

## **Section 8**

---

### **Health & Safety Element**

**HEALTH AND SAFETY ELEMENT  
SECTION EIGHT CONTENTS**

<b><u>CONTENTS</u></b>	<b><u>PAGE</u></b>
INTRODUCTION .....	8-1
OVERALL GOAL .....	8-1
SEISMIC SAFETY .....	8-1
Introduction .....	8-1
seismic geologic activity .....	8-1
Faulting:.....	8-1
Ground shaking.....	8-4
other seismic or related geologic activity .....	8-4
Liquefaction: .....	8-4
Expansive Soils: .....	8-8
Subsidence:.....	8-8
Landslides, Mudslides and Slope Stability: .....	8-8
Tsunamis and Seiches: .....	8-8
Levee Failure:.....	8-10
Historical earthquake activity in sacramento .....	8-10
preventative measures taken .....	8-12
goals and policies for seismic safety .....	8-14
FLOOD HAZARDS .....	8-15
River induced flooding.....	8-15
creek and flood plains .....	8-18
goals and policies for flood hazards .....	8-18
HAZARDOUS MATERIALS .....	8-18
Introduction .....	8-18
toxic substance identification .....	8-20
toxic substance management .....	8-20
toxic substances awareness and education.....	8-20
goals and policies for hazardous materials .....	8-20
CODE ENFORCEMENT .....	8-21
Fire hazards .....	8-21
grass fires.....	8-21
structural fires.....	8-22
other fire hazards .....	8-22
Potential Fire Hazard Areas: .....	8-22
Estimated Fire Damage.....	8-23
Goals and policies for fire protection and prevention .....	8-23
OTHER HEALTH AND SAFETY HAZARDS .....	8-24
Substandard structures .....	8-24
other hazards .....	8-24
goals and policies for other health safety hazards .....	8-24
NOISE .....	8-25
Introduction .....	8-25
major noise sources .....	8-26
McClellan and Mather Special Provisions .....	8-29
Goals, policies, actions for noise.....	8-29
THE NOISE EXPOSURE MAP .....	8-47
NOISE ASSESSMENT REPORT GUIDELINES .....	8-52
NOISE MITIGATION MEASURES.....	8-53

## List of Tables

<u>Table</u>	<u>Page</u>
1 Maximum Acceptable Interior and Exterior Noise Levels for New Development Without Mitigation.....	28
2 Land Use Compatibility Guidelines for New Development within McClellan and Mather Noise Exterior Environments (db-CNEL).....	30
3 Land Use Compatibility Guidelines for New Development within McClellan and Mather Safety Environments.....	34

## List of Maps

<u>Map</u>	<u>Page</u>
1 Major Faults within 100 km of Sacramento Area.....	5
2 Maximum/Minimum Expectable Earthquake Intensity.....	6
3 Ground Deformation Areas of Sacramento.....	7
4 Expansive Soils in California.....	9
5 California Areas Damaged by Earthquakes - 1800-1984.....	11
6 Faults in California.....	13
7 100 - Year Flood Hazard Areas and Levee Seepage Areas.....	16
8 Drainage and Flooding Problems during the 1986 Episode.....	17
9 Levees and Flood Control District Boundaries.....	19
10 Land Use Designations Inconsistent with CLUP Noise Standards.....	40
11 Areas Around McClellan AFB Affected by Aircraft Noise and Flight Operations.....	41
12 Areas Already Devoted to Development.....	42
13 Generalized County Map Showing Mather Noise and County Areas Affected By CLUP Guidelines.....	43
14 Generalized County Map Showing Mather Safety Zones and County Areas Recommended for Combining Zone.....	44

## List of Figures

<u>Figure</u>	<u>Page</u>
1 Basic Fault Types.....	2
2 Fault Plane Stresses.....	3
3 Land Use Compatibility for Community Noise Environments.....	27
4a,b,c City of Sacramento Noise Exposure Map for the Year 2016.....	49-51



## HEALTH AND SAFETY ELEMENT

### INTRODUCTION

This Element of the 1986-2006 General Plan discusses seismic safety, flood hazards, hazardous materials, code enforcement, and noise.

### OVERALL GOAL

#### Goal A

**Protect the public from detrimental sources that are within the City's ability and responsibility to regulate.**

### SEISMIC SAFETY

#### INTRODUCTION

Cities and counties in California are required to consider seismic safety as part of the General Plan safety element. Aside from this requirement, it is prudent for the City to prepare for seismic related hazards, as they have been known to occur in unexpected places and at unexpected times. This section contains background information on seismic activity. It also contains policies intended to reduce seismic related hazards in Sacramento.

State guidelines require a Seismic Safety Element to consist of an identification and appraisal of seismic hazards related to: surface ruptures from faulting; ground shaking, ground failures; or to effects of seismically induced waves such as tsunamis and seiches. The Element shall also include an appraisal of mudslides; landslides and slope stability as they may be induced by surface ruptures from faulting, ground shaking, ground failure and seismically induced waves.

Seismic activity consists of two primary components: faulting and ground shaking. Other phenomena, however, may occur due to the geologic conditions of an area.

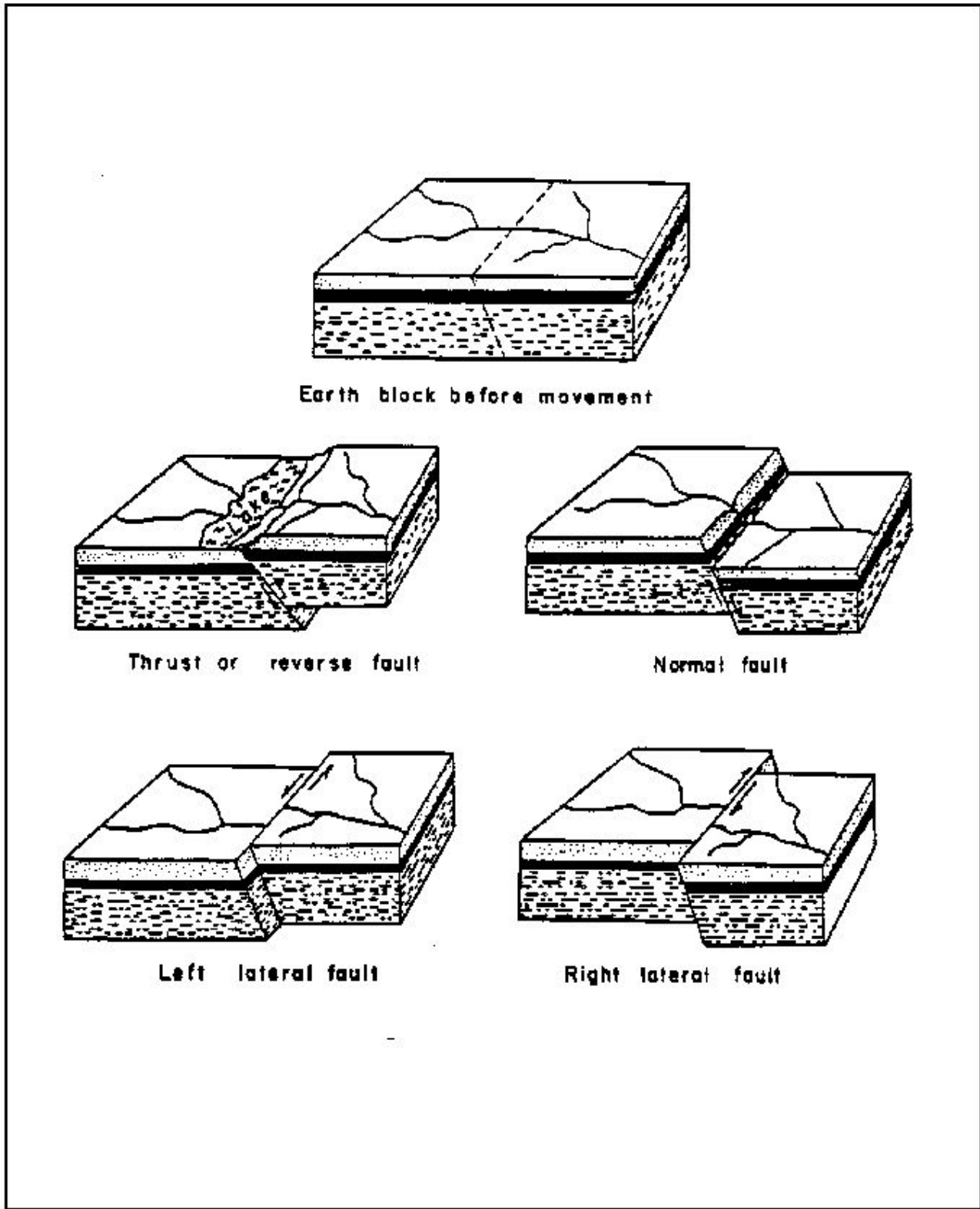
#### SEISMIC GEOLOGIC ACTIVITY

**Faulting:** Faulting (sometimes referred to as surface faulting) may be the result of an earthquake. The basic fault types are: thrust or reverse faults, normal faults, and lateral faults (Figure 1). Three motions are responsible for these faults. The three motions are: compression, tension, and passive (Figure 2). Compression of the earth's crust toward a central point will create a normal fault by a tension motion. A passive motion moves the crust in opposing directions on the same plane.

Ground rupture tends to occur along lines of previous faulting and can be recognized with a detailed investigation. Even though the locations of many faults are known, not all faults have been mapped.

Within the City of Sacramento and the Sacramento regions, there are no known faults. Faults located nearest to Sacramento are the Bear Mountains and New Melones Faults to the east and the Midland Fault to the west. Another possible fault lies northwest of Sacramento called the Dunnigan Hills Fault. An earthquake experienced in Sacramento occurred in 1892. This

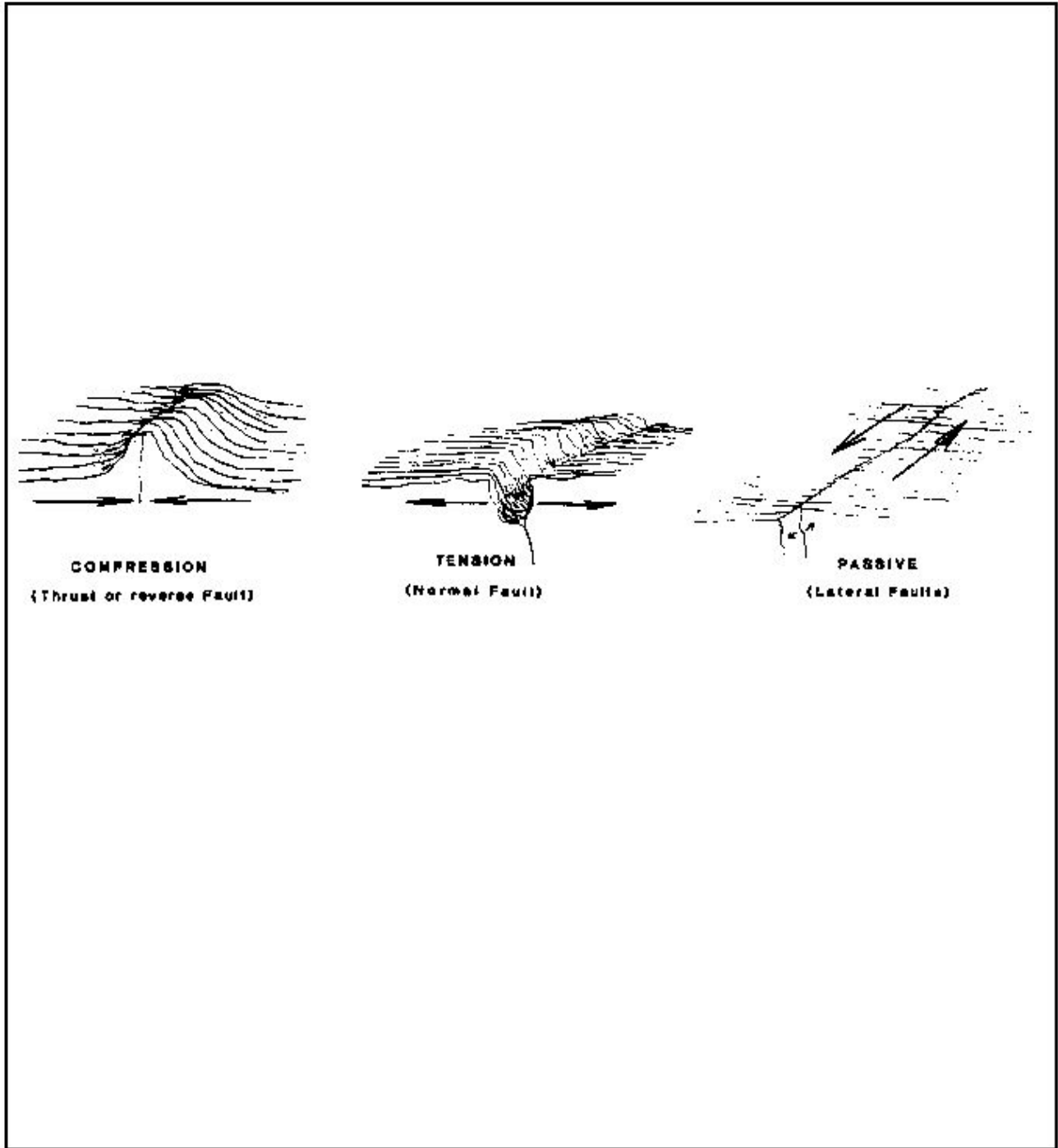
Figure 1



BASIC FAULT TYPES

Source: Longwell and Flint, 1951.

