Chapter V

SAFETY

Section 65302 of the California Government Code requires that every jurisdiction in California adopt a Safety Element "for the protection of the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides, subsidence and other geologic hazards known to the legislative body; flooding; and wildland and urban fires. The Safety Element shall include mapping of known seismic and other geologic hazards. It shall also address evacuation routes, peakload water supply requirements, and minimum road widths and clearances around structures, as those items relate to identified fire and geologic hazards."

Stanislaus County could be affected by many of these factors. The only potential hazard that is specifically listed which could not affect Stanislaus County is a tsunami (commonly called a tidal wave). One type of ground failure, subsidence, has not been a problem in Stanislaus County and is not expected to be a problem.

SEISMIC AND GEOLOGIC HAZARDS

Earthquakes originate as movement or slippage occurring along an active fault. These movements generate shock waves that result in ground shaking. Structures of all types, if not designed or constructed to withstand ground shaking, may suffer severe damage or collapse. Likewise, some slopes will collapse due to the soil or geological characteristics resulting in hazard both in terms of collapse of structures located thereon, or collapse of structures within the path of resulting land slides.

There are several faults known to exist within Stanislaus County. In the extreme eastern part of the County, the Bear Mountain and Melones faults are found, though believed to have been inactive for the past 150 million years. No faults are currently known to exist within the valley portion of the County. Within the Diablo Range, the most recent movements were along the Tesla-Ortigalita fault approximately five million years ago, although earthquake activity without surface fracturing or faulting is still common. Since 1930, one earthquake epicenter of a magnitude greater than 4.0 on the Richter Scale was recorded in Stanislaus County. On June 27, 1986, an earthquake with a magnitude of 3.7 on the Richter Scale occurred with an epicenter several miles west of Crows Landing. Future earthquakes of similar or greater magnitudes can be expected. The map on page 5-4 indicates the location of the epicenter and the known faults in Stanislaus County.

The State of California Division of Mines and Geology has published proposed maps of an area to be included in an Alquist-Priolo Special Studies Zone. The area is along the Ortigalita Fault in the Diablo Range and extends into Stanislaus County approximately 7 miles. The zone is 1000 feet wide centered on the identified fault. As an Alquist-Priolo Special Study Zone, development and parcel divisions cannot be approved on land within this zone unless a geological report is completed at the applicant's expense and reviewed by another geologist hired by the County. The maps became effective on July 1, 1986. The text of the Alquist-Priolo Special Studies Zones Act can be found in Section 660 et. seq. of Article 3, Chapter 2, Division 1 of the California Public Resources Code. Guidelines for implementation of the Act are found in Section 3500, Article 3, Subchapter 1, Chapter 8, Division 2, Title 14 of the California Administrative Code. The location of the Alquist-Priolo Special Study Zone is shown on the map on page 5-4.

Numerous earthquakes occur each year along California's major faults which are the San Andreas, Calavaras, Hayward and Nacimento faults. Information furnished by the State Department of Mines and Geology and the State Office of Emergency Services indicates that ground shaking along these faults can produce damage within the County to reach varying intensities rated on the Modified Mercalli Intensity Scale of 1931. The eastern half of the County can be expected to have shaking to

an intensity of VI or VII, producing minor to moderate damage. The western half of the county can expect to receive shaking to an intensity of VII or VIII Mercalli which can cause considerable damage to ordinary structures. The area around the City of Newman may have shaking intensity of IX or X. This may be considered a major hazard area. A copy of the Modified Mercalli Intensity Scale is shown in Table 4-1 on page 5-5.

New buildings in Stanislaus County are constructed to prevent loss of life as a result of an earthquake. Older buildings, however, especially unreinforced masonry buildings, could collapse causing injury and loss of life. According to a report in 1979 to the California Seismic Safety Committee,[1] a building should be considered hazardous to life in the event of an earthquake if the building:

A. Was constructed prior to the adoption and enforcement of local building codes requiring the earthquake resistant design of buildings;

B. Is constructed of unreinforced masonry;

C. Lacks an effective system for resisting lateral forces; and

D. Exhibits <u>any one</u> of the following characteristics:

1. Has exterior parapets and ornamentation that may fall on a public way;
2. Is constructed of unreinforced masonry;
3. Has exterior walls of unreinforced masonry that are not anchored to the floors or roof;
4. Has sheathing or roofs that is not capable of withstanding lateral loads or uniformly transferring horizontal loads to walls; or
5. Has large openings in walls that may result in damage due to torsional (twisting) forces

In order to eliminate these problems, it is necessary to require reconstruction to at least provide for the adequacy of: (a) unreinforced masonry bearing walls, (b) the anchorage of exterior parapets and ornamentation, (c) the anchorage of unreinforced bearing walls to the floors and roof, (d) floor and roof diaphragms, and (e) the development of a complete bracing system to resist horizontal wind and earthquake forces.

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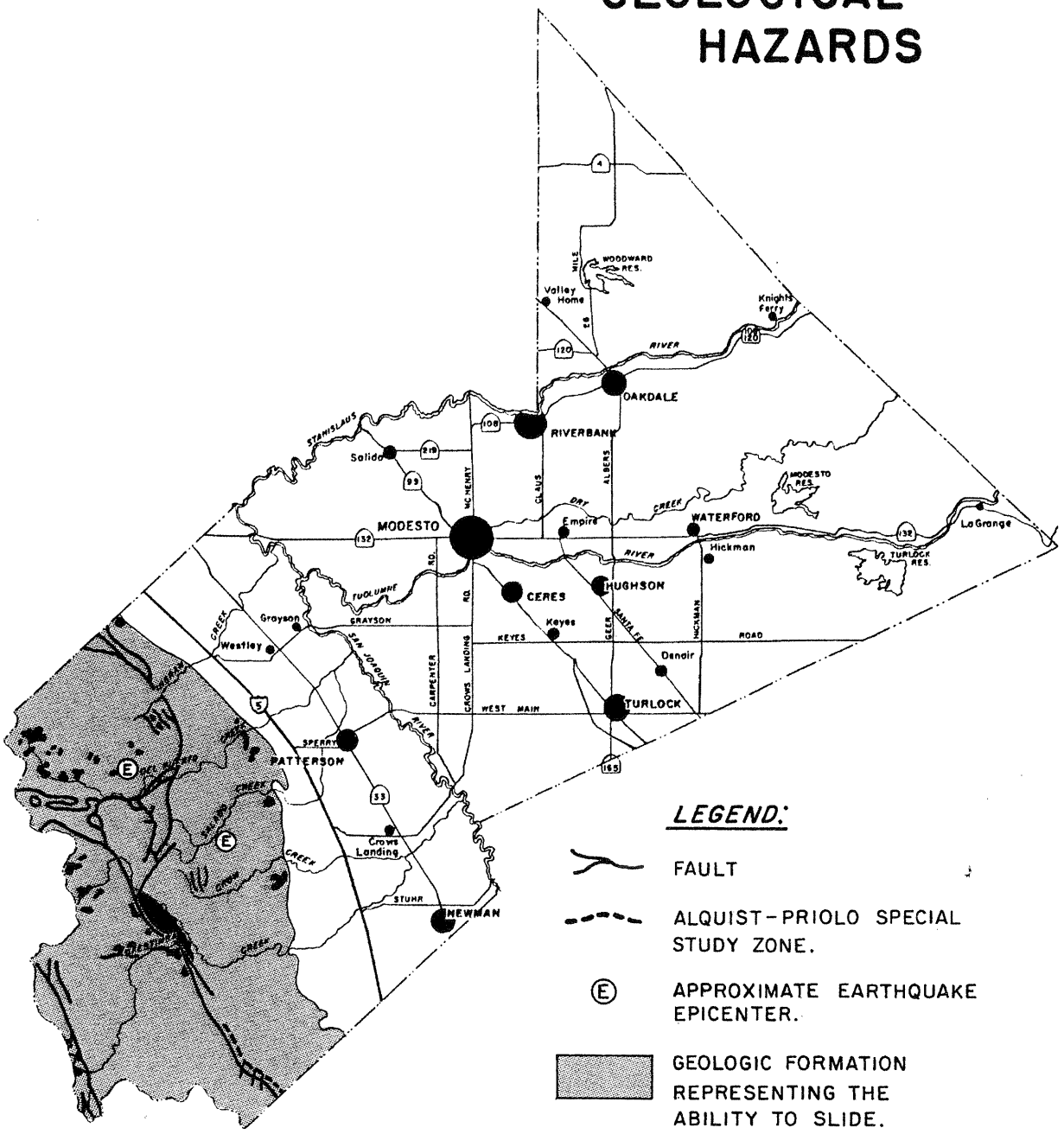
[1] <u>Hazardous Buildings: Local Programs to Improve Life Safety,</u> (Hazardous Buildings Committee, Seismic Safety Commission, Sacramento), 1979

GEOLOGICAL HAZARDS



SOURCES: GEOLOGY OF THE BOARDMAN QUADRANGLE, SANTA CLARA, STANISLAUS COUNTIES, CALIFORNIA; by Marshall E. Maddock, 1964.

