic zones, see Appendix 7.

Damage and injury resulting from geologic hazards can be reduced to acceptable levels through zoning and building permit review procedures and construction standards. New construction conforming to the standards of the Uniform Building Code (UBC) will provide adequate protection. Dams, schools, and hospitals are more stringently regulated by state and federal agencies for protection against such hazards. It should be noted that the purpose of the earthquake provisions of the UBC is to prevent loss of life, not to prevent structural damage.

Since new structures can be designed and built to withstand probable shaking without collapse, the greatest existing danger relating to geological events is the continued use of older structures incapable of withstanding earthquake forces. Woodframe structures of two stories or less constructed prior to 1948 can be considered safe, while buildings constructed prior to 1948 of other materials should be considered suspect. In all cases, unreinforced masonry structures should be considered unsafe.

There are no areas within Kings County in which a particular land use should be prohibited because of seismic conditions. Construction in the more critical seismic zones, however, would probably require additional reinforcement to offset the increased expected seismic forces.

Therefore, the safest seismic zones in Kings County correspond generally to the areas of greatest population concentration: Zone V1, the area of least expected seismic shaking, encompasses virtually all the major population centers in the Kings County area. Kettleman City and Avenal, however, are in more critical zones.

Present land use policies will minimize potential losses due to seismic events. The large minimum parcel sizes required in agricultural zones will reduce losses by lowering potential development density.

GOAL 36: Minimize loss of life and personal property caused by geologic hazards.

Objective 36.1: Regulate new construction to achieve acceptable levels of risk posed by geologic hazards.

Policy 36a: Prevent structural failure caused by groundshaking and other geologic hazards by adopting the latest version of the Uniform Building Code.

Policy 36b: Consider seismic hazards in the environmental review process. Include landslides, subsidence, liquefaction, flooding, local soils, and geologic conditions.

Policy 36c: To further reduce possible damage in case of earthquake, require open space land uses in areas identified for hazardous activities.

Policy 36d: Use the Uniform Code for the Abatement of Dangerous Buildings and the Uniform Housing Code to further assure safe construction and rehabilitation.

Policy 36e: Prohibit new construction directly astride known faults or fault zones. Allow only nonstructural land uses in such zones.

TABLE 16
SEISMIC ZONE DESCRIPTION
(left side of page across from Figure 16)

FIGURE 16
SEISMIC SAFETY MAP

III. FIRE HAZARDS

A. Wildland Fires

The factors which contribute most to wildland, or nonurban, fires are topography, weather, and the existence of sufficient fuel (either natural vegetation or manmade structures).

The aspects of topography which contribute most to wildfire behavior are elevation, slope, and exposure. Since most of Kings County is essentially flat, sloping slightly towards a topographic low point in the Tulare Lake Basin, fire hazard in much of the county is classified as moderate. However, elevations in the southwestern portion of the County are more varied (ranging from the Kettleman Plains, elevation 500 feet, to Table Mountain, elevation 3,499 feet). Therefore, fire hazard in the more steeply sloped southwestern county areas is classified as extreme. Since this part of the county is isolated and contains no urban settlements, hazards to life and property are considered minimal.

Vacant parcels where dry weeds are permitted to accumulate are a fire hazard, but grain crops such as oats and barley are also at high risk since they are harvested in a dry state during the peak fire season. Crop fires account for most of the annual dollar loss due to wildland fires.

In 1992 there were 177 wildland fire incidents in the unincorporated county which caused $4,155 in damage.

B. Urban Fires

In recent years fires in urban areas have not caused large-scale loss of human life. There is always the chance such a disaster could occur, depending upon many interrelated and complex factors, some of which are impossible to predict or prevent. These could include equipment malfunctions, arbitrary human errors, freak weather conditions, or combinations of the three.

In 1992 there were 622 fires in unincorporated areas of the county which caused $2.6 million in damage.

To decrease the hazard of urban fires, developers are required to comply with the Kings County Improvement Standards as to minimum road widths, required clearances around structures, and peakload water capacity. Should evacuation be necessary, Figure 17 shows designated evacuation routes.