Figure 2



FAULT PLANE STRESSES

Source: Longwell and Flint, 1951.

earthquake was thought to have been caused by activity of the Midland Fault. A number of faults have been identified within 100 kilometers, or 60 miles, of Sacramento. Map 1 provides the locations of those faults.

**Ground Shaking:** Ground shaking has and will occur periodically in Sacramento from distant earthquakes. The California Division of Mines and Geology indicates that Sacramento could logically experience ground shaking on a Modified Mercalli intensity of VI or VII (Map 2). At these levels, shaking would be felt by all residents, furniture would be displaced and broken, auto drivers would notice the shaking, and poorly anchored parapets, chimney and architectural ornaments would be dislodged. The Modified Mercalli Scale of 1931 (1956 Version) provides a means of quantifying intensity of an earthquake from I to XII (also indicated as MMI-XII).

The earthquake resistance of any building is dependent upon an interaction of seismic frequency, intensity, and duration with the structure's height, condition, and construction materials. Structures built prior to 1950 will be subject to greater damage than recent buildings. This is especially true in the Central City area of Sacramento, where structures in many cases are much older. The majority of these structures are also built over consolidated soils, and construction standards do not meet today's building codes.

In addition to the effect on the external portion of structures, the internal contents may be the greatest single source of hazard. Elevators and mechanical equipment, heavy furniture, storage racks, etc. are often dangerous hazards. Methods of reducing these hazards utilize intelligent design and careful construction techniques and special anchorage methods.

#### **OTHER SEISMIC OR RELATED GEOLOGIC ACTIVITY**

According to the California Division of Mines and Geology, the City is fairly safe from geologic hazards. There are, however, isolated areas within the City that have soils and other conditions, which could result in structural damage induced by seismic activity. A discussion of liquefaction, expansive soils, subsidence, and other phenomena as they relate to Sacramento follows:

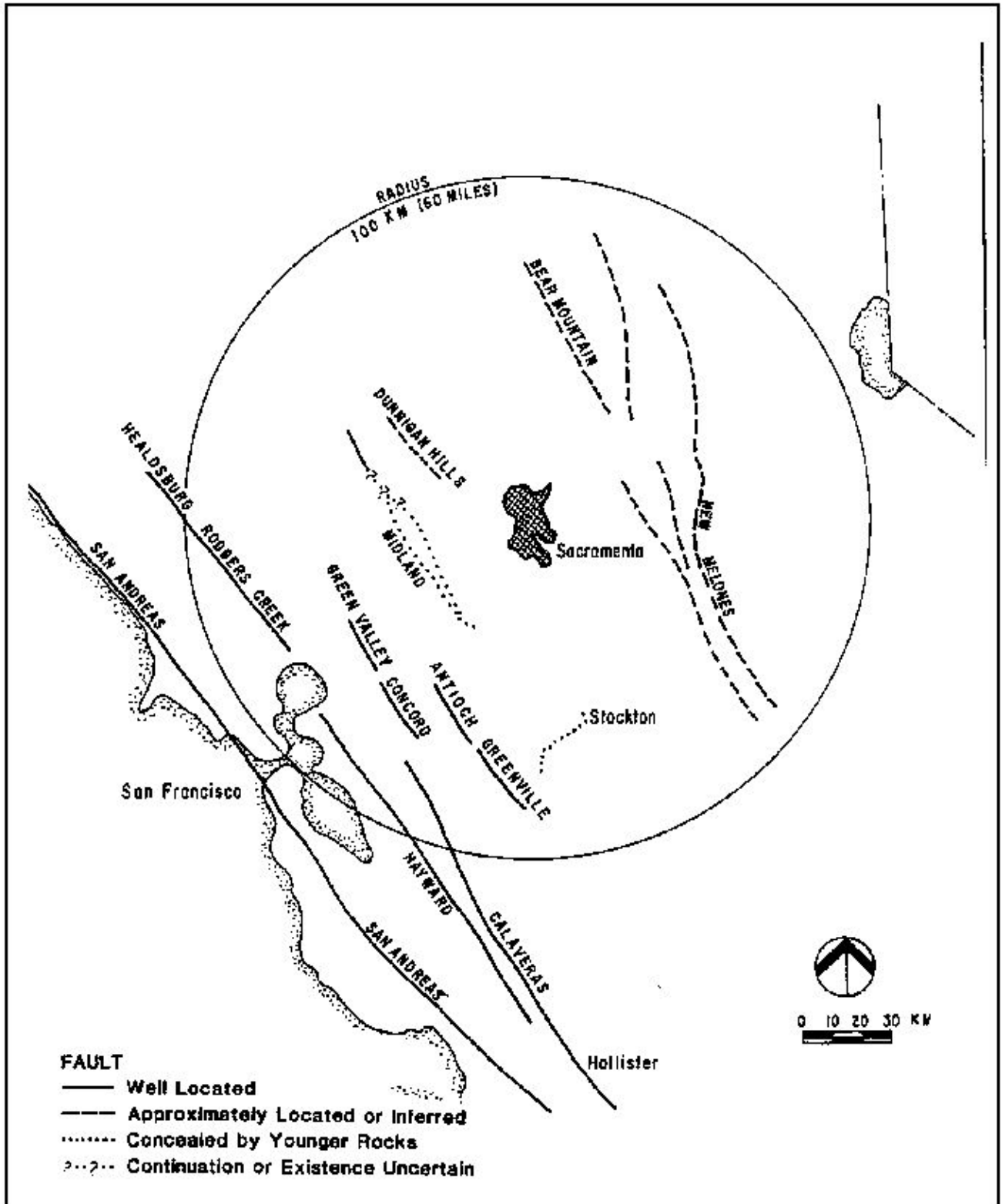
**Liquefaction:** The City is located upon a broad alluvial plain. Within it sub areas are low flying, poorly consolidated to unconsolidated sediments, which are often water saturated. It is these areas that are subject to greater ground deformation through seismic activity (Map 3).

The problem of liquefaction is described by the Tri-Cities Seismic Safety Study for El Cerrito, Richmond, and San Pablo as follows:

“Liquefaction is a process whereby water is unconsolidated sand and other granular materials is subjected to pressure usually caused by ground motion. Since fluids are not compressible and granular materials are, especially when shaken, the water seeks release. As water moves out of materials such as sand it causes the granular material to flow and lose strength. Such materials, in effect, behave as a quicksand. The result, where the liquefied materials are in a broad buried layer, may be likened to the action of ball bearings in reducing friction in the movements of one material past another. The ground literally flows out from under the buildings.”

Earthquake shaking is the major cause of liquefaction and has resulted in extensive severe damage in other areas. Damage from liquefaction may be caused by three types of ground failures: 1) lateral spreading of surficial soil layers over a subsurface layer weakened by liquefaction, 2) flow failures or mass down slope movement of liquefied soil or blocks of soil moving





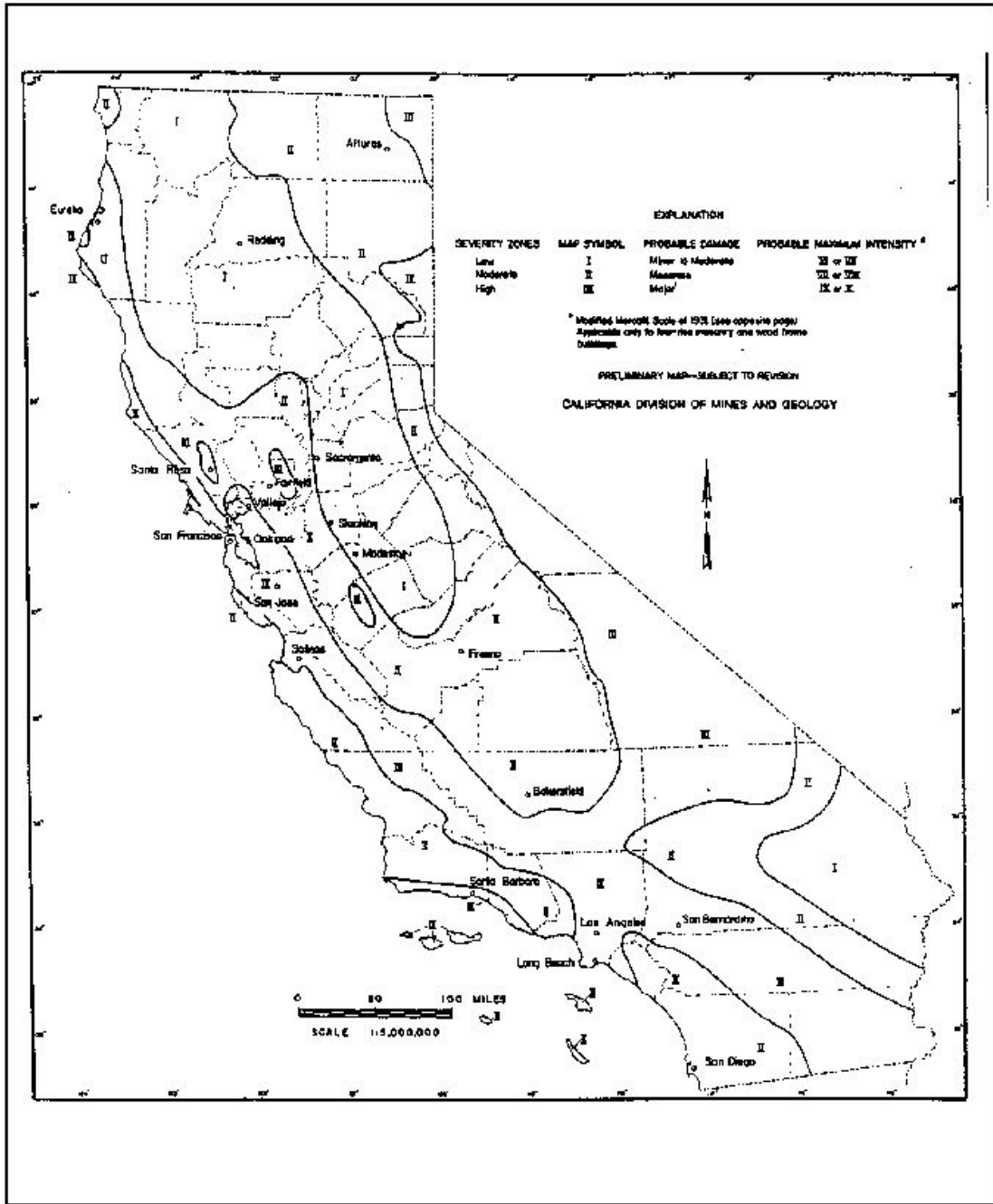
MAJOR FAULTS WITHIN 100 KILOMETERS OF SACRAMENTO AREA

Planning and Building Department  
City of Sacramento

**GP**

GENERAL PLAN  
update 1995-2005

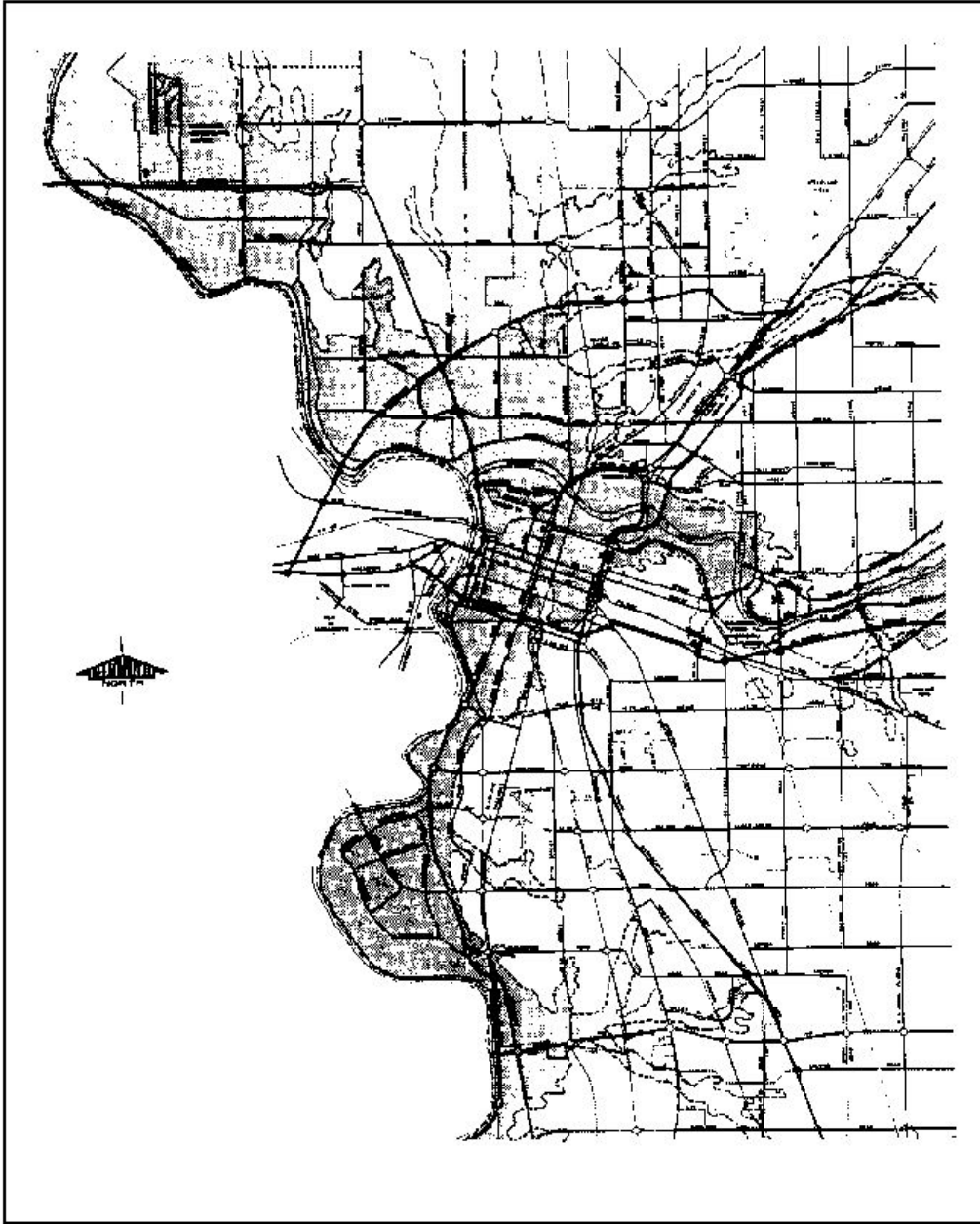
Map 2



MAXIMUM/MINIMUM  
EXPECTABLE EARTHQUAKE INTENSITY

Planning and Building Department  
City of Sacramento  
**GP**  
GENERAL PLAN  
update 1988-2008