GEOLOGICAL MAP OF CALIFORNIA, SAN JOSE SHEET, OLAF P. JENKINS EDITION. U.S.G.S.

PRELIMINARY EARTHQUAKE EPICENTER MAP OF CALIFORNIA, 1934 TO JUNE 30, 1970. The Resources Agency Department of Conservation, State of California.

State Division of Mines and Geology

ENVIRONMENTAL RESOURCES MANAGEMENT ELEMENT, GEOLOGY AND SEISMIC SAFETY; Stanislaus Area Association of Governments, 1974.

TABLE 4-1

MODIFIED MERCALLI INTENSITY SCALE

I. Not felt. Marginal and long-period effects of large earthquakes.

II. Felt by persons at rest, on upper floors, or favorably placed.

III. Felt indoors. Hanging objects swing. Vibration like passing of light trucks. Duration estimated. May not be recognized as an earthquake.

IV. Hanging objects swing. Vibration like passing of heavy trucks; or sensation of a jolt like a heavy ball striking the walls. Standing motor cars rock. Windows, dishes, doors rattle. Glasses clink. Crockery clashes. In the upper range of IV, wooden walls and frames creak.

V. Felt outdoors; direction estimated. Sleepers wakened. Liquids disturbed, some spilled. Small, unstable objects displaced or upset. Doors swing, close, open. Shutters, pictures move. Pendulum clocks stop, start, change rate.

VI. Felt by all. Many frightened and run outdoors. Persons walk unsteadily. Windows, dishes, glassware broken. Knickknacks, books, etc., off shelves. Pictures off walls. Furniture moved or overturned. Weak plaster and masonry D cracked. Small bells ring (church, school). Trees, bushes shaken (visibly or heard to rustle).

VII. Difficult to stand. Noticed by drivers of cars. Hanging objects quiver. Furniture broken. Damage to masonry D, including cracks. Weak chimneys broken at roof line. Fall of plaster, loose bricks, stones, tiles, cornices (also unbraced parapets and architectural ornaments). Some cracks in masonry C. Waves on ponds; water turbid with mud. Small slides and caving in along sand or gravel banks. Large bells ring. Concrete irrigation ditches damaged.

VIII. Steering or motor cars affected. Damage to masonry C; partial collapse. Some damage to masonry B; none to masonry A. Fall of stucco and some masonry walls. Twisting, fall of chimneys, factory stacks, monuments, towers, elevated tanks. Frame houses moved on foundations if not bolted down; loose panel walls thrown out. Decayed piling broken off. Branches broken from trees. Changes in flow or temperature of springs and wells. Cracks in wet ground and on steep slopes.

IX. General panic. Masonry D destroyed; masonry C heavily damaged, sometimes with complete collapse; masonry B seriously damaged. (General damage to foundations.) Frame structures, if not bolted, shifted off foundations. Frames cracked. Serious damage to reservoirs. Underground pipes broken. Conspicuous cracks in ground. In alleviated areas sand and mud ejected, earthquake fountains, sand craters.

X. Most masonry and frame structures destroyed with their foundations. Some well-built wooden structures and bridges destroyed. Serious damage to dams, dikes, embankments. Large landslides. Water thrown on banks of canals, rivers, lakes, etc. Sand and mud shifted horizontally on beaches and flat land. Rails bent slightly.

XI. Rails bent greatly. Underground pipelines completely out of service.

XII. Damage nearly total. Large rock masses displaced. Lines of sight and level distorted. Objects thrown into the air.

Definition of Masonry A, B, C, D:

Masonry A Good workmanship, mortar, and design; reinforced, especially laterally, and bound together by using steel, concrete, etc.; designed to resist lateral forces.

Masonry B Good workmanship and mortar; reinforced, but not designed in detail to resist lateral forces.

Masonry C Ordinary workmanship and mortar; no extreme weaknesses like failing to tie in at corners, but neither reinforced nor designed against horizontal forces.

Masonry D Weak materials, such as adobe; poor mortar; low standards of workmanship; weak horizontally.

Enforcing the retrofitting of buildings to meet earthquake standards is a difficult task. First, the County would have to commit staff to the project. In addition to being costly, this would require a policy decision on the part of the Board of Supervisors that the potential problems were of such dimensions that the cost, both to the County and to the landowner, is warranted. Second, the cost to the landowner might be prohibitive, at the very least, causing construction impacts on the existing tenants, possibly relocation and rent increase. The report referenced above stated that it was unlikely that building owners could feasibly afford the cost of making the necessary improvements and that some sort of grant funds would be needed. Recently adopted SB 547 (Alquist) addresses the issue and may be the first step towards requiring retrofitting.

Aside from structural damage, earthquake activity can produce three other types of adverse effects. The first is ground failure, which itself is a factor in making some lands unsuitable for development. Virtually the entire area located west of Interstate 5 is composed of geological formations that, due to structure, slope, runoff, lack of vegetation, earthquake and human activity, are considered extremely susceptible to failure and sliding. On a California Division of Mines and Geology scale used to rate landsliding potential, this area is rated at five, the next to highest rating on a scale of six. The remainder of the area is rated at six. The prime reason is the generally unstable formation comprising the underlying geologic structure of the Diablo Range. In the winter of 1982-83, saturation of the soils in this area resulted in a considerable amount of damage to Del Puerto Canyon Road. The map on page 5-4 indicates the location of area prone to ground failure.

There is a history of a number of slides throughout the Diablo Range in Stanislaus County. It is evident that the steep slopes and unstable geology of the area on the west side of the County, even without considering the very real possibility of an earthquake, present a substantial limitation to building. Construction is possible within this area, but any proposals for significant development (anything other than the currently permitted two dwellings for every 160 acres), should include a geological report identifying potential problems and mitigation measures to be incorporated into the development plan. This may be difficult and costly.

The second adverse effect would be from a seiche (an earthquake-induced wave in a lake, reservoir, or harbor). Stanislaus County has three reservoirs of considerable size (Modesto, Turlock, and Woodward). An earthquake of sufficient magnitude could cause a seiche in one or more of these reservoirs. Although there is no way to stop such an occurrence, the effect can be minimized. No privately owned residences exist on the shores of the reservoirs as all of the land is controlled either by Stanislaus County or the State of California. The most severe hazard would exist if a seiche occurred while many people were using the reservoir for recreation. All reservoirs have personnel on duty whenever the reservoir is open who are trained to handle water-related emergencies.

The third effect would be caused by damage to a dam that results in dam failure. There are a number of dams, both in and out of the County on the east and west sides, which could produce flooding should they fail. There are requirements that the owners of dams prepare maps showing areas which would be flooded should the dams fail. Dam failure inundation maps are available for the dams on the Stanislaus and Tuolumne Rivers. Maps on pages 5-9 and 5-10 indicate the inundation areas of the upstream dams on the Stanislaus and Tuolumne Rivers. The Stanislaus County Department of Emergency Services is attempting to obtain more specific data so that evacuation plans and routes can be developed.