FIGURE 17
EVACUATION ROUTES

C. Fire Protection

Kings County operates twelve fire stations employing a total of 53 persons. Figure 18 shows the location and 5-mile service radius of each station. Structures located outside the 5-mile service radius will require a response time of more than 5 minutes. Each station conducts assessments of proposed industrial and business facilities to assure compliance with safety and design requirements. Fire stations also handle weed abatement on a complaint basis.

In rural areas, fire hazards posed by large areas of dry vegetation may be extremely high. Distance from stations and lack of road access may prevent timely response by firefighting personnel. Wildland fire hazards may be reduced by mitigation measures including removal of dry vegetation around structures and installation of dependable water systems.

Fire regulations are intended to minimize personal injury and property damage, and to reduce the cost of fire suppression services. Increasing the use of built-in fire protection devices such as interior sprinkler systems is the most cost-effective way of achieving these objectives. All urban development is required to have adequate water available for fire suppression, whether from a hydrant and community system or an on-site storage tank. Project review should include an assessment of wildfire potential and needed mitigation measures.

GOAL 37: Prevent unnecessary exposure of people and property to injury from fire.

Objective 37.1: Regulate new development to reduce the risk of damage and injury due to fire.

Policy 37a: Refer proposed development and code revisions to the County Fire Department for review and comment.

Policy 37b: Use the Uniform Code for the Abatement of Dangerous Buildings, and the Uniform Housing Code, to further assure safe construction and rehabilitation.

INSERT FIGURE 18
FIRE STATIONS AND THEIR SERVICE AREAS

IV. FLOOD HAZARDS

A. Flood Hazards in Kings County

Flooding can cause drowning, destroy buildings, and wash away public facilities, roads, crops, and soil. The disruption of sewage treatment services during flooding is a particular concern, since it can cause deterioration of drinking water quality and severely impact public health. Floodwaters may facilitate the proliferation of mildew, bacteria, and other disease vectors.

Historically, floods have been the major cause of disaster in Kings County. The primary cause of local flooding is the drainage pattern in the Tulare Lake Basin, in southern Kings County. This area has no outlet to the ocean unless the water is pumped by artificial means out of the Tulare Lake Basin.

B. Assessment of Flood Hazards and Risks

Significant flooding occurs in Kings County approximately every five years. The Federal Emergency Management Agency (FEMA) and the Federal Insurance Administration have assessed flood hazards for major streams in Kings County. Projected areas and likely severity of flooding are shown on the Flood Insurance Rate Maps compiled by FEMA and maintained by the Kings County Planning Department (see Figure 19, also shown in the Land Use Element as Figure 11). Kings County maintains a floodplain management program based on these maps, and implemented through Chapter 5A of the Kings County Code of Ordinances (Flood Damage Prevention). The purpose of this ordinance is to prevent development in FEMA-designated floodprone areas, or to ensure that development in those areas can avoid or withstand flooding without increasing flood risk elsewhere.

C. Flood Prevention and Control

The Terminus, Success, and Pine Flat Dams (located in the Sierra Nevadas just east of the Valley floor on the Kaweah, Tule, and Kings Rivers, respectively), plus improvements made to other flood control facilities in the Kings County area, have significantly reduced local natural flood hazards. According to Army Corps of Engineers inundation maps, the failure of Success Dam would not affect inhabited portions of Kings County. Pine Flat and Terminus are the only dams in the region which, if breached, might cause flooding of significance to local inhabited areas (see Figures 20 and 21). If

INSERT FIGURE 19
LOCAL AREAS SUBJECT TO FLOOD HAZARD

INSERT FIGURE 20
INUNDATION AREAS BELOW PINE FLAT DAM

INSERT FIGURE 21

INUNDATION AREAS BELOW TERMINUS DAM

Pine Flat Dam failed while at full capacity, its floodwaters would arrive in Kings County within approximately five hours. If Terminus Dam failed while at full capacity, its floodwaters would arrive in Kings County within approximately twelve hours. The chances of any of these dams failing while at full capacity are considered remote.