Map 3



GROUND DEFORMATION AREAS OF SACRAMENTO



UNCONSOLIDATED WATER SATURATED  
ALLUVIUM (POOR FOUNDATION MATERIAL)

Planning and Mapping Department  
City of Sacramento

**GP**

GENERAL PLAN  
update 1995-2002

downslope on a liquefied layer, and 3) loss of bearing strength of a “quick” condition which occurs when the soil supporting a structure liquefies and loses strength causing the structure to settle, tip, or rise buoyantly. Liquefaction caused bearing failures generally occurs where a layer of saturated, cohesion less soil extends from near the ground surface to a depth greater than half a foundation wall. Thinner liquefiable layers can lead to differential settlement and slight tilting but not to the overturning of structures. Potential for damage from liquefaction in Sacramento is thus present.

Where such potential exists, site evaluation using geotechnical investigation practices may be necessary, especially when major buildings are being proposed. The Central City, Pocket, North, and South Natomas especially exhibit potential problems in this regard.

**Expansive Soils:** Expansive soils are those, which shrink or swell with the change in moisture content. The volume of change is influenced by the quantity of moisture, by the kind and amount of clay in the soil, and by the original porosity of the soil. The knowledge of the location and extent of expansive soils is of great importance to those planning or designing roads and structures. Considerable damage to structures and roads is frequently caused by the shrinking and swelling of clayey soils. The expansive soils problem is found locally in approximately 75 percent of the Natomas area and in the Valley Hi area. A Division of Mines and Geology map (Map 4) indicates a low rating of expansive soils in the overall area.

The losses due to expansive soils can be eliminated completely if the condition is recognized before roads are constructed and foundations are laid. Costs for corrective action are small. Fortunately, there are adequate controls in the State and local codes for preventing such damage. Sacramento requires compliance with the Uniform Building Code and a complete investigation of soils prior to construction of subdivisions and three-story and higher buildings.

**Subsidence:** Subsidence is the sinking of land, usually occurring over broad areas and therefore, not normally perceptible at the ground surface. Subsidence presents a major hazard if a sufficient quantity of water is withdrawn during construction activities or through depletion of the ground water table. This phenomenon particularly occurs in those areas underlain by alluvium soils.

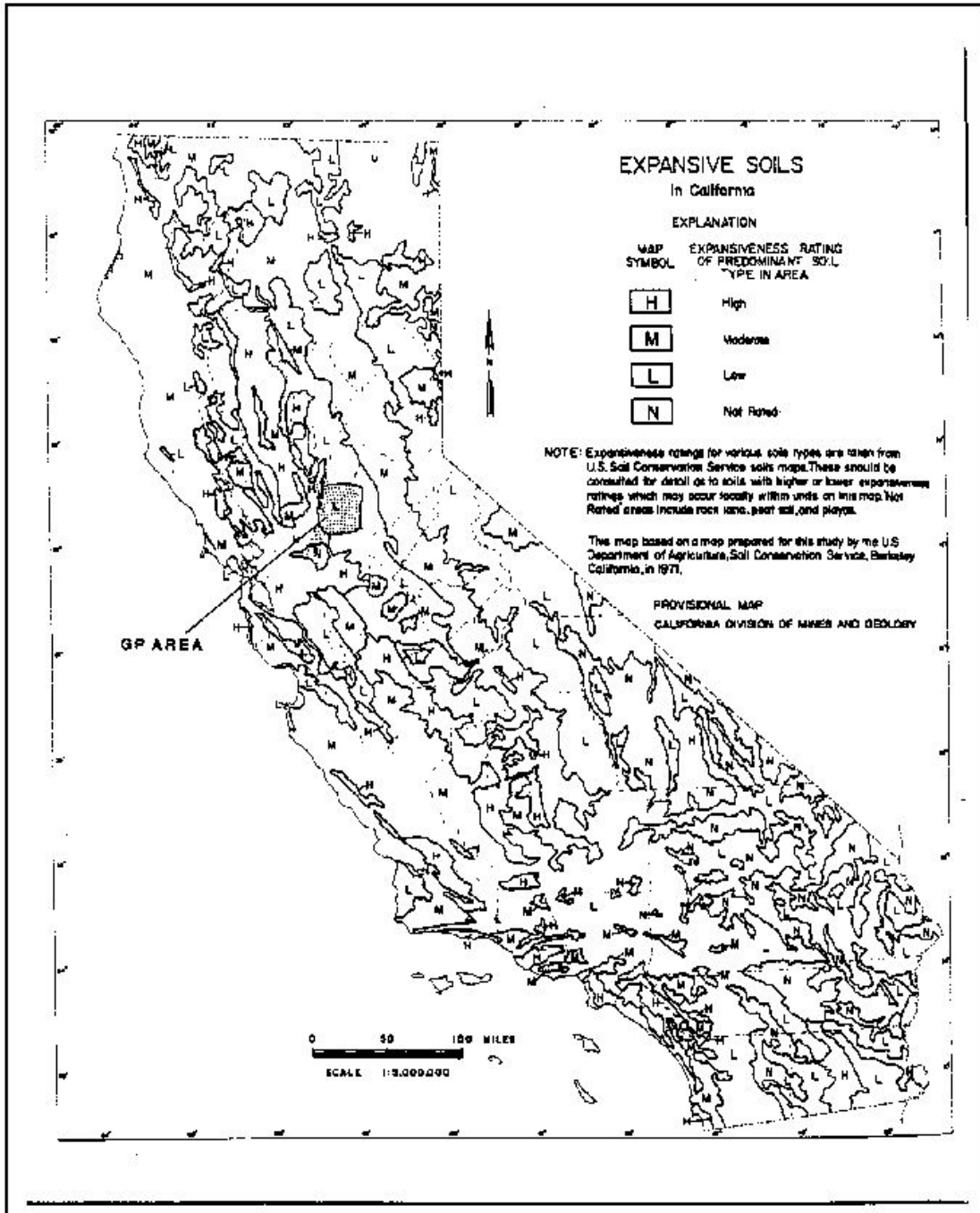
Construction of I-5 in Downtown Sacramento is an example of where the withdrawal of water from the alluvial soils caused the area adjacent to the freeway to subside. Similar problems are now being moderated by State and Federal programs that require ground water replacement during construction in project areas where depletion would be substantial.

**Landslides, Mudslides and Slope Stability:** The potential for landslides, mudslides and slope instability in the City Limits is minor due to the flat topography of the area. Sacramento has a rating of “nil” which indicates a low amount of landslides in the overall area.

**Tsunamis and Seiches:** A tsunami is a large sea wave caused by submarine earthquake or volcanic eruption. These waves have caused considerable damage to coastal areas but are of little concern to an inland City such as Sacramento.

Seiches are waves induced on inland bodies of water caused by seismic activity. An oscillation of the water surface may last from a few minutes to several hours. This phenomenon is similar to the sloshing of water in a boat or bucket when it is jarred. Damage from flooding may occur if these waves overtop the dam or reservoir. A number of dams (for example, Folsom, Oroville, and Shasta) have a potential to inundate Sacramento should a major seiche occur. Although they have this potential, the probability of flooding from a seiche is low.

Map 4



EXPANSIVE SOILS IN CALIFORNIA

Planning and Building Department  
City of Sacramento  
**GP**  
GENERAL PLAN  
updated 1988-2008

**Levee Failure:** Levees in the Sacramento area were constructed around the turn of the century and were upgraded in the 1940's and 1950's. Materials used were primarily the alluvial (sandy) soils from the river bottom. These unconsolidated soils have a tendency for liquefaction. Levee failure could occur, especially if a large or moderate earthquake took place during the winter or spring months when water levels are high.

In February 1986, heavy releases from Folsom and Nimbus Dam exceeded the design capacity of the levees. Had the area been subjected to ground shaking at the time, the results of levees subject to liquefaction could have been disastrous.

Of the potential seismic and seismic related activities that may occur, historical records indicate that only ground shaking has been reported in Sacramento.

### **HISTORICAL EARTHQUAKE ACTIVITY IN SACRAMENTO**

Earthquake activity in the Sacramento area has been considered minor over the historic period (the last 200 years). Accurate records have been kept over the past 150 years for Sacramento. During that time, it is reported that occasional ground shaking has been experienced. Slight structural damage caused by earthquakes has occurred on several occasions.

Significant seismic activity in the Sacramento area was recorded in 1869, 1892, 1954, and 1966. Events recorded in 1869, 1954, and 1966 were centered in Western Nevada. In 1892, an earthquake thought to have originated between Winters and Vacaville did some structural damage to buildings in Sacramento. The intensity of the earthquake measured VI on the Modified Mercalli Intensity Scale. At the State Capitol large statuary on top of the structure fell to the ground. Books in the State Library (that was located in the Capitol) were de-shelved. Other structural damage was reported including toppled chimneys, fallen plaster, and cracked masonry.

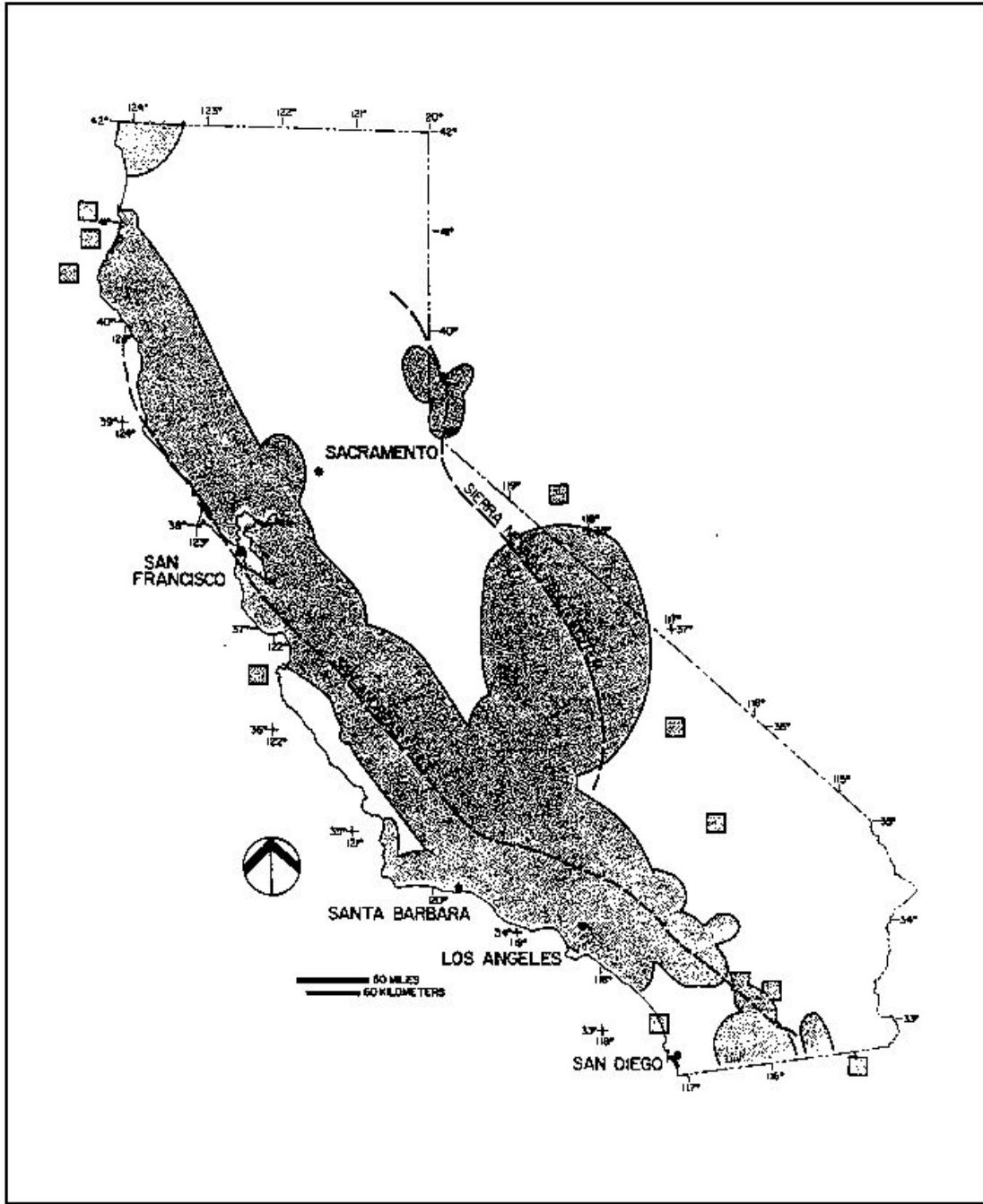
Impacts of the 1906 San Francisco earthquake in Sacramento were minimal. One report indicates that chandeliers oscillated, a clock stopped and water was thrown from a tank. Its intensity on the Modified Mercalli Scale was rated at V. According to these reports, the 1906 earthquake did not exceed the intensity or create the amount of damage that the 1892 event created in Sacramento. Other than the 1892 earthquake, there has not been seismic activity of significant magnitude to cause structural damage to buildings in Sacramento.