Policies 1, 2, 4, and 14 address seismic hazards.

FLOOD HAZARD

Flooding has been a major problem throughout the history of Stanislaus County, particularly with the encroachment of urban growth into flood plains. Major floods have occurred in 1861, 1938, 1950, 1955, and 1969. Significant flooding also occurred in 1983 along the San Joaquin River, in isolated stretches of the Tuolumne River and on smaller creeks such as Salado Creek.

The State Reclamation Board has identified and adopted designated floodways, defined in feet per second of flow, along the San Joaquin River, Stanislaus River, Tuolumne River and portions of Dry Creek (see map on page 5-12). The Department of Housing and Urban Development (HUD) has also developed flood hazard zones which are referenced in the County's Flood Control Ordinance and used for insurance purposes. Any non-agricultural encroachment into these areas requires special permits that are difficult to obtain and often costly to implement. Permits for encroachment into the designated floodways must be obtained from the Reclamation Board. Other permits are administered by the County. These measures still do not control flood hazards for existing development. Information regarding flood-prone areas as shown on the HUD maps is available in the Department of Public Works.

Substantial action has taken place to reduce flood hazards. Construction of Don Pedro Dam on the Tuolumne River and New Melones Dam on the Stanislaus River have permitted officials to monitor the flows of water in those rivers, significantly reducing the chances of flooding. New Melones Dam has, since its completion, prevented flooding above the 8000 cubic feet per second (cfs) level on the Stanislaus River. Regulation of the flows from Don Pedro limits flooding along the Tuolumne River, but does not completely eliminate it.

Several attempts have been made along the San Joaquin River to control flooding. First, the Corps of Engineers has built levees to limit flooding. These levees are maintained by nine Reclamation Districts (see map on page 5-14). Since these levees do not extend the full length of the river, flooding still occurs.

Second, there is a statewide flood control program which monitors, through the use of computers, the levels of various rivers in the State. If the operator at Don Pedro, for example, wants to release water, the release might not cause any flooding on the Tuolumne but might affect the San Joaquin River. The operator informs the State of his intentions. The State then feeds this information into its computer along with all other available data to determine the effect of the proposed release. The State then coordinates the release of water from all of the dams so there is as little impact as possible on the rivers downstream (in the case of Don Pedro, the San Joaquin River). Don Pedro may be permitted to release its water while another dam elsewhere along the system may have to temporarily reduce its releases.

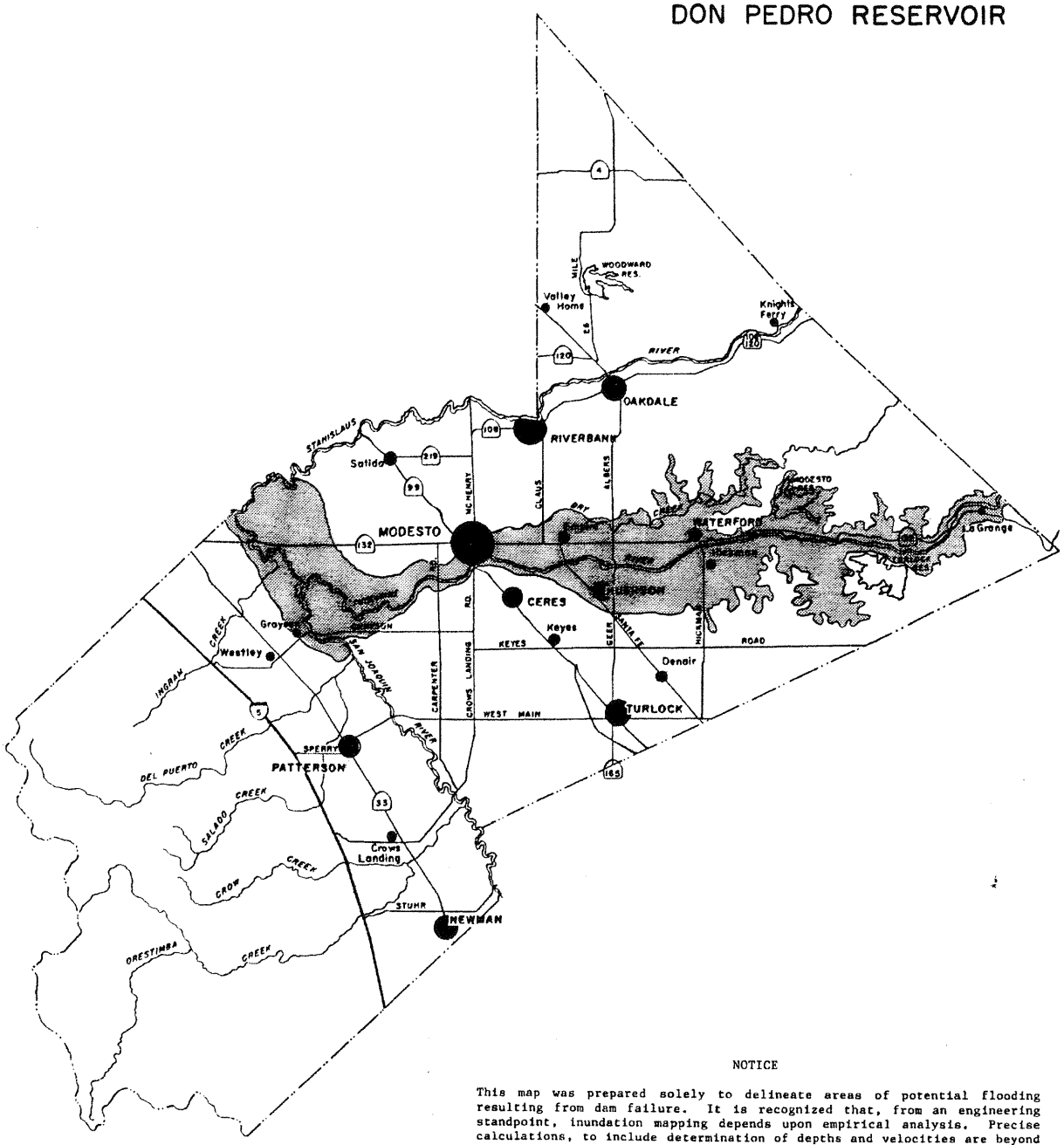
Presently, there is only one flood control district in the County. The boundaries of the Orestimba Flood Control District are shown on the map on page 5-13. There is some discussion of forming flood control districts for Salado Creek (Patterson) and Sand Creek (Denair). Plans are being made to form such a district for the latter, although no specific boundary is yet proposed. The map on page 5-13 indicates the location of the Sand Creek watershed area. All or a portion of this watershed area is likely to be included in the flood control district.

Another significant type of flood damage can result from earthquake activity. The potential for dam failure is discussed in Section I of this chapter.

Policies 1,2, and 15 address flood hazards.