Flooding in developed urban fringe areas is most effectively deterred by structural means such as curbs and gutters. In contrast, passive measures, such as the use of roadways with high crowns to divert floodwaters off the pavement onto adjacent property, are more effective in undeveloped rural areas.

GOAL 38: Prevent unnecessary exposure of people and property to flood damage.

Objective 38.1 Regulate new development to reduce the risk of flood damage to an acceptable level.

Policy 38a: Incorporate Federal Emergency Management Agency (FEMA) maps and data into the land use planning and development review processes. Reserve FEMA- designated flood hazard areas for agricultural use and zone them for open space and agricultural purposes.

Policy 38b: Regulate development, water diversion, vegetation removal, and grading to minimize any increase in flood damage to people and property.

Policy 38c: Require developers to pay the cost of drainage facilities to handle surface runoff from new development.

Policy 38d: Require that tentative and final subdivision maps and approved site plans show areas subject to flooding.

Policy 38e: Enforce and maintain Chapter 5A of the Kings County Code of Ordinances (Flood Damage Prevention).

V. HAZARDOUS MATERIALS

Although reduction efforts and treatment methods have reduced waste generation, it is certain that hazardous wastes will continue to be produced. Therefore, it is important that emergency response procedures detailed in the Kings County Hazardous Waste Management Plan (KCHWMP) be observed. As described in Section IV of the Land Use Element, the KCHWMP was incorporated into the Kings County General Plan in 1990, was not rescinded upon adoption of this updated General Plan, and remains a part of this updated document by reference.

The County of Kings Hazardous Material Incident Response Plan also identifies specific agencies and their responsibilities during an emergency caused by accidental transportation, pipeline, and industrial releases of hazardous material. This plan establishes the County policy which holds that funding for cleanup activities is the responsibility of the party which releases hazardous materials.

The handling and storage of hazardous waste are regulated by state and federal statute. Operators of commercial and industrial uses are required to register with the local administering agency (the Kings County Health Department, Division of Environmental Health). Handlers of acutely hazardous materials in excess of federal standards are additionally required to submit hazardous waste materials business plans to the local agency.

VI. AIRPORT SAFETY

A. Purpose

Most of the public safety risk created by airports is borne by pilots and passengers. The primary hazard to the general public is the possibility of being injured on the ground during an aircraft accident. To reduce this risk, the Federal Aviation Administration requires runway protective zones and height limits on structures near airports.

The principal concerns of airport land use planners are the safety of the general public and noise compatibility. Airport planning boundaries define areas near airports within which safety or noise restrictions are imposed. The orderly development of public use airports and the promotion of public safety within airport planning boundaries are achieved by local Planning Commissions which, through the implementation of their General Plans, enforce land use policies around airports.

B. Public Use Airports

The only publicly-owned public use airport in Kings County is that of the City of Hanford. However, the private Corcoran Airport does permit public use. Most land uses surrounding the Hanford airport are not adversely affected by aircraft noise or the potential for aircraft accidents, although some residential areas do lie in the takeoff pattern. The City of Hanford is preparing an updated Airport Master Plan which, when completed, will address Hanford airport land use and noise issues in more detail.

In 1994 Kings County completed the "Kings County Airport Land Use Compatibility Plan". The purpose of the Plan is to establish procedures and criteria by which the County of Kings and the Cities of Corcoran and Hanford can address compatibility issues when making planning decisions regarding land uses within the sphere of influences of public use airports. The Plan criteria are intended to ensure that local general plans, specific plans, and zoning ordinances take into account factors which influence compatibility between airports and the surrounding land uses. The "Kings County Airport Land Use Compatibility Plan" is incorporated into the Kings County General Plan by reference. The Plan only affects public use airports.