Preparation of a Seismic Safety Element for Sacramento may seem unnecessary due to the limited amount of seismic activity in the City. Earthquakes, as stated earlier are unpredictable and will occur at unexpected times. Ground shaking from earthquake-centered miles away from Sacramento have been and will be experienced here on occasion.

The California Department of Conservation, Division of Mines and Geology's Earthquake and Epicenter Fault map (Map 5) describes fault locations and earthquake epicenters that have occurred between 1900 and 1974 near Sacramento. The maximum credible earthquake, or potential magnitude of an earthquake located at these faults, is provided below.

In addition, the Division of Mines and Geology identifies low, medium, and high severity zones within California. The probable maximum intensity of an earthquake was also provided on Map 2. Although the map indicates that Sacramento lies in a low severity zone, the probable maximum intensity of an earthquake could be as high as VII on the Modified Mercalli Scale. Some structural damage could occur at that intensity

Map 5



CALIFORNIA AREAS DAMAGED BY EARTHQUAKES  
BETWEEN 1800 and 1984

(Modified Mercalli intensity VII or greater)

Planning and Building Department  
City of Sacramento

GP

GENERAL PLAN  
update 1988-2005

Damage from an intense earthquake that may impact Sacramento is the reason that steps need to be taken to protect the community. Measures have been enacted that provide protection.

### **PREVENTATIVE MEASURES TAKEN**

Steps have been taken to prepare for earthquakes that apply to all California. The 1933 Long Beach earthquake led to the creation of the Field Act, which requires new schools to be built to resist earthquakes. The Riley Act also adopted after the 1933 Long Beach earthquake improved construction standards for most buildings.

After the San Fernando earthquake in 1971, the State Legislature again responded by adopting the Alquist-Priolo Special Studies Zones Act in 1972. The purpose of this Act is to identify active fault zones and to prohibit new structures from being built on top of active faults. Local governments are required to withhold approval of construction permits in Special Studies Zones until a geological investigation is conducted. Map 6 shows the linear locations of the Alquist-Priolo Special Studies Zones.

In addition to these actions, the Uniform Building Code provides a great amount of protection through construction standards. The Uniform Building Code has been periodically revised to increase, among other elements, the earthquake resistance of structures.

Current construction standards in Sacramento require that all new structures be sufficiently built to withstand seismic activity designated for Zone 3 of the Uniform Building Code's Seismic Zone Map of the United States. Zone 3 is defined as a major damage area corresponding to an intensity of VIII and higher of the Modified Mercalli Scale.

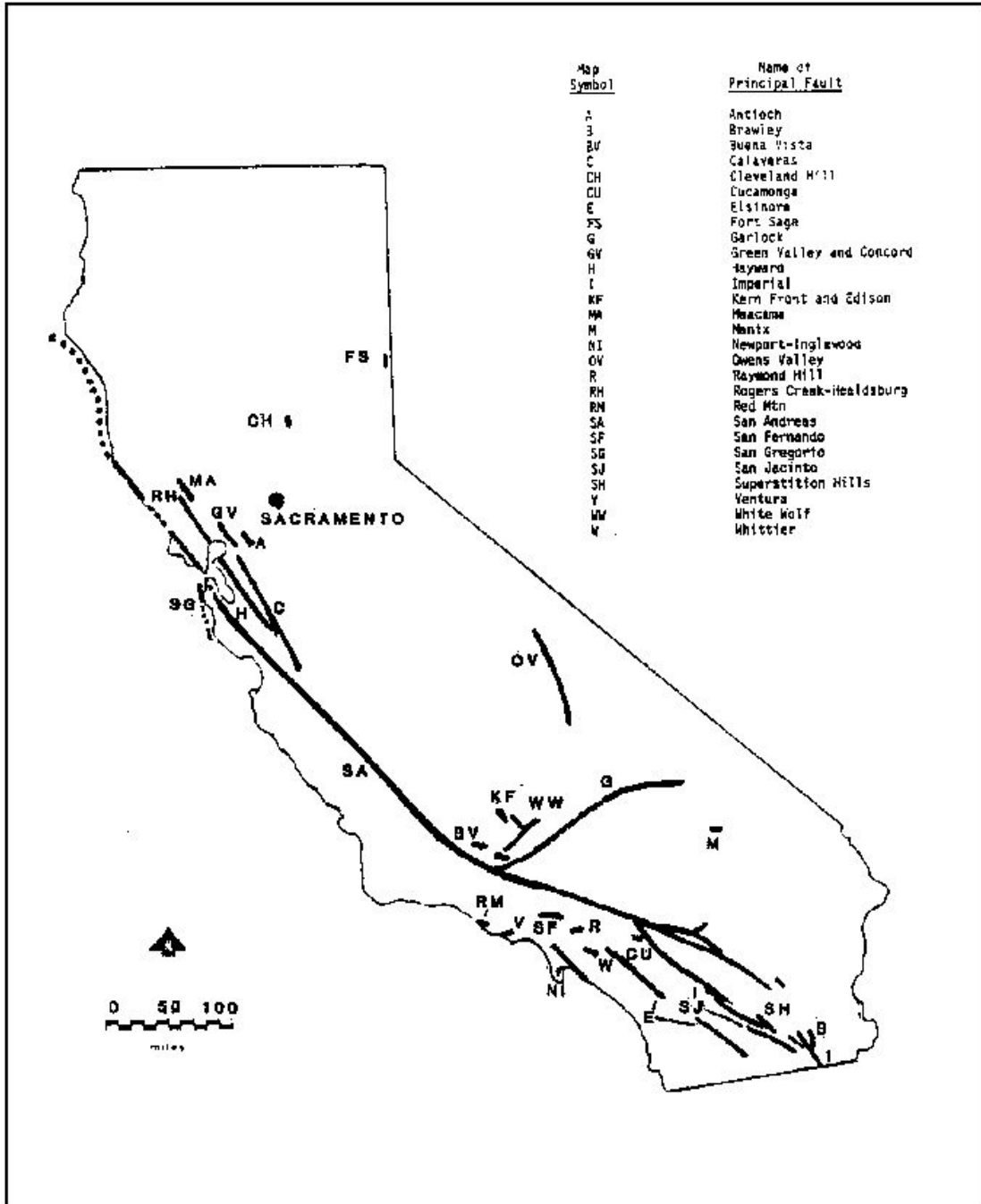
Since the 1940's, City Codes and the Uniform Building Code have required structural investigations to be performed and repair assessments to be made for some unreinforced masonry buildings. Detailed soils reports are required on all subdivisions and structures of three stories and higher, and where high structural loads are anticipated. The City's Building Division also administers a Dangerous Building Code. Structures affected by these Codes are generally older buildings, many of which were constructed prior to the 1950's when seismic requirements were not as stringent as today's requirements. In addition, the Sign Ordinance contains construction standards that protect residents from unanchored signs on buildings and other structures.

The potential risks seem to be in two major areas in Sacramentans, even with these regulations: (1) many buildings exist and are actively utilized within the City Limits that were constructed prior to the use of earthquake resistant design techniques, and (2) consideration should be given to a statement found in the North Natomas Community Environmental Impact Report: "Regardless of the measures that have been taken, any building will collapse if the ground under it shakes hard enough or becomes permanently deformed."

History has thus far indicated that Sacramento is relatively free from major earthquake activity. With continuously improving construction standards, it can be concluded that all structures built within the last few years are reasonably safe from seismic hazards.



Map 6



FAULTS IN CALIFORNIA ZONED UNDER THE  
ALQUIST - PRIOLO SPECIAL STUDIES ZONE  
ACT OF 1972

Planning and Building Department

City of Sacramento

**GP**

GENERAL PLAN

updated 1998-2008

## **GOALS AND POLICIES FOR SEISMIC SAFETY**

### **Goal A**

**Protect lives and property from unacceptable risk of hazards due to seismic and geologic activity to the maximum extent feasible.**

#### **Policy 1**

**Prohibit construction of structures for permanent occupancy across faults, should any be designated.**

#### **Policy 2**

**Continue to require soils reports and geological investigations for determining liquefaction, expansive soils, and subsidence problems on sites for new subdivision and/or multiple-story buildings in the City of Sacramento.**

#### **Policy 3**

**Continue to implement the Uniform Building Code requirements that recognize State and federal earthquake protection standards in the construction or repair of buildings.**

#### **Policy 4**

**Support a jointly sponsored City/County /State soils investigation in the downtown area to determine if there is a liquefaction problem in this area.**

#### **Policy 5**

**Initiate a comprehensive survey of all older buildings and places of public assembly and recommend realistic measures to rehabilitate or remove those structures determined to be structurally unsafe. Special consideration should be given to historic or particularly aesthetic buildings.**

#### **Policy 6**

**Initiate and adopt a parapet ordinance that would require the removal or strengthening of poorly anchored parapets or architectural detailing, and yet be in balance with the expressed community objectives for historical structures preservation.**

#### **Policy 7**

**Cooperate with and encourage the federal, State, and other jurisdictions to investigate seismic and other hazards and to develop mitigation measures.**

## **FLOOD HAZARDS**

The overflow of water onto land, which is not generally covered, by water is known as flooding. There are three main factors that could lead to flooding in Sacramento. These are river induced flooding; rainfall induced flooding, which is discussed under seismic safety. Although these potential flood hazards are similar in nature these differ in terms of what areas are directly affected and what measures can be taken to minimize the risk of flooding.

### **RIVER INDUCED FLOODING**

High water levels along the Sacramento and American Rivers are a common occurrence in the winter and early spring months. This water is contained within the flood plain areas and adjacent levee system; the social and economic disruption could be significant.

Local interests constructed the two main levee systems that protect the City at the turn of the Century. The levees were constructed of silt and sand dredged from the river bottom. These levees were subsequently upgraded in the 1940's and 1950's.

The amount of water flowing through the levee system is controlled by Folsom Dam on the American River and the reserve overflow area of the Yolo Bypass on the Sacramento River. Regular inspection and repair of the levees are undertaken by various public agencies.

Map 7 shows the currently adopted 100-year hazard areas, levee seepage areas, and low-level areas within the City. These areas may be changed once studies resulting from the January February of 1986 high water event are complete.

In February of 1986, the levee system passed a volume of water generated by the eighty to one hundred year flood event. This high water volume was attributable to heavy rainfall of long duration. When constructed, Folsom Dam was designed with a 1,010,900-acre feet capacity. In February 1986, the Dam held 1,142,000 acre-feet of water at its maximum detention.

Although the February 1986 storm caused some flooding in certain areas, the major levee systems that protect the City from disaster withstood record water flows. Some damage did occur in certain sections to the two main levees. These failures were the result of instability, seepage, and boils. The U.S. Army Corps of Engineers has evaluated the condition of these failures and is the responsible agency for correcting the problems. Map 8 indicates the specific location of problem areas experienced during the high water flows in February of 1986.

The Army Corps of Engineers is also conducting studies of the American and Sacramento River Systems. These studies will review flood control alternatives and adequacy of the river levee system. Anticipated completion date is October 1990. Another ongoing Corps study is on the Dry Creek watershed due out in early 1988. The Corps is also scheduled to begin a general investigation study of the Sacramento Metropolitan Area in October 1988, to be completed in 1991-92.

A Sacramento Flood Insurance Study is also underway. FEMA (Federal Emergency Management Agency) is conducting a two-part study to determine the adequacy of the City's current flood plain ordinance restrictions and to recommend changes if needed. The official FEMA flood plain maps will also be reviewed. This study is anticipated to be completed by March 1989. A Bureau of Reclamation and Department of Water Resources study of American River flood control alternatives is scheduled for release in September 1987.