INUNDATION AREA

DON PEDRO RESERVOIR

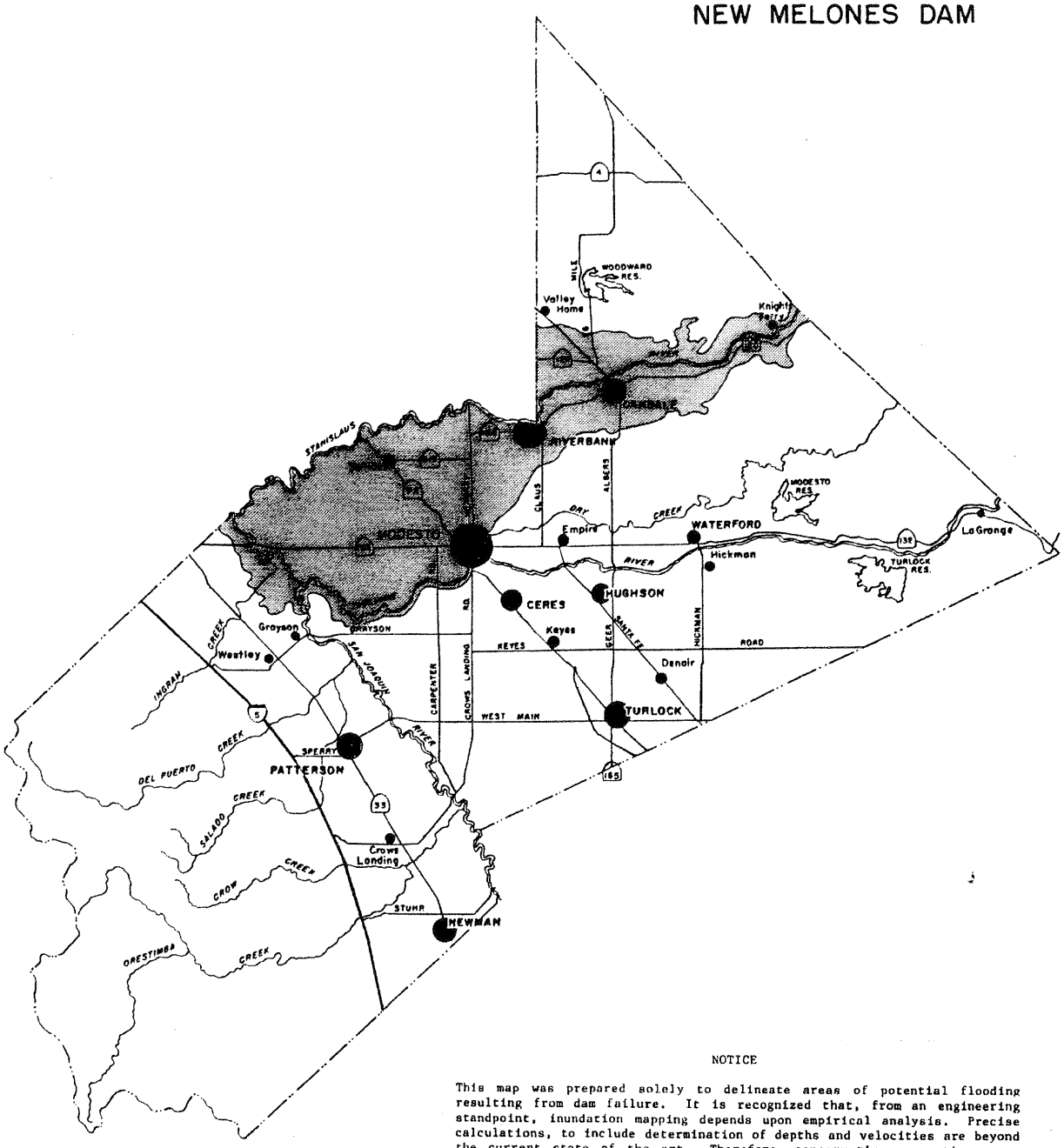


NOTICE

This map was prepared solely to delineate areas of potential flooding resulting from dam failure. It is recognized that, from an engineering standpoint, inundation mapping depends upon empirical analysis. Precise calculations, to include determination of depths and velocities are beyond the current state of the art. Therefore, conservative assumptions were made within the limits of good engineering judgment, as to the extent and rapidity of failure and as to the probable routes that flow would follow. Thus the inundation area shown encompasses all probable routes. The flow would not necessarily cover the entire area within the inundation boundary. This map is considered to be strictly a contingency measure and does not imply in any way that the dam is unsafe. Use of this map for any purpose other than for evacuation planning should be made with extreme caution and be within the limitations pointed out above.

INUNDATION AREA

NEW MELONES DAM



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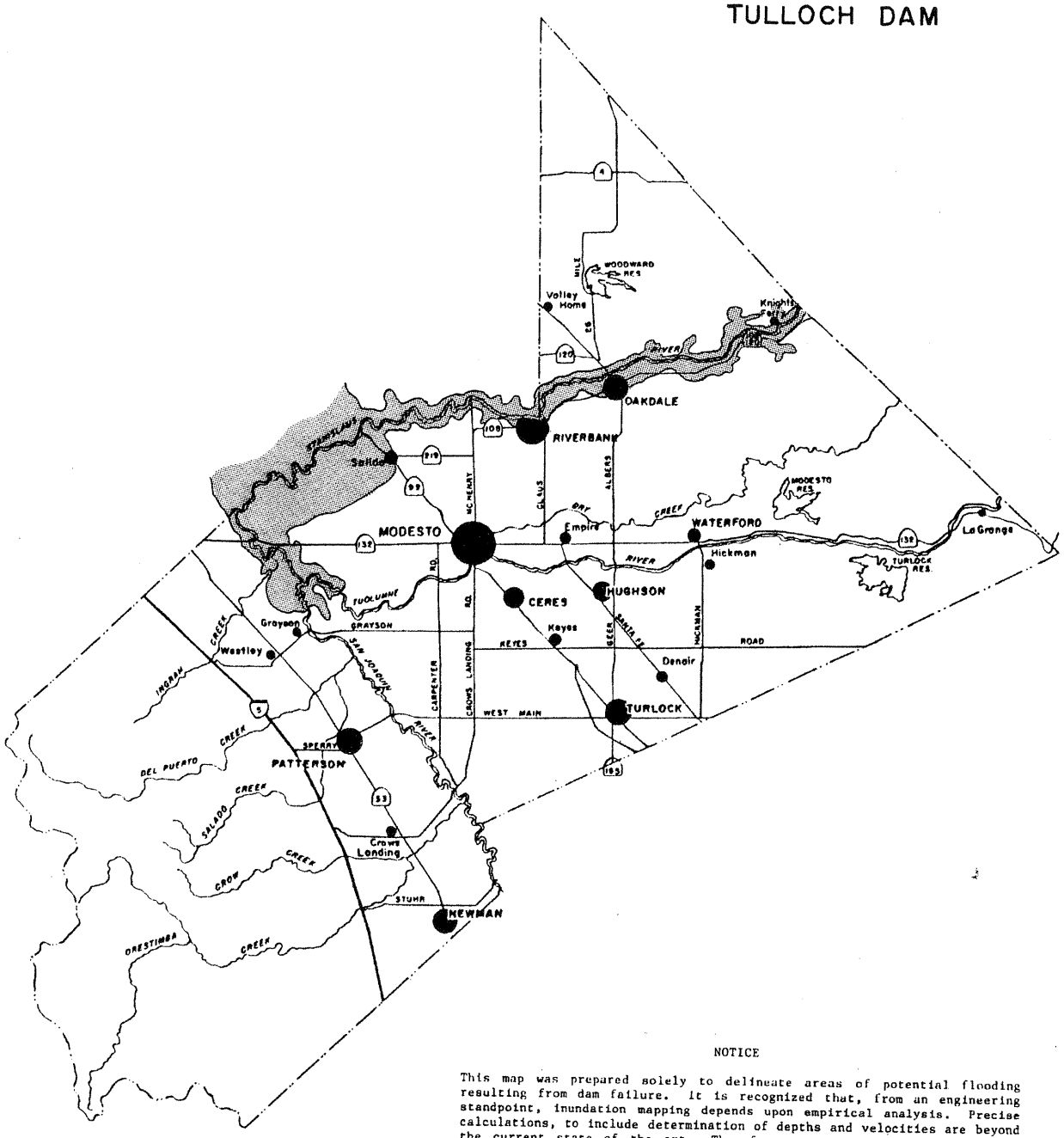
INUNDATION AREA