C. Agricultural Aircraft

Much of the use of private aircraft in Kings County is related to agriculture, either for cropdusting or private transportation over long distances. A significant number of local private aircraft are used for student pilot training and trips related to recreation and business; about 75 such aircraft are based at the Hanford airport. Kings County regulations permit new private-use noncommercial airports only in areas designated General Agriculture or Agriculture for Public Safety, away from urban concentrations. Commercial airports and heliports, including those used for cropdusting purposes, may be permitted as conditional uses in areas designated General Agriculture or Agriculture for Public Safety.

There is some interest in airport land use planning on the part of the local private sector. Although private involvement will likely remain informal and peripheral, it still may have some impact on future airport development decisions such as the installation of extended runways.

A final local airport land use planning consideration involves the Lemoore Naval Air Station (LNAS) in the northwestern corner of the county. Military jet aircraft operations at LNAS subject surrounding land uses to high noise levels, and nearby air traffic to potential aircraft accidents. The County has designated the area around the base Agriculture for Public Safety to ensure the preservation of large and sparsely developed parcels in the area for public safety purposes. This designation has proven effective in preventing land use and safety conflicts between the base and the general public. Furthermore, encroachment by civilian aircraft into military airspace is tightly limited; and LNAS policies meet and exceed federal regulations governing safe flight altitudes. Further information can be found in the document entitled Air Installation Compatibility Use Zone Studies (AICUZ), a set of land use compatibility guidelines published by the Navy and incorporated herein by reference.

GOAL 39: Prevent unnecessary exposure of people and property to risk of injury from airport operations.

Objective 39.1: Increase public safety by designating an "Airport Area of Influence" around public and private airports and implementing the policies of the "Kings County Airport Land Use Compatibility Plan."

Policy 39a: Regulate the development of property adjacent to the Corcoran and Hanford Airports by implementing the Primary Compatibility Criteria found in Table 16A of the Safety Element and the Compatibility Maps, Figures 22A and 22B, which are from the "Kings County Airport Land Use Compatibility Plan."

Policy 39b: Apply the "Agriculture for Public Safety" designation in the vicinity of the Lemoore Naval Air Station, and prohibit the creation of any homesites smaller than 40 acres in size.

Policy 39c: Work with the City of Hanford and the City of Corcoran to achieve consistent city and county land use policies for areas surrounding the Hanford and Corcoran airports.

DELETE FIGURE 22, "HANFORD AIRPORT CLEAR ZONES"

REPLACE WITH FIGURES 3A AND 3B OF KCALUCP
RENUMBERED AS FIGURES 22A AND 22B

THIS IS FIGURE 22A

DELETE FIGURE 22, "HANFORD AIRPORT CLEAR ZONES"

REPLACE WITH FIGURES 3A AND 3B OF KCALUCP
RENUMBERED AS FIGURES 22A AND 22B

THIS IS FIGURE 22B

INSERT TABLE 2A OF THE "KINGS COUNTY AIRPORT LAND USE COMPATIBILITY PLAN"
AS TABLE 16A

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page 1

THIS IS NEW TABLE 16 A,
page 2

VII. IMPLEMENTATION

Safety Program 1:

Consider approving expanded or revised ordinances dealing with public safety and other health-related concerns which do not respect political boundaries and which could logically be administered jointly and consistently by the County and the incorporated cities.

Safety Program 2:

Establish a new "Public Safety" overlay designation to be used in conjunction with other land use regulating zones. The overlay, intended mainly for application to the expanded Naval Air Station "greenbelt" area and to municipal airport runway approaches, would contain a height limitation and a forty-acre minimum parcel size.

Apply the overlay to the areas designated "Open Space for Public Safety" and "Designated Floodway" on the plan maps.

Safety Program 3:

Make available to builders and developers the findings of the Five County Seismic Safety Element.

Establish procedures for dealing with geologic reports and investigations, particularly when critical facilities are involved.

Safety Program 4:

Upon completion of the "Comprehensive Land Use Plan" for airports, integrate the spheres of influence and policies for the Hanford and Corcoran airports into the General Plan.