Map 7

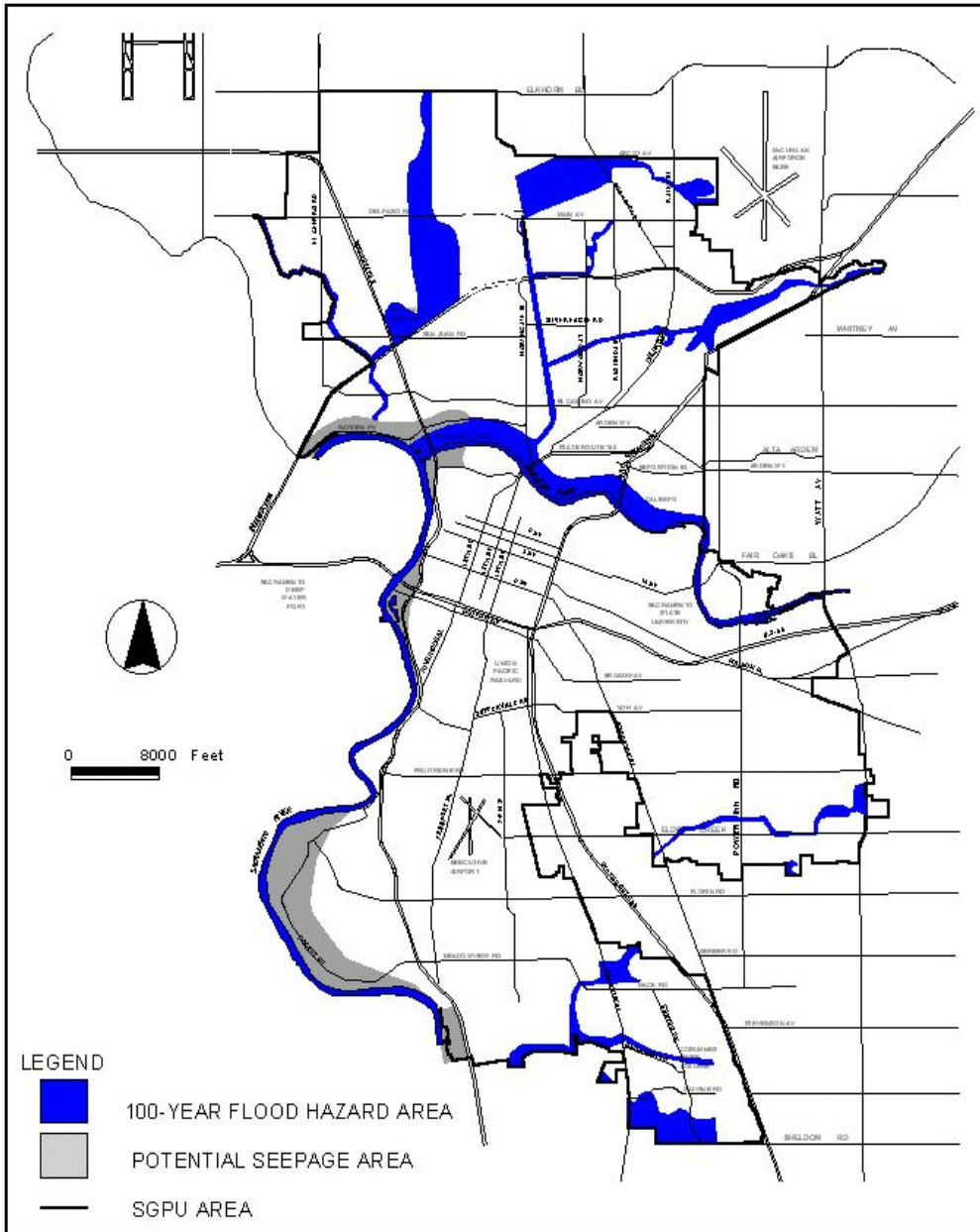


EXHIBIT W-3. 100 - YEAR FLOOD HAZARD AREAS AND  
LEVEE SEEPAGE AREAS

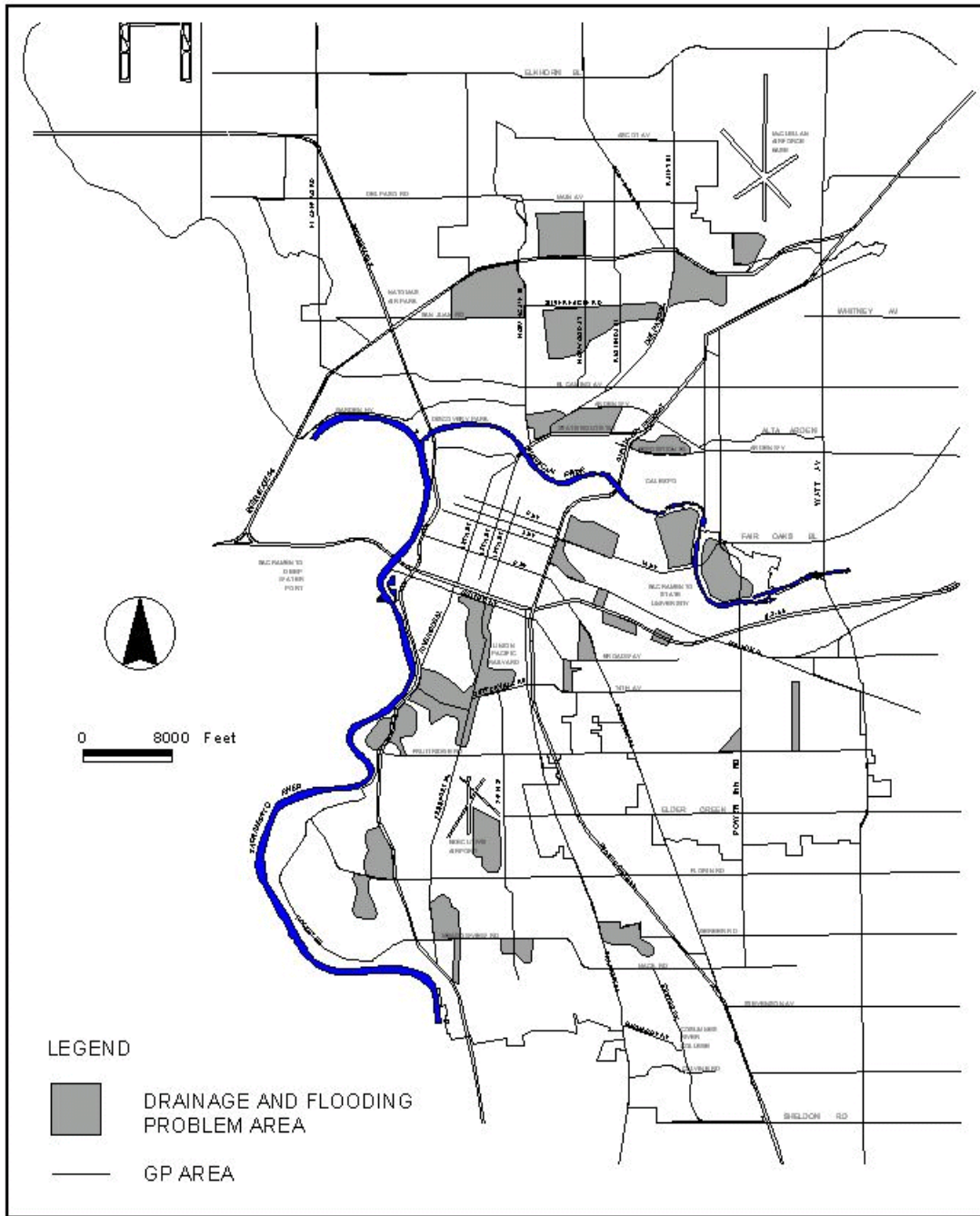
Sources: Federal Emergency Management Agency Floodway Maps for City of Sacramento,  
September 21, 1982. California Department of Water Resources 1967.

Planning and Building Department  
City of Sacramento

GP

GENERAL PLAN  
update 1985-2008

Map 8



DRAINAGE AND FLOODING PROBLEMS  
DURING THE 1986 EPISODE

Planning and Building Department  
City of Sacramento  
**GP**  
GENERAL PLAN  
update 1995-2005

## **CREEK AND FLOOD PLAINS**

One of the most significant flooding problems in the City during the February 1986 incidence was the result of overflow along Arcade Creek. Levees along creeks are either maintained by a flood control district, a reclamation district, or the City. Map 9 indicates the district boundaries. Minor flooding has also occurred due to overworked pumping and drainage facilities.

## **GOALS AND POLICIES FOR FLOOD HAZARDS**

### **Goal A**

**Protect against flood related hazards wherever feasible.**

#### **Policy 1**

**Prohibit development of areas subject to unreasonable risk of flooding unless measures can be implemented to eliminate or reduce the risk of flooding.**

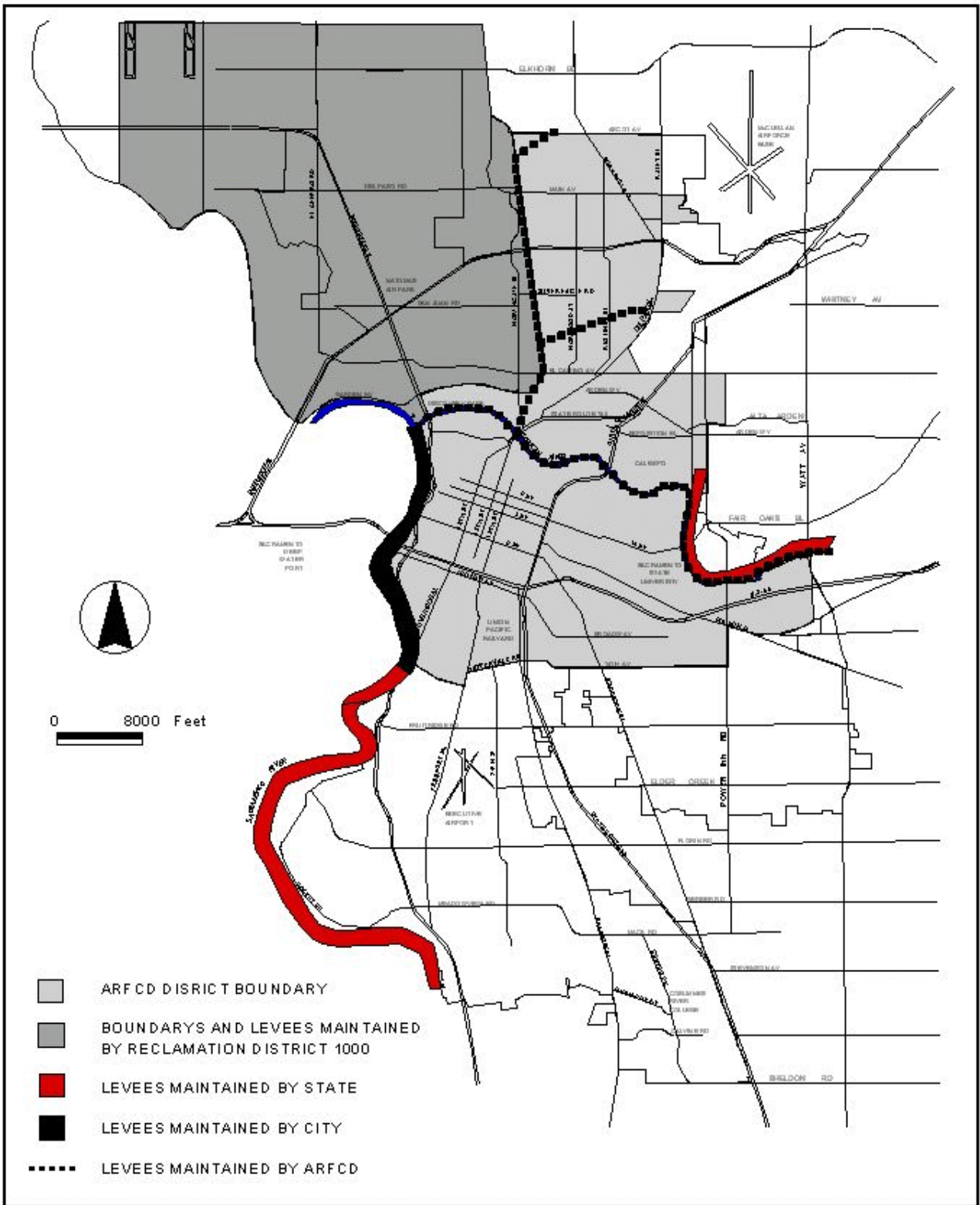
## **HAZARDOUS MATERIALS**

### **INTRODUCTION**

The City has established a Toxic Substances Commission whose task it is to develop long-range plans for all facets and issues related to toxic substances (hazardous materials) in the City of Sacramento.

The Toxic Substances Commission has the following tasks:

- § Develop a comprehensive City hazardous materials database.
- § Assess the effectiveness and scope of existing City regulatory programs.
- § Assess the City programs, which involve direct handling or control of toxic substances for the purpose of evaluating effectiveness and safety.
- § Assess the risk of major toxic substance hazards affecting the City, and evaluate the effectiveness of clean up and control programs.
- § Assess the relative significance of toxic substances hazards and identify emerging problems, which fall within the scope of the City jurisdiction.
- § Make final recommendations, which describe the long-term role of the City of Sacramento in toxic substances control and regulation, including the role of the Toxic Substances Commission, the City's relationship with other agencies, new ordinances, a General Plan Element, and changes in City operations.



LEVEES AND FLOOD CONTROL DISTRICT BOUNDARIES

Planning and Building Department  
City of Sacramento

GP

GENERAL PLAN  
update 1995-2005

Also, the State has been developing regulations for area and business hazardous material emergency response plans, which are required under the Health and Safety Code. These plans are to contain provisions for pre-emergency planning, protocols and training for emergency rescue personnel, public safety information, supplies and equipment, incident critique and follow-up and minimum standards for business plans which will include inventories of hazardous materials.

### **TOXIC SUBSTANCE IDENTIFICATION**

There are land uses, which generate toxic waste, a number of which have been historically used as toxic waste disposal sites. The City's Right-to-Know Ordinance has given it the authority to inventory the toxics that various businesses are using. The past disposal methods of toxic substance users, however, may have created an environmental problem. The City is collecting information regarding existing and proposed locations of toxic substances disposal, storage, handling, and transportation within the City of Sacramento.