TULLOCH DAM



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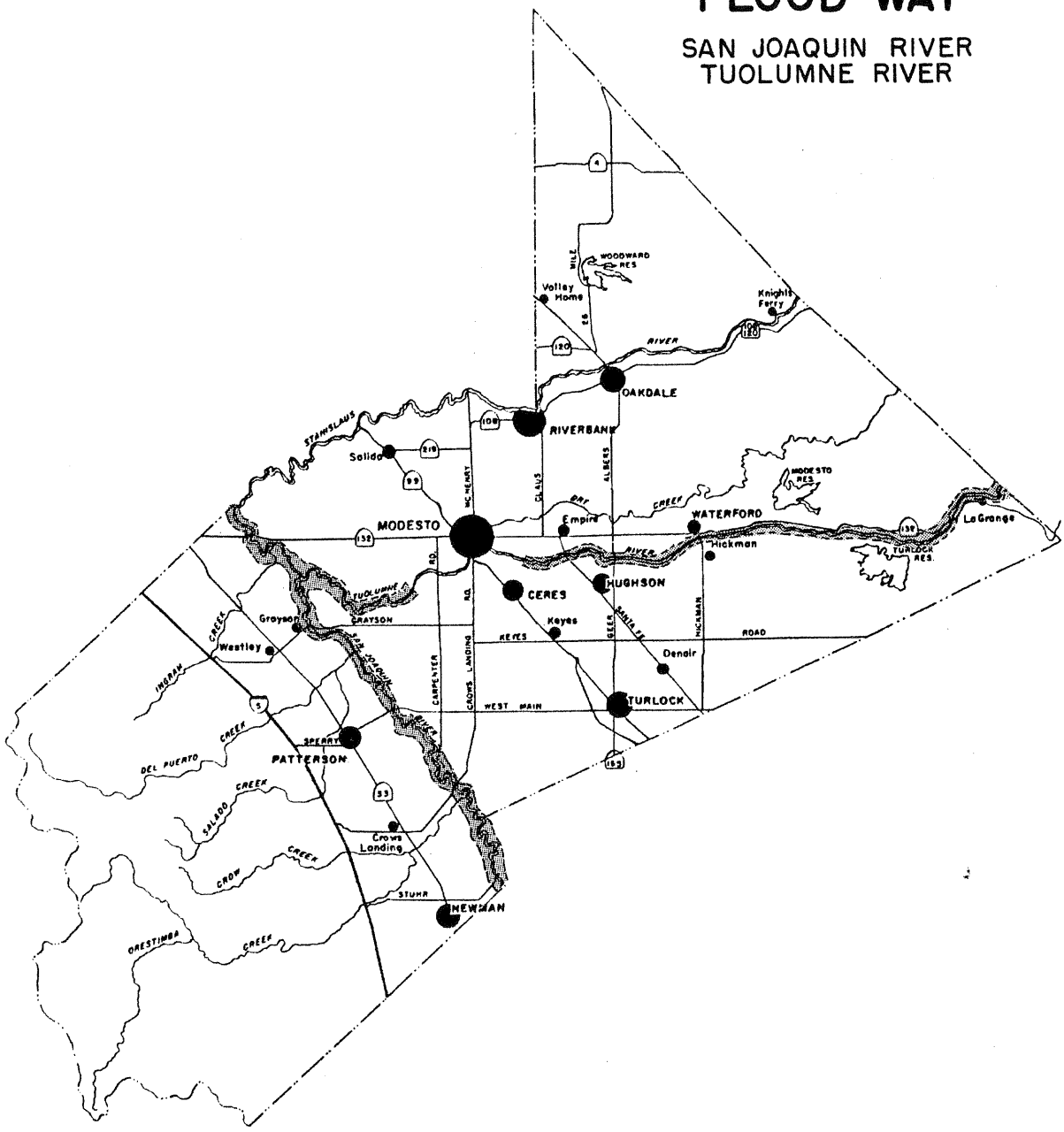
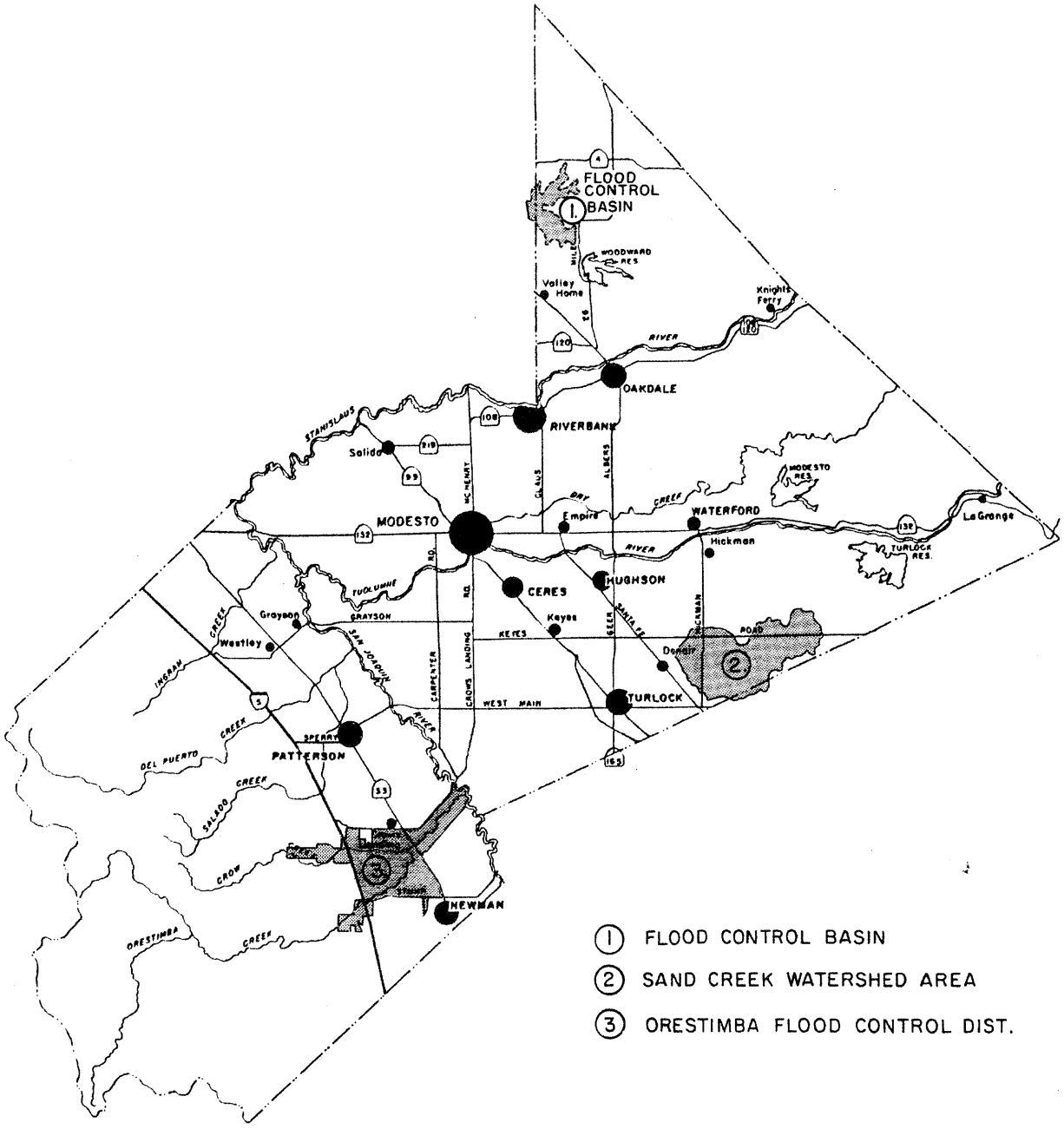
DESIGNATED FLOOD WAY