### **TOXIC SUBSTANCE MANAGEMENT**

Due to the effect toxic substances have on the environment, many levels of government are involved as well as several different agencies within one local jurisdiction. Coordination among the various agencies and governmental utilities is a necessity to effectively control toxic waste.

### **TOXIC SUBSTANCES AWARENESS AND EDUCATION**

Methods of storage, use, and disposal that will keep toxic substance user healthy and the general public safe and the environment clean are necessary.

### **GOALS AND POLICIES FOR HAZARDOUS MATERIALS**

#### **Goal A**

**Provide for the health and safety of the citizens of Sacramento and for the protection of the environment by reducing, and where possible eliminating exposure to hazardous materials and waste.**

#### **Policy 1**

**Work with the County, State, federal agencies and responsible parties to identify, contain and clean up sites that contain hazardous materials.**

#### **Policy 2**

**Evaluate and consider enacting recommendations to be submitted by the Toxics Substances Commission in 1988.**

#### **Policy 3**

**Encourage "clean industry" to operate in the City of Sacramento.**



The City of Sacramento defines “clean industry” as those industries, which efficiently, effectively, and financially handle the removal of waste products, which they create. “Clean industry” is also understood to include those businesses, which do not introduce hazardous materials to the waste stream, and also those, which minimize the use of hazardous materials in their operations.

#### Policy 4

**Implement a Toxic Substances Management Plan with coordinated responsibilities with other agencies for regulating and controlling hazardous materials within the City.**

#### Policy 5

**The Sacramento County Hazardous Waste Management Plan is considered a part of the General Plan to ensure that suitable locations are available for needed hazardous waste facilities and that land uses near the facilities, or proposed sites for facilities, are compatible with their operation.**

#### Policy 6

**Coordinate with Sacramento County, the State, and federal governments to ensure compatibility among plans, programs, regulations, and safeguards.**

Toxic Substance Control is being developed and carried out at different levels of government. It is important that each agency or governmental entity is aware of its responsibilities and duties are in the overall effort to control toxic substances abuse and use.

#### Policy 7

**Consider implementing the Toxic Substance Commission’s recommendation upon completion of its work plan.**

#### Policy 8

**Ensure that areas where hazardous materials have been found are remediated, before development of new areas, to the extent necessary to protect the health and safety of all possible users and adjacent properties, consistent with applicable laws and regulations.**

### **CODE ENFORCEMENT**

#### **FIRE HAZARDS**

Fire hazards threaten public safety in the form of grass fires and structural fires. The best method to reduce these risks is through prevention.

#### **GRASS FIRES**

Prevention of grass fires in the City is being accomplished by enforcing the City’s weed abatement program. Vacant lots that are unattended and become overgrown with dry grass and weeds are the major cause of grass fires. Danger from this source is most common during

the hot dry summer months. Grass fires threaten nearby development and create hazards such as smoke screens that impair visibility for drivers.

The City monitors vacant land through aerial surveillance and field surveys. The City notifies owners of vacant property regarding unattended overgrown vegetation and requires compliance by the property owner. If the property owner does not comply the City abates the problem at the owner's expense. In rural areas with a five-acre minimum parcel size, a fifty-foot firebreak is required around the perimeter of the property. Weed abatement is enforced for the firebreak the same way as for vacant urban lots. Where extreme fire hazard may result in open fields, the property owner is required to clear the entire site.

The City's weed abatement program was instituted in 1971 when approximately 3,200 grass fires were recorded for the year. This program has been successful in that there were only 1,428 fires for 1985 and a projected total of 1,000 fires for 1986.

### **STRUCTURAL FIRES**

Another source of fire hazards is structural fire. Prevention measures help to minimize the incidence of structural fire in the City. The prevention of structural fires is accomplished through the Uniform Building Code, Uniform Fire Code, the Subdivision Ordinance, and Code Enforcement. The City inspects commercial, industrial, hotel, and apartment buildings on a regular basis.

New construction must meet minimum building and fire codes to ensure against fire hazards. Older structures are inspected to determine if corrective measures are necessary to protect the public from the dangers of fire. Older buildings that have been found to be unsafe or dangerous are required to be corrected or they are removed.

The City of Sacramento has taken other fire measures that are of a long-range nature. These measures include regulating land uses and the structural design of new buildings by the Planning Division through the administration of the zoning and subdivision ordinance regulations. The provision of fire fighting facilities and municipal utilities is included in the Public Facilities and Service Element. Part of the Fire Prevention Program includes: providing and maintaining adequate emergency exits in buildings, inspecting future development plans for adequate peak load water supply and constant water flow level, ensuring minimum road widths and adequate structural clearance around buildings for fire fighting equipment maneuvering.

### **OTHER FIRE HAZARDS**

#### **Potential Fire Hazard Areas:**

There are some areas in Sacramento, which have large concentrations of combustible materials. These are generally referred to as "Target Hazards" because they contain highly flammable materials or are grouped in such a manner as to increase the potential risk of large-scale fires. These "target hazards" are as follows:

§ **Lumber Yards:** The location of lumberyards is often in congested urban areas. Too much lumber crowded into a small place can readily ignite and the resulting fire can spread quickly. Vast amounts of water are needed to control such fires and mains in the vicinity are often not large enough to furnish this water.

- § **Bulk Oil Storage Stations:** These are places from which fuel oil and gasoline are distributed to retailers and consumers. Such storage stations are usually not allowed in congested areas, as the exposure hazard to neighboring property is disastrous if they ignite.
- § **Public Buildings:** These structures are usually places where large numbers of people assemble. The older structures are particularly hazardous because of their older construction and materials.
- § **Mercantile Properties:** The preponderance of mercantile properties is small retail stores and commercial businesses. These properties usually have a poor fire record. Often they are without adequate warning devices and sprinkler system, and their owners are often unaware of modern fire protection measures.
- § **Industrial Properties:** This type of property usually has a good fire rating because large inventories of goods would be lost if adequate fire protection programs did not exist. These properties are target hazards, however, because they frequently contain large amounts of flammable materials or combustible substances used in their day-to-day industrial processing.

### **Estimated Fire Damage**

Fire loss in the City was \$8, 785, 544 in 1985. The most significant fire loss was experienced in Residential and commercial properties. In assessing the City for fire risk the Insurance Service Office, which surveys and rates all cities in the United States, has identified Sacramento as “Statistically Rated Community” with a rating of 2/9. This rating indicates Sacramento is among those cities that a population of over 250,000 with excellent fire protection. The 9 rating is a modifier, which indicates fire loss in the City.

### **GOALS AND POLICIES FOR FIRE PROTECTION AND PREVENTION**

#### **Goal A**

**Maintain effective programs of fire protection and prevention.**

##### **Policy 1**

**Continue the Fire Department’s program of inspecting all public and private buildings, and review all future developments to ensure maximum safety from potential fire hazards.**

##### **Policy 2**

**Require existing and proposed buildings to have adequate fire protection measures to reduce the potential loss of lives and property.**

##### **Policy 3**

**Continue the City’s Weed Abatement Program to reduce the risk of grass fire.**

## **OTHER HEALTH AND SAFETY HAZARDS**

### **SUBSTANDARD STRUCTURES**

Substandard structures can pose health problems due to inadequate heating, plumbing, and sewage disposal systems. Structures can also pose problems due to structural deficiencies, which may cause building parts to collapse or dismember. The City's Code Enforcement and Building Inspection Divisions are responsible for inspecting and abating these problems in conjunction with the County Health Department.

Abandoned buildings and open structures are another source of hazard. These structures are required to be closed and secured and any potential safety hazards are to be eliminated by the property owner.

### **OTHER HAZARDS**

The following is a synopsis of some other health and safety hazards that the City corrects through abatement proceedings:

- § Inoperative vehicles on public streets that create traffic and parking problems.
- § Improperly stored vehicles on unimproved lot and fields that are not properly secured and/or do not meet zoning requirements.
- § Improper disposal of junk and debris, which attracts rodents and other pests.
- § The dumping of construction debris, which creates safety hazards.
- § Signs and displays, which block public rights-of-way.
- § The improper disposal of raw sewage in faulty septic systems and open pits are problems addressed by City Code Enforcement in conjunction with the County Health Department.

### **GOALS AND POLICIES FOR OTHER HEALTH SAFETY HAZARDS**

#### **Goal A**

**Eliminate health and safety hazards wherever possible.**

#### **Policy 1**

**Continue Code Enforcement programs that reduce the risks associated with dangerous buildings.**

#### **Policy 2**

**Continue to support programs that reduce health and safety hazards.**

#### **Policy 3**

**Target code enforcement programs in areas identified as having a high incidence of health, safety, and other code violations.**

## NOISE

### INTRODUCTION

The Noise Element has been prepared in accordance with the requirements of Section 65302 (F) of the California Government Code, This section requires that general plans in the State of California contain:

“... a Noise Element which shall identify and appraise noise problems in the community. The Noise Element shall recognize the guidelines established by the Office of Noise Control in the State Department of Health Services and shall analyze and quantify to the extent practicable, as determined by the legislative body, current and projected noise levels for all the following sources:

- §           Highways and freeways
- §           Primary arterials and major local streets
- §           Passenger and freight on-line railroad operations and ground rapid transit systems.
- §           Commercial, general aviation, heliport, helistop, and military airport operations, aircraft over flights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation.
- §           Local industrial plants including, but not limited to railroad classification yards
- §           Other ground stationary noise sources identified by local agencies as contributing to the community noise environment

Noise contours shall be shown for all sources and stated in terms of community noise equivalent level (CNEL) or day-night average noise level (Ldn). The noise contours shall be prepared on the basis of noise monitoring or following generally accepted noise modeling techniques for the various sources identified in paragraphs 1 to 6, inclusive.

The noise contours shall be used as a guide for establishing a pattern of land uses in the land use element that minimizes the exposure of community residents to excessive noise.

The noise element shall include implementation measure and possible solutions that address existing and foreseeable noise problems, if any. The adopted noise element shall serve as a guideline for compliance with the State’s Noise Insulation Standards.”

As the requirements point out, the purposes of the Noise Element are: to inventory existing noise exposure and to project future noise levels, to develop procedures to ensure that future development is compatible with the existing and projected noise environment; to reduce noise where possible to an acceptable level; and finally, to avoid increasing noise levels beyond acceptable amounts.

The emphasis of the Noise Element is on evaluating, controlling, and planning for “community noise.” Community noise is the composite of noise generated by a variety of noise sources. The major noise sources are transportation related; automobile and truck traffic, railroad traffic, and aircraft. It is beyond the scope of the noise element to develop strategies for controlling the noise emanating from individual vehicles or aircraft. Aircraft noise emission and the noise emission of interstate motor carriers (trucks) are controlled by the federal government. The noise emission of individual automobile and trucks sold and/or used in California is controlled by the State Motor Vehicle Code. The noise emission of powerboats is controlled by the State Harbors and Navigation Code. The noise emission of fixed noise sources, such as swimming pool pumps, air conditioners, etc. are controlled by the City’s Noise Ordinance. The purpose of the Noise Element is to provide guidelines for controlling the noise emanating from the transportation facility rather than individual vehicles, and to develop guidelines for planning new development in areas affected by these sources. The Noise Element accomplishes this by:

- § Providing an inventory of existing noise exposure.
- § Projecting year 2016 noise exposure
- § Presenting standards for acceptable levels of community noise for proposed development
- § Developing procedures and criteria for evaluating projects which have the potential to generate noise
- § Suggesting ways in which noise levels in existing noisy areas could be reduced

### **MAJOR NOISE SOURCES**

There are three major sources in the City of Sacramento:

- § Surface traffic noise consisting of noise emanating from the major freeways in the City and primary arterials and major city streets
- § The Union Pacific and Southern Pacific Railroads
- § Aircraft noise generated by activity at Sacramento Metro Airport, Sacramento Executive Airport, McClellan Air Force Base, and Mather Air Force Base.

The running of light rail cars was believed initially to be a potential major noise source. It has since been proven otherwise by the Regional Transit District. Existing information indicates that the noise does not exceed the “normally acceptable” level for surrounding proposed land uses as described in Figure 3 and Table 1.

The methods used to determine the existing and future noise levels generated by these sources are described in the Environmental Impact Report on the Sacramento General Plan. The EIR includes existing noise levels at the locations monitored for the preparation of the Noise Element; existing and year 2016 noise levels for the LRT lines and railroad lines.

**Figure 3**

LAND USE CATEGORY	COMMUNITY NOISE EXPOSURE L <sub>dn</sub> OR CNEL db					
	55	60	65	70	75	80
Residential	////////////////////					
			////////////////////		)))))))))	+++++++
Transient Lodging – Motels, Hotels	////////////////////					
			////////////////////		)))))))))	+++++++
Schools, Libraries, Churches, Hospitals, Nursing Homes	////////////////////					
			////////////////////		)))))))))	+++++++
Auditoriums, Concert Halls, amphitheatres	////////////////////					
					+++++++	
Sports Arena, Outdoor Spectator Sports	////////////////////					
					+++++++	
Playgrounds, Neighborhood Parks	////////////////////					
				)))))))))		+++++++
Golf Courses, Riding Stables, Water Recreation, Cemeteries	////////////////////					
				)))))))))		+++++++
Office Buildings, business Commercial and Professional	////////////////////					
			////////////////////		)))))))))	
Industrial Manufacturing, Utilities Agriculture	////////////////////					
				////////////////////		)))))))))

**INTERPRETATION**

////////////////	<b>NORMALLY ACCEPTABLE</b>	)))))))))	<b>NORMALLY UNACCEPTABLE</b>
Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise requirements		New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirement must be made and needed noise insulation features included in the design.	
////////////////	<b>CONDITIONALLY ACCEPTABLE</b>	+++++++	<b>CLEARLY UNACCEPTABLE</b>
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design.		New construction or development clearly should not be undertaken.	

**LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS**

**Table 1**  
**Maximum Acceptable Interior and Exterior Noise Levels for**  
**New Development without Mitigation**

Noise Source	Land Use	Applicable Area		Statement Requirements	Noise Element Requirements
		Interior	Exterior		
Traffic or fixed source (Industrial, plants, etc.)	Single Family	X	X	None	$L_{dn} < 45 \text{ dB}^2$
	Single Family		X	None	$L_{dn} \leq 60 \text{ dB}$ in backyards
	Multi-Family <sup>1</sup>	X		$L_{dn} < 45 \text{ dB}$	$L_{dn} < 45 \text{ dB}$
	Multi-Family		X	None	$L_{dn} \leq 60 \text{ dB}$ in common outdoor use areas
	Schools	X		None	Noisiest hourly $L_{ea} \leq 40 \text{ dB}$ during school day
	Schools		X	None	$L_{dn} \leq 60 \text{ dB}$
	Libraries	X		None	Noisiest hour $L_{eq} \leq 45 \text{ dB}$
	Libraries		X	None	None
<b>Aircraft</b>	Single-Family	X		None	$L_{dn} \leq 45 \text{ dB}$ and maximum instantaneous levels of $\leq 50 \text{ dBA}$ in bedrooms and $\leq 55 \text{ dBA}$ in other habitable rooms <sup>2</sup>
	Single-Family		X	CNEL $\leq 65 \text{ dB}$ (State Aeronautics Noise Standards) requirement does not apply to Mather and McClellan's AFB's	CNEL $\leq 60 \text{ dB}$ for Metro Airport CNEL $\leq 65 \text{ dB}$ for all others
	Multi-Family	X		$L_{dn} \leq 45 \text{ dB}$	$L_{dn} \leq 45 \text{ dB}$ and maximum instantaneous levels of $\leq 50 \text{ dBA}$ in bedrooms and $\leq 55 \text{ dBA}$ in other habitable rooms <sup>2</sup>
	Multi-Family		X	CNEL $\leq 65 \text{ dB}$ (State Aeronautics Noise Standards) requirement does not apply to Mather and McClellan's AFB's	CNEL $\leq 60 \text{ dB}$ for Metro Airport CNEL $\leq 65 \text{ dB}$ for all others
	Schools	X		None	Noisiest hourly $L_{eq} \leq 40 \text{ dB}$ during school day
	Schools		X	CNEL $\leq 65 \text{ dB}$ (State Aeronautics Noise Standards) requirement does not apply to Mather and McClellan's AFB's	CNEL $\leq 60 \text{ dB}$ for Metro Airport CNEL $\leq 65 \text{ dB}$ for all others
	Libraries	X		None	Noisiest hour $L_{eq} \leq 45 \text{ dB}$
	Libraries		X	None	None
<b>Rail Traffic</b>	Single-Family	X		None	$L_{dn} \leq 45 \text{ dB}$ and maximum instantaneous levels of $\leq 50 \text{ dBA}$ in bedrooms and $\leq 55 \text{ dBA}$ in other habitable rooms <sup>2</sup>
	Single-Family		X	None	$L_{dn} \leq 60 \text{ dB}$
	Multi-Family	X		$L_{dn} \leq 45 \text{ dB}$ unless there are less than 4 trains per day between 7:00 a.m. and 10:00 p.m. and there are no trains between 10:00 p.m. and 7:00 a.m.	$L_{dn} \leq 45 \text{ dB}$ and maximum instantaneous levels of $\leq 50 \text{ dBA}$ in bedrooms and $\leq 55 \text{ dBA}$ in other habitable rooms <sup>2</sup>
	Multi-Family		X	None	$L_{dn} \leq 60 \text{ dB}$
	Schools	X		None	Noisiest hourly $L_{eq} \leq 40 \text{ dB}$ during school day
	Schools		X	None	Maximum instantaneous levels $\leq 85 \text{ dBA}$
	Libraries	X		None	Noisiest hour $L_{eq} \leq 45 \text{ dB}$
	Libraries		X	None	None

1 Multi-family includes hotel, motel, apartment houses, and dwellings other than detached single-family dwellings as defined by title 24, Part 2, California Administrative Code.

2 The requirement for interior noise exposure is triggered when the exterior  $L_{dn}$  exceeds 60 dB.

3 Projects for which U.S. Department of HUD financing is requested are subject to HUD noise requirements. The noise element requirements listed in this table are at least as stringent as the HUD requirements.



## McClellan and Mather Special Provisions

Land uses and construction surrounding both McClellan and Mather Air Force Bases are regulated by special noise and safety guidelines derived from Comprehensive Land Use Plans adopted in 1987. Guidelines used by the City are found in Tables 2 and 3. The areas affected by aircraft noise and operations are shown on Maps 10,11,12,13, and 14.

Adjacent to McClellan Air Force Base a large amount of property has already been committed to development. This area is delineated on Map 12. New development outside the urbanized area of North Sacramento and within the Florin-Perkins area should comply with appropriate noise and safety guidelines in order to reduce the impact of aircraft operations. These guidelines are found in Tables 2 and 3. The use of these guidelines can never completely eliminate the aircraft operational impacts to people on the ground, nor can it completely address the impacts in areas already urbanized. What these guidelines can do is reduce the impacts imposed upon future new development in areas surrounded by both bases.

### **GOALS, POLICIES, ACTIONS FOR NOISE**

To provide for noise and land use compatibility, the City has the following goals and policies. These Goals and Policies recognize that human response to noise varies by source.

#### **Goal A**

**Future development should be compatible with the projected year 2016 noise environment.**

#### **Policy 1**

**Require an acoustical report for any project, which would be exposed to noise levels in excess of those shown as normally acceptable in Figure 3. The contents of the acoustical report shall be described in the Noise Assessment Report Guidelines. No acoustical report shall be required where City staff has an existing acoustical report on file, which is applicable.**

The City's noise exposure maps at a scale of 1 inch =1,000 feet on file with the Department of City Planning shall be used along with other applicable information to assist in making a preliminary determination of a site's noise exposure. Photocopy reductions of the noise exposure maps are included in this element as Figures 4a, 4b, and 4c.

#### **Policy 2**

**Require mitigation measures to reduce noise exposure to the "Normally Acceptable Levels" (Figure 3) except where such measures are not feasible.**

**Table 2**  
**McClellan Air Force Base & Mather Air Force Base**  
**Land Use Compatibility Guidelines for Noise**

LAND USE CATEGORY and (Standard Industrial Classification Code)	COMPATIBILITY WITH				
	60-65 CNEL	65-70 CNEL	70-75 CNEL	75-80 CNEL	80-85 CNEL
<u>RESIDENTIAL</u> <sup>1</sup>					
Single-family detached <sup>2</sup>	Yes	No	No	No	No
Two-family dwelling	Yes	No	No	No	No
Multi-family dwelling (3+ families)	Yes	No	No	No	No
Group quarters & rooming houses (702, 704)	Yes	No	No	No	No
Mobile home parks or courts (6515)	Yes	No	No	No	No
<u>MANUFACTURING</u>					
Food & kindred products (20)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Textiles and apparel (22, 23)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Transportation equipment (37)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Lumber & wood products (24)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Furniture & fixtures (25)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Paper & allied products (26)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Printing & publishing (27)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Chemicals & allied products (28)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Asphalt paving & misc. petroleum (295, 299)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Petroleum refining (29)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Rubber & plastics (30)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Stone, clay, glass & concrete products (32)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Primary & fabricated metals (33, 34)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Electrical & electronic equipment (36)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Leather products (31)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Industrial, commercial & computer equipment (35)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Photo, optical & medical equipment (38)	Yes	Yes			
Miscellaneous manufacturing (39)	Yes	Yes			
<u>TRANSPORTATION, COMMUNICATIONS &amp; UTILITIES</u>					
Streets, roads & highways	Yes	Yes	Yes	Yes	Yes
Heavy rail lines: freight & passenger (40)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Light rail lines: passenger (41)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Trucking & rail freight terminals (42)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Warehousing & storage (422)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Passenger terminals & stations	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	NO
Water transportation: freight and passenger (44)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	NO
Parking lots (752)	Yes	Yes	Yes	Yes	Yes
Transportation services (47)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	NO
Radio, TV & telephone (48)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	NO
Courier service (4215)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	NO
Electrical & natural gas generation and switching (491, 492)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Natural gas & petroleum pipelines & storage (46)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>

**Table 2 (continued)**  
**McClellan Air Force Base & Mather Air Force Base**

**Land Use Compatibility Guidelines for Noise**

LAND USE CATEGORY and (Standard Industrial Classification Code)	COMPATIBILITY WITH				
	60-65 CNEL	65-70 CNEL	70-75 CNEL	75-80 CNEL	80-85 CNEL
<u>TRANSPORTATION, COMMUNICATIONS &amp; UTILITIES</u> (Continued)					
Water treatment plants (494)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Sewer treatment plants (4952)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Sanitary landfills (4953)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Recycling & transfer facilities (4953)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Hazardous materials facilities (4953)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
<u>WHOLESALE TRADE</u>					
Paints, varnishes & supplies (5198)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Chemicals & allied products (516)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Petroleum terminals & wholesales (517)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Miscellaneous wholesale trade (50, 51)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
<u>RETAIL TRADE</u>					
Department & variety stores (single) (53)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Lumber, building materials & nurseries (521, 526)	Yes	Yes	Yes <sup>3</sup>	No	No
Grocery & drug stores (54)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Paint, glass, wallpaper & hardware (523, 525)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Auto, truck, boat & RV dealers (55)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Mobile home dealers (527)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Auto & truck service stations (554)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Fuel dealers (598)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Apparel & shoes (56)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Home furnishings (57)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Eating & drinking (58)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Miscellaneous retail trade (59)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
<u>BUSINESS &amp; PERSONAL SERVICES</u>					
Auto, truck, boat, RV & miscellaneous repair (75, 76)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Mobile home repair (1521)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Commercial laundries & cleaning (721)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Coin-operated laundries (7215)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Photographers, beauty & barber, shoe repair (722, 725)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Funeral services (726)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Business services (73)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No

**Table 2 (continued)**  
**McClellan Air Force Base & Mather Air Force Base**  
**Land Use Compatibility Guidelines for Noise**

LAND USE CATEGORY and (Standard Industrial Classification Code)	COMPATIBILITY WITH				
	60-65 CNEL	65-70 CNEL	70-75 CNEL	75-80 CNEL	80-85 CNEL
<b><u>BUSINESS &amp; PERSONAL SERVICES</u></b> <b><u>(Continued)</u></b>					
Computer programming & data processing (737)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Travel agencies (4724)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Legal & engineering (81, 87)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Banks, credit unions & financial (63, 64, 65)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Hotels, motels, inns, bed & breakfast (701)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3, 4</sup>	No
Business parks & industrial clusters	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Offices for rent or lease	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Business & vocational schools (824, 829)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Construction businesses (15, 16, 17)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Miscellaneous personal services (729)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
<b><u>SHOPPING DISTRICTS</u></b>					
Neighborhood shopping centers	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Community shopping centers	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Regional shopping centers	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
<b><u>PUBLIC AND QUASI-PUBLIC SERVICES</u></b>					
Post Offices (53)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Government offices (91-96)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Government and social services (83)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Elementary & secondary schools (821)	Yes	Yes <sup>3, 4</sup>	No	No	No
Colleges and universities (822)	Yes	Yes <sup>3, 4</sup>	No	No	No
Hospitals (806)	Yes	Yes <sup>3, 4</sup>	Yes <sup>3, 4</sup>	No	No
Medical and dental Laboratories (807)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Doctor & dentist offices (801-804)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Museums & art galleries (84)	Yes	Yes <sup>3, 4</sup>	No	No	No
Libraries (823)	Yes	Yes <sup>3, 4</sup>	No	No	No
Churches (866)	Yes	Yes <sup>3, 4</sup>	No	No	No
Cemeteries (6553)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Jails & detention centers (9223)	Yes	Yes	Yes <sup>3</sup>	No	No
Child care programs (6 or more children) (835)	Yes	Yes <sup>3, 4</sup>	No	No	No
Nursing care facilities (805)	Yes	Yes <sup>3, 4</sup>	No	No	No
<b><u>RECREATION</u></b>					
Neighborhood Parks	Yes	Yes	Yes <sup>3</sup>	No	No
Community-wide & regional parks	Yes	Yes	Yes <sup>3</sup>	No	No
Riding stables	Yes	Yes	Yes <sup>3</sup>	No	No