SAN JOAQUIN RIVER
TUOLUMNE RIVER

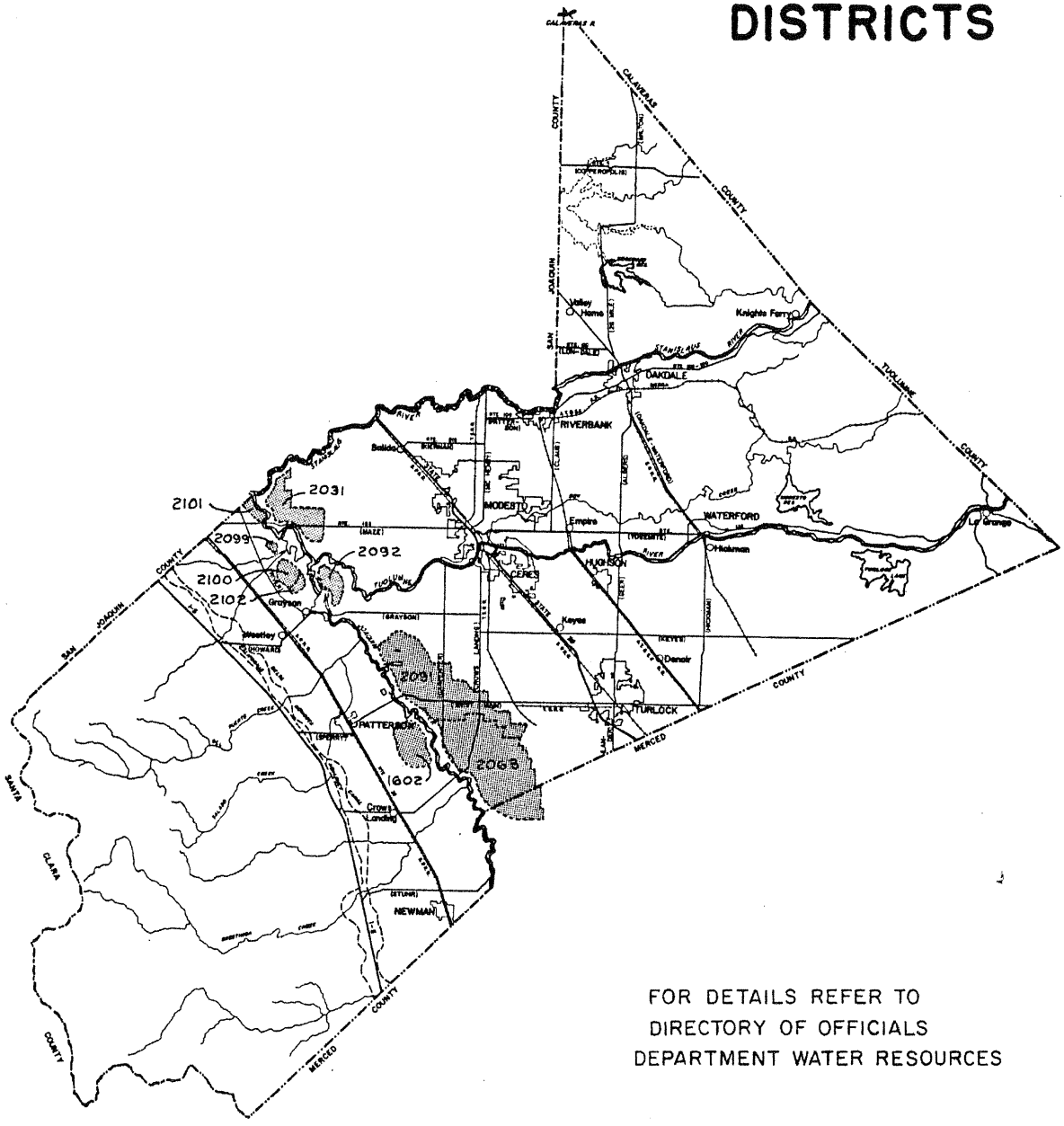


FLOOD CONTROL



1. FLOOD CONTROL BASIN
2. SAND CREEK WATERSHED AREA
3. ORESTIMBA FLOOD CONTROL DIST.

RECLAMATION DISTRICTS



FOR DETAILS REFER TO
DIRECTORY OF OFFICIALS
DEPARTMENT WATER RESOURCES

FIRE HAZARDS

Fire hazards consist of two types: urban fires or wildland fires. The causes of the two types of hazards and their effect differ. While urban fires result in injuries and loss of property, brush fires may result in loss of natural vegetation, loss of agricultural crops, erosion of the soil, and intrusion of the eroded soil into lower lying areas where it may be deposited.

Urban Fires

Urban fire hazards are primarily those associated with commercial, industrial, and residential structures and the activities that surround them. Most urban fires are caused by human activities, with the danger associated with any particular fire dependent upon the individual circumstances. Over the years, standards for development have been improved to reduce the frequency and severity of such fires. Building codes have been revised to utilize the most up-to-date construction methods in an attempt to make new buildings as safe as possible. Fire walls are now required when buildings are built close together or near a property line. Electrical standards have changed to require safer construction.

Consequently, fire hazards are greatest in areas containing older buildings which do not meet current building codes. In addition, these areas are more likely to be poorly maintained, increasing the likelihood of fires. Since most of the buildings in the unincorporated area of the County were built more than 20 years ago, the likelihood of urban fires is higher than in the unincorporated portions of the County than within the cities.

Property damage from urban fires can be financially substantial although in the majority of cases, damage can be limited to few structures. Injuries and deaths are more frequent in residential fires than any other type since they occur in structures that are inhabited.

Wildland Fires

Four factors contribute to wildland fires: vegetation, climate, topography, and people. Chaparral, grasslands and other wild plant life provide the major sources of fire fuel. Stanislaus County has a Mediterranean type of climate with cool, wet winters and hot, dry summers. The hot, dry summers in Stanislaus County produce large areas of extremely dry vegetation often located in areas where the topography enhances the spread of flames and prohibits access for fire fighting equipment. The existence of people in these areas increases the chances of fire.

Within Stanislaus County, the areas of potential wildland fires are the Diablo Range, generally located west of Interstate 5, and the Sierra Nevada foothills in the eastern portions of the County. According to the California State Division of Forestry, the majority of these areas are rated as having the highest possible critical fire weather frequency on an annual basis. This factor, combined with vegetation and slope percentage, produce overall fire ratings of moderate to high throughout the fire hazardous areas.

It should be noted that some wildland fires are necessary as an integral part of the ecosystem and are allowed to burn even after a fire suppression agency is capable of control. These areas are limited, however, and not permitted to endanger life or property.

Minimizing Fire Hazards

The County has developed several mechanisms for dealing with fire hazards. Building Code Standards require use of the safest electrical methods and separation between buildings for fire reasons. When separations are not maintained, walls must be built (commonly called fire walls), through which fire cannot burn for a specified time, usually one to four hours. This helps prevent the spread of urban fires. Some buildings whose use would be more susceptible to fire must have automatic sprinkler systems installed. Numerous other safety measures can be found in the Building Code.

The County Fire Warden's Office enforces a section of the County Code which requires removal of "all dirt, rubbish, weeds, ... which constitute a fire menace or which is otherwise a menace to health or safety..." in urban areas. If the property owner does not remove the material, the Fire Warden's Office can do so and charge the cost of removal to the property owner. In addition, the Fire Warden's Office has developed minimum fire flow requirements for new development. Table 4-2 on page 5-17 lists the requirements in existence as of April 1, 1986.

The Land Use Element of this General Plan requires that urban development occur through logical expansion of existing urban areas so that urban services (such as fire protection, public water, etc.), can be provided. One reason for this requirement is that provision of public water reduces the effects of urban fires. The Circulation Element proposes road widths and standards that will provide adequate access for fire fighting equipment.

The Zoning Ordinance and Subdivision Ordinance also contains standards to minimize fire hazards. Among these provisions are minimum setbacks between dwellings and between buildings and streets, as well as a prohibition on the creation of parcels without adequate access. The minimum width road (without special approval), is 50 feet.

The major impact of these measures has been directed towards current and future development. They do little to alleviate urban fire problems in older areas. The social and economic ramifications of attempting to mitigate the potential threat of fire hazardous structures are great. Issues to be faced include occupant safety and welfare, equitable treatment of building owners, possible relocation of occupants and minimization of overall adverse effects on the local economy. In the past, some of these issues could have been addressed through the use of Community Development Block Grant (CDBG) funds, however, it appears that those funds may no longer be available. Both the Stanislaus County Building Department and the Department of Environmental Resources attempt to upgrade older buildings through the use of the Uniform Building Code, Uniform Housing Code, and health and safety laws. Both the legal authority and the available staff time is limited for this type of activity.

Policies 7, 9, and 14 address fire hazards.

TABLE 4-2

MINIMUM FIRE FLOW REQUIREMENTS

Fire flow shall be determined in accordance with the fire protection agency of the area and the design engineer shall check with the involved agency prior to design.

Existing Water Systems

Where an established water system is present which may be extended, and where the system is not substandard to these regulations, the fire flow shall not be less than:

1.	Lot density of three or more single family residential units per acre	1,000 gpm
2.	Duplex residential units, neighborhood business of one story	1,500 gpm
3.	Multiple residential, one and two stories; light commercial or light industrial	2,000 gpm
4.	Multiple residential, three stories or higher; heavy commercial or heavy industrial	2,500 gpm

Exception: With the installation of an approved, supervised, automatic sprinkler system, in accordance with the National Fire Protection Association Pamphlet #13, throughout the building, a 50% reduction may be granted. In no case shall there be less than 500 gpm provided on site.

No Existing Water System

Where there is no established water system, in the rural areas of Stanislaus County, the following guidelines shall apply:

The installation of reservoirs, pressure tanks, elevator tanks, or other fixed systems capable of supplying the required fire flow and/or static source shall be in accordance with the National Fire Protection Association Pamphlet #1231, "Water Supplies for Rural and Suburban Fire Fighting."

Source: Stanislaus County Fire Warden's Office

HAZARDOUS MATERIALS

One area of safety that is gaining more and more attention is the subject of hazardous materials. A great deal of concern has been raised by the media about the disposal of hazardous waste, such as nuclear waste from reactors. Locally, the California Highway Patrol is considering designating I-5 through Stanislaus County as one of the roads on which transportation of nuclear waste is permitted. Public officials and employees from many disciplines agree that disposal of hazardous waste is a big problem. However, this is a very small part of the potential problem (less that 5%). An even greater potential problem is the subject of hazardous materials (i.e., chemicals, flammable liquids, etc.,), that are used throughout the country, but are not waste products.

A wide variety of business and industry use hazardous materials in their processes. For example, photograph processors and testing laboratories use a variety of chemicals. These uses, and many others, are permitted to operate in commercial zones with little or no local controls. Industrial plants can, and do, use a variety of hazardous materials such as liquid and gas chlorine (in industrial strength, a spill can result in a gaseous cloud requiring evacuation). The Santa Clara Valley is finding that the supposedly "clean" high-tech, electronic industries use a variety of hazardous materials in their processing which must be disposed.

Since Stanislaus County is predominantly agricultural, one of the primary uses of hazardous materials is in farming. Chemicals are applied to crops every day throughout the County. Although precautions are taken to prevent danger, mistakes can happen. Over-spraying by crop dusters is not uncommon. Unforeseen weather conditions can also cause problems with chemical applications. In 1986, a chemical was applied to some property near Ceres that required emergency evacuation of a nearby plant.

As the use of hazardous materials increases, public agencies have become concerned about potential problems. The greatest concern is that little information is available indicating the types of materials businesses and industries in any given location were using. Local jurisdictions had the power to adopt disclosure ordinances to require businessmen to report the hazardous materials they used. Adoption of such ordinances was politically difficult since the industries felt disclosure might give away some trade secret and usually fought against adoption of a disclosure ordinance. AB 2185 and AB 2187 were passed in 1987 which require businesses to disclose what type of hazardous materials they are using. This will greatly increase the ability of local agencies to cope with potential and actual hazards.

If hazardous materials are being used by businesses and industries, they are obviously being transported there by some means, usually by trucks or rail. According to State officials, one out of every seven rail cars in a freight train carries some type of hazardous material. There is presently no way of knowing what proportion of trucks carry such cargo.

Transporting hazardous materials by rail is the best documented means of transporting such cargo. Rail companies keep detailed records of the shipments both on the train and in their offices. If an accident were to occur, the rail company knows exactly what is in every rail car and what its location is on the train. The same is not true of truck transportation.

Although trucks are required to carry placards which indicate by a system of numbers what hazardous substance they are carrying, there can be several complications. First, there is no central office responsible for the load. If an accident occurs on a railroad, the local agency can call the rail company. The rail company can provide both exact information on substances carried and personnel to handle the accident. If there is an accident with a truck, the local agency is usually on its own. Second, someone at the scene must be familiar with the code system in order to determine what type of material is being transported. Both law enforcement and fire department officials are equipped with this information, but are hesitant about doing anything because it is relatively easy to make a mistake. Third, an accident could easily occur which obscures the placard, making it impossible for someone approaching the accident to know that hazardous material is involved.

Finally, trucks have much more mobility than trains. They may travel on any roads designated as a truck route. Truck terminals are located throughout the State, many in urbanized areas. Trucks carrying hazardous materials may arrive and be stored on a property without anyone except the operator of the truck terminal being aware of it. If an accident were to occur, such as a fire, the local officials might not have any way of determining what type of hazardous material is involved. Methods exist to require that truck terminal operators provide accurate, up-to-date information about loads parked on the property. There is still nothing that can legally be done to limit parking of trucks along truck routes (a situation that is becoming more and more common), unless parking of all types is prohibited.

Stanislaus County has received funding to purchase a vehicle for use in case of a hazardous materials spill or accident. A team will be trained for dealing with such problems. This approach has worked throughout the State. Problems do not occur frequently enough to warrant the training of permanent personnel in each jurisdiction. The potential impacts of a spill, however, are serious enough to warrant training a team comprised of safety employees to be on call should the need arise. Such a team would be supported by staff of the Department of Environmental Resources and Ag Commissioner's Departments who would provide material identification and disposal evaluation services.

The area of hazardous materials accidents is one which is particularly susceptible to the State-wide liability crisis being experienced by local jurisdictions. Public agencies are finding it impossible to obtain liability insurance through normal carriers. Although there is some interest for jurisdictions to pool their resources and self insure, this concept has not been in existence very long, and local jurisdictions are cautious about using this means of insurance. One of the causes of the insurance crisis is the current interpretation by the courts of the "deep pocket" theory. In addition to awarding substantial settlements in rather unusual cases, the courts are requiring public agencies to pay the full cost of the settlement in cases where the other defendants are unable to do so, even if as little as 1% of the blame belongs to the public agency. Since many individuals do not carry liability insurance in great amounts, cities and counties are being required to pay huge sums for accidents that are generally not their fault. With the passage of Proposition 51 in June, 1986, the damages subject to the "deep pocket" theory will be limited to out-of-pocket expenses. The huge awards being granted for "pain and suffering" will be exempt.

Given the current temper of the courts, local agencies are reluctant to get involved in hazardous materials problems. If, in attempting to clean up a spill, something happens to worsen the situation (possibly something that is not the fault of the public agency) the public agency would probably be held liable. Although the public agency may be attempting to aid the situation, there is no guarantee of immunity. It is easier to not get involved in the first place. Recently, this has resulted in some "buck-passing" on the part of agencies called in to handle a hazardous materials accident. Until there is some type of action taken at the State level to limit the liability of a local jurisdiction, there is not much that can be done locally to eliminate this problem.

Policy 13 addresses hazardous materials.

OTHER SAFETY HAZARDS

Airports

Airplanes and the associated ground facilities (airports, air strips), cause some safety hazards. Approach and take-off patterns need to be kept free from incompatible uses. Incompatible uses that cause safety problems range from dwellings to high structures. A malfunction causing a crash on landing or take off would cause more loss of life in a residential area than it would in an agricultural area. It would also be easier for a pilot to execute an emergency landing in an open area, uncluttered by houses. Tall structures, such as buildings and antennas, are hazardous to the airplanes as well.

Stanislaus County has an Airport Land Use Commission (ALUC) which reviews land use proposals within the approach patterns of airports (not air strips). The Commission bases its determinations on whether or not the proposed development meets compatibility criteria identified in the adopted ALUC plan.

Location of air strips is governed by the County Zoning Ordinance and, in some cases, the State. The County has an adopted policy regarding the siting of air strips that requires approach patterns to be free from development. This, however, is done mainly to protect existing development from the impacts of having an air strip nearby. There are no regulations preventing development after an air strip is already in existence although environmental concerns under CEQA (California Environmental Quality Act) could be used if discretionary approval is required.

Current County regulations permit communications antennas in agricultural areas. Findings have to be made in order to approve such a use which include the finding that the antenna will not be detrimental to the health, safety or general welfare of people or property in the area. In the past, the safety of crop dusters and their ability to operate effectively has not been considered. The Zoning Ordinance could be amended to require that this type of consideration be included.

Policies 10, 11, and 12 address airports and air strips.

Streets and Roads

Streets and roads can be a safety hazard in several ways. The most obvious hazard occurs when a road is not adequately maintained. Potholes and other uneven surfaces can cause or contribute to accidents. There are, however, other safety hazards that are not as obvious. Overcrowding of roads, slightly off-set intersections, and other such design problems can be hazardous. The Circulation Element of the General Plan proposes roads of sufficient width to handle anticipated future traffic, however, few of the roads actually exist at the proposed width. As development occurs, the County requires developers to pay for widening roads. In addition, the County uses its various funding sources to improve roads that are not adjacent to development (and therefore not improved by the developer) but are still becoming unsafe from overcrowding. Unfortunately, funding is not always adequate to do as much as needs to be done. The County also carefully reviews proposed developments to ensure that driveways are in the safest possible location and that intersections do not consist of off-set streets. Cul-de-sacs and street segments are of limited length so that access for emergency vehicles is not restricted should the road be blocked.

The type of vehicles on the roads is another possible safety hazard. For example, semi-trucks on residential streets could cause safety problems. This is one of the reasons the County designates certain streets as truck routes and prohibits trucks and truck parking on others.

The minimum width and location of roads also affects access by emergency vehicles. Police, fire, and ambulance vehicles need to have access to all parts of the County. Roads must go to the places to be served and must be of sufficient width to handle these often large vehicles.

Policy 8 addresses road hazards.

Other Hazards

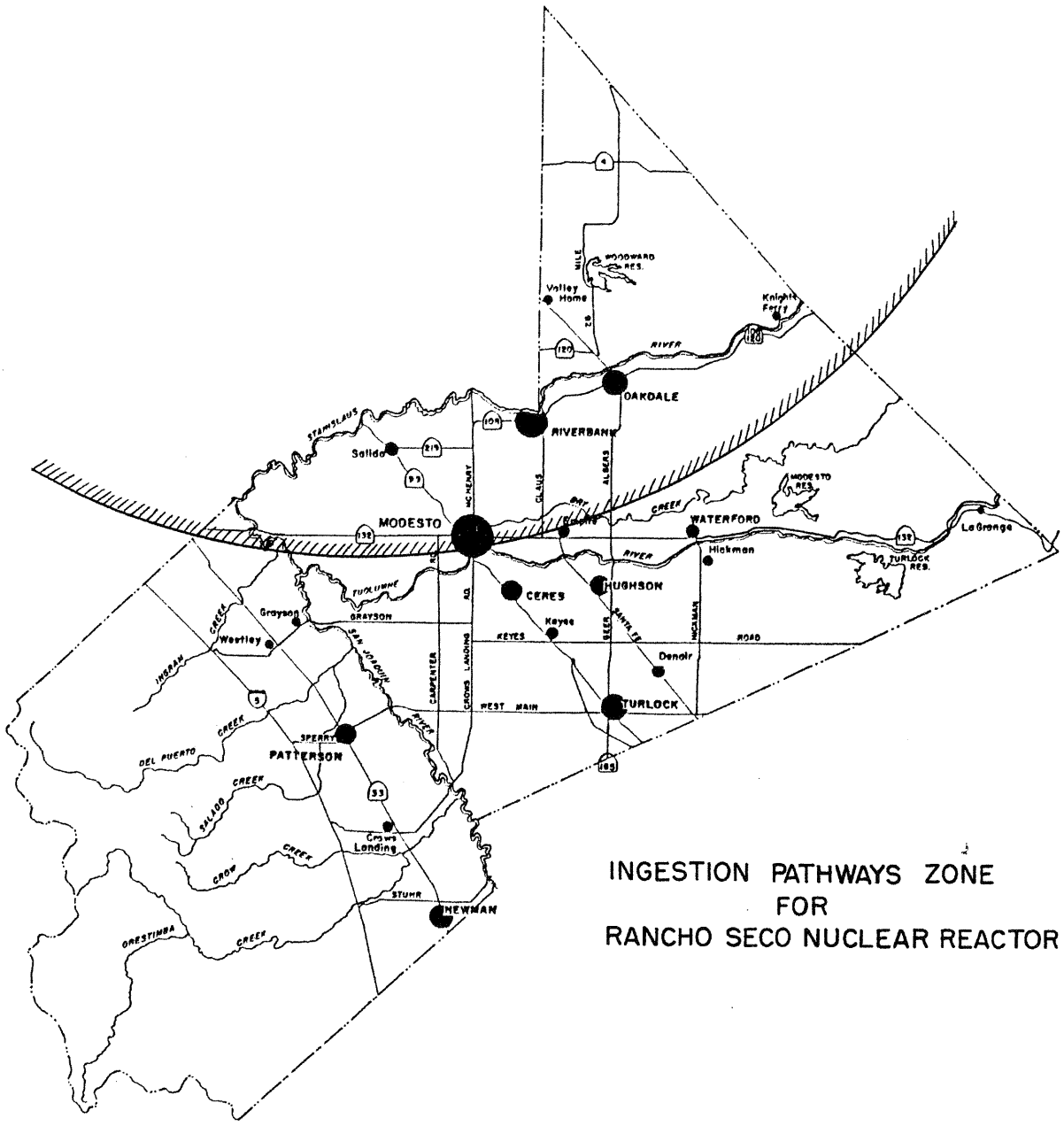
A variety of other hazards can occur, often in more urbanized areas of the County. As a largely agricultural County, canals are a major delivery route for irrigation water. As urbanization occurs, and an area becomes more populated, the chances for an accident in a canal (such as a drowning) increases. In order to combat this problem, some jurisdictions require fencing between the canal and urban development. This measure reduces the danger.

Crime also becomes more of a problem with urbanization. Street lights in residential areas tend to decrease crime. Parks can be designed to be attractive but not provide numerous areas that are difficult for police to patrol. Commercial areas can be well-lit and designed to provide police with adequate view of potential criminals. All of these measures can be accomplished through the normal permit process.

In the predominantly agricultural areas, erosion can loosen dirt which may become airborne and reduce visibility to the point of being dangerous. More detailed discussions of this hazard are found in the Conservation/Open Space Element (Chapter 3). Another hazard in the less urbanized area comes from materials, often sand and gravel, being blown off uncovered vehicles as they transport the material from the collection points to the distribution centers. This is of particular concern of Highway 132 where there are many sand and gravel excavation operations. A County ordinance requiring the covering of loads would significantly reduce this hazard.

Although the County has no nuclear reactors within its boundaries, part of it is within the Ingestion Pathways Zone (IPZ) of the Rancho Seco reactor near Sacramento. The map on page 5-23 depicts the location of this zone. If Rancho Seco were to experience a "melt-down", the northern portion of the County would be affected. Although there would be little effect from the radiation on humans, no food or water from this area could be eaten. Ingestion of plants, animals (or their by-products, such as milk) could be hazardous. The County Office of Emergency Services is coordinating disaster planning with their State counter-part. With the closing of Rancho Seco and the reported problems with its reopening, this should not be a problem for some time.

Policies 6 and 8 address other hazards.



INGESTION PATHWAYS ZONE
FOR
RANCHO SECO NUCLEAR REACTOR