**Table 2 (continued)**  
**McClellan Air Force Base & Mather Air Force Base**

**Land Use Compatibility Guidelines for Noise**

LAND USE CATEGORY And (Standard Industrial Classification Code)	COMPATIBILITY WITH				
	60-65 CNEL	65-70 CNEL	70-75 CNEL	75-80 CNEL	80-85 CNEL
<b><u>RECREATION</u></b> <b><u>(Continued)</u></b>					
Golf courses (7992)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Open space & natural areas	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Natural water areas	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Recreation & amusement centers (793, 799)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Physical fitness & gyms (7991)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Camps, campgrounds & RV parks (703)	Yes	Yes	No	No	No
Dance halls, studios, schools (791)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	No
Theaters- live performance (7922)	Yes	Yes <sup>3,4,5</sup>	Yes <sup>3,4</sup>	No	No
Motion picture theater- single or double (783)	Yes	Yes <sup>3,4</sup>	<sup>5</sup>	No	No
Motion picture theater complex- 3 or more (783)	Yes	Yes <sup>3,4</sup>	Yes <sup>3,4</sup>	No	No
Professional sports (7941)	Yes	Yes	Yes <sup>3,4</sup>	No	No
Stadiums and arenas	Yes	Yes	Yes	No	No
Auditoriums, concert halls, amphitheatres	Yes	Yes <sup>3,4,5</sup>	Yes	No	No
Fairgrounds and expositions (7999)	Yes	Yes	Yes <sup>3,4</sup>	No	No
Racetracks (7948)	Yes	Yes	<sup>5</sup>	No	No
Theme parks	Yes	Yes	Yes Yes Yes	No	No
<b><u>AGRICULTURE AND MINING</u></b>					
Row & field crops (011, 013, 016)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Tree crops (012)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Intensive livestock (021, 024, 027)	Yes	Yes	Yes <sup>3</sup>	No	No
Nursery products (018)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Poultry (025)	Yes	Yes	Yes <sup>3</sup>	No	No
Pasture & grazing	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Agricultural services (07)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Mining & quarrying (10, 12, 14)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>
Oil & gas extraction (13)	Yes	Yes	Yes <sup>3</sup>	Yes <sup>3</sup>	Yes <sup>3</sup>

Footnotes:

- 1 Caretaker residences are a compatible use within all CNEL ranges, provided that they are ancillary to the primary use of a property, intended for the purpose of property protection or maintenance, and subject to the condition that all residential units be designed to limit intruding noise such that interior noise levels do not exceed 45 CNEL, with windows closed, in any habitable room.
- 2 Second residential units are a compatible use within all CNEL ranges, subject to the condition that the proposed second unit be consistent with the provisions of Sections 65852.1 and 65852.2 of the California Government Code.
- 3 Measures to achieve an interior noise level of 50 CNEL must be incorporated into the design and construction of portions of buildings where the public is received, office areas, and other areas where people work or congregate.
- 4 Measures to achieve an interior noise level of 45 CNEL must be incorporated into the design and construction of all noise sensitive areas including, but not limited to, rooms designated for the purpose of sleep, libraries, churches, and areas intended for indoor entertainment events.

**Table 3**

**McClellan Air Force Base & Mather Air Force Base  
Land Use Compatibility Guidelines for Safety**

LAND USE CATEGORY and (Standard Industrial Classification Code)	COMPATIBILITY		
	CLEAR ZONE	APPROACH- DEPARTURE ZONE	OVERFLIGHT ZONE
<b><u>RESIDENTIAL</u></b>			
Single-family detached	NO	YES <sup>1</sup>	YES
Two-family dwelling	NO	NO	YES
Multi-family dwelling (3+ families)	NO	NO	YES
Group quarters & rooming houses (702, 704)	NO	NO	YES
Mobile home parks or courts	NO	NO	YES
<b><u>MANUFACTURING</u></b>			
Food and kindred product (20)	NO	YES <sup>2</sup>	YES
Textiles and apparel (22, 23)	NO	YES <sup>2</sup>	YES
Transportation equipment (37)	NO	YES <sup>2</sup>	YES
Lumber and wood products (24)	NO	YES <sup>2</sup>	YES
Furniture and fixtures (25)	NO	YES <sup>2</sup>	YES
Paper and allied products (28)	NO	YES <sup>2</sup>	YES
Printing and publishing (27)	NO	YES <sup>2</sup>	YES
Chemicals and allied products (28)	NO	NO	NO
Asphalt paving and misc. petroleum (295, 299)	NO	NO	YES
Petroleum refining (2911)	NO	NO	NO
Rubber and plastic (30)	NO	NO	NO
Stone, clay and glass & concrete products (32)	NO	YES <sup>2</sup>	YES
Primary and fabricated metals (33, 34)	NO	YES <sup>2</sup>	YES
Electrical and electronic equipment (36)	NO	YES <sup>2,13</sup>	YES <sup>13</sup>
Leather products (31)	NO	YES <sup>2</sup>	YES
Industrial, commercial & computer equipment (35)	NO	YES <sup>2,13</sup>	YES <sup>13</sup>
Photo, optical & medical equipment (38)	NO	YES <sup>2</sup>	YES
Miscellaneous manufacturing (39)	NO	YES <sup>2</sup>	YES
<b><u>TRANSPORTATION, COMMUNICATIONS AND UTILITIES</u></b>			
Passenger terminals & stations	NO	NO	YES
Streets, roads and highways	NO	YES	YES

**Table 3  
Continued**

**McClellan Air Force Base & Mather Air Force Base  
Land Use Compatibility Guidelines for Safety**

LAND USE CATEGORY and (Standard Industrial Classification Code)	COMPATIBILITY		
	CLEAR ZONE	APPROACH- DEPARTURE ZONE	OVERFLIGHT ZONE
<b><u>TRANSPORTATION, COMMUNICATIONS AND UTILITIES (con't)</u></b>			
Parking lots (752)	NO	YES <sup>2</sup>	YES
Heavy rail lines: freight & passenger (40)	NO	YES	YES
Light rail lines: passenger (41)	NO	YES	YES
Trucking & rail freight terminal (42)	NO	YES <sup>2</sup>	YES
Warehousing & storage (422)	NO	YES <sup>2</sup>	YES
Water transportation: freight & passenger (44)	NO	YES	YES
Transportation services (47)	NO	YES <sup>2,5</sup>	YES
Radio, TV & telephone (48)	NO	NO	YES <sup>13</sup>
Courier service (4215)	NO	YES <sup>2</sup>	YES
Electrical & natural gas generation and switching (491, 492)	NO	NO	YES <sup>13</sup>
Natural gas & petroleum pipelines & storage (46)	NO	NO	YES
Water treatment plants (494)	NO	NO	YES <sup>6</sup>
Sewer treatment plants (4952)	NO	NO	YES <sup>6</sup>
Sanitary landfills (4953)	NO	NO	YES <sup>6</sup>
Recycling & transfer facilities (4953) <sup>7</sup>	NO	YES <sup>2,6</sup>	YES <sup>6</sup>
Hazardous material facilities (4953)	NO	NO	YES <sup>6</sup>
<b><u>WHOLESALE TRADE</u></b>			
Paints, varnishes & supplies (5198)	NO	NO	YES
Chemical & allied products	NO	NO	YES
Petroleum truck terminals	NO	NO	YES
Miscellaneous wholesale trade	NO	YES <sup>2</sup>	YES
<b><u>RETAIL TRADE</u></b>			
Department & variety stores (single) (53)	NO	NO	YES
Lumber, building materials & nurseries (521, 526)	NO	YES <sup>2</sup>	YES
Grocery stores & drug stores (54)	NO	NO	YES
Paint, glass, wallpaper & hardware (523,525)	NO	NO	YES

**Table 3  
Continued**

**McClellan Air Force Base & Mather Air Force Base  
Land Use Compatibility Guidelines for Safety**

LAND USE CATEGORY and (Standard Industrial Classification Code)	COMPATIBILITY		
	CLEAR ZONE	APPROACH- DEPARTURE ZONE	OVERFLIGHT ZONE
<b><u>RETAIL TRADE (con't)</u></b>			
Auto, truck, boat & RV dealers (55)	NO	YES <sup>2</sup>	YES
Mobile home dealers (527)	NO	YES <sup>2</sup>	YES
Auto & truck service stations (554)	NO	NO	YES
Fuel dealers (598)	NO	NO	YES
Apparel & shoes (56)	NO	NO	YES
Home furnishings (57)	NO	NO	YES
Eating & drinking (58)	NO	NO	YES
Miscellaneous retail trade (59)	NO	NO	YES
<b><u>RECREATION</u></b>			
Neighborhood parks	NO	NO	YES
Community-wide and regional park	NO	NO	YES
Riding stables (7999)	NO	YES <sup>2</sup>	YES
Golf courses (7992)	NO	YES <sup>2, 11</sup>	YES
Open space & natural areas	YES <sup>3,5</sup>	YES <sup>2,6,12</sup>	YES <sup>6</sup>
Natural water areas	YES <sup>3,5</sup>	YES <sup>2, 6,12</sup>	YES <sup>6</sup>
Recreation and amusement centers (793, 799)	NO	NO	YES
Physical fitness & gyms (7991)	NO	NO	YES
Camps, campgrounds & RV parks (703)	NO	NO	YES
Dance halls, studios & schools (791)	NO	NO	YES
Theaters- live performance (7922)	NO	NO	YES
Motion picture theater- single or double (783)	NO	NO	YES
Motion picture theaters- complex, 3 or more (783)	NO	NO	NO
Stadiums and arenas	NO	NO	NO
Auditoriums, concert halls, amphitheaters	NO	NO	NO
Fairgrounds & expositions (7999)	NO	NO	NO
Racetracks (7948)	NO	NO	NO
Theme parks	NO	NO	NO



**Table 3**  
**continued**

**McClellan Air Force Base & Mather Air Force Base**  
**Land Use Compatibility Guidelines for Safety**

LAND USE CATEGORY and (Standard Industrial Classification Code)	COMPATIBILITY		
	CLEAR ZONE	APPROACH- DEPARTURE ZONE	OVERFLIGHT ZONE
<b><u>BUSINESS &amp; PERSONAL SERVICES</u></b>			
Auto, truck, boat, RV & miscellaneous repair (75, 76)	NO	YES <sup>2</sup>	YES
Mobile home repair (1521)	NO	YES <sup>2</sup>	YES
Commercial laundries & cleaning (721)	NO	YES <sup>2</sup>	YES
Coin-operated laundries (7215)	NO	NO	YES
Photographers, beauty & barbers, shoe repair (722-725)	NO	NO	YES
Funeral services (726)	NO	NO	YES
Business services (73)	NO	YES <sup>2</sup>	YES
Computer programming & data processing (737)	NO	NO	YES
Travel agencies (4724)	NO	NO	YES
Legal engineering (81, 87)	NO	NO	YES
Banks, credit unions & financial (63, 64, 65)	NO	NO	YES
Hotels, motels, inns, bed & breakfast (701)	NO	NO	YES
Business parks & industrial clusters	NO	YES <sup>2,6</sup>	YES
Office buildings (offices for rent or lease)	NO	NO	YES
Business & vocational schools (824, 829)	NO	NO	YES
Construction businesses (15, 16, 17)	NO	YES <sup>2</sup>	YES
Miscellaneous personal services (729)	NO	NO	YES
<b><u>AGRICULTURE AND MINING</u></b>			
Row & field crops (011, 013, 016)	YES <sup>3,6</sup>	YES <sup>2,6</sup>	YES <sup>6</sup>
Tree Crops (012)	NO	YES <sup>2,6</sup>	YES <sup>6</sup>
Intensive livestock (021, 024, 027)	NO	YES <sup>2,6</sup>	YES <sup>6</sup>
Nursery products (018)	NO	YES <sup>2,6</sup>	YES <sup>6</sup>
Poultry (025)	NO	YES <sup>2,6</sup>	YES <sup>6</sup>
Pasture & grazing	YES <sup>2,6</sup>	YES <sup>2,6</sup>	YES <sup>6</sup>
Agricultural services (7)	NO	YES <sup>2</sup>	YES
Mining & quarrying (10, 12, 14)	NO	YES <sup>2,6</sup>	YES <sup>6</sup>
Oil & gas extraction (13)	NO	NO	YES

**Table 3  
Continued**

**McClellan Air Force Base & Mather Air Force Base  
Land Use Compatibility Guidelines for Safety**

LAND USE CATEGORY and (Standard Industrial Classification Code)	COMPATIBILITY		
	CLEAR ZONE	APPROACH-DEPARTURE ZONE	OVERFLIGHT ZONE
<b><u>PUBLIC AND QUASI-PUBLIC SERVICES</u></b>			
Post office (53)	NO	YES <sup>2</sup>	YES
Government offices (91-96)	NO	YES <sup>2</sup>	YES
Government social services (83)	NO	YES <sup>2</sup>	YES
Elementary & secondary schools (821)	NO	NO	YES
Colleges & universities (822)	NO	NO	YES
Hospitals (806)	NO	NO	YES
Medical & dental laboratories (807)	NO	YES <sup>2</sup>	YES
Doctor & dentist offices (801-804)	NO	NO	YES
Museums & art galleries (84)	NO	NO	YES
Libraries (823)	NO	NO	YES
Churches (866)	NO	NO	YES
Cemeteries (6553)	NO	NO	YES
Jails & detention centers (9223)	NO	YES <sup>2,8</sup>	YES
Child care programs (6 or more children) (835)	NO	NO	YES
Nursing care facilities (805)	NO	NO	YES
<b><u>SHOPPING DISTRICTS</u></b>	NO	YES <sup>2</sup>	YES
Neighborhood shopping centers	NO	NO	YES
Community shopping centers			
Regional shopping centers	YES <sup>3,6</sup>	YES <sup>2,6</sup>	YES <sup>6</sup>

FOOTNOTES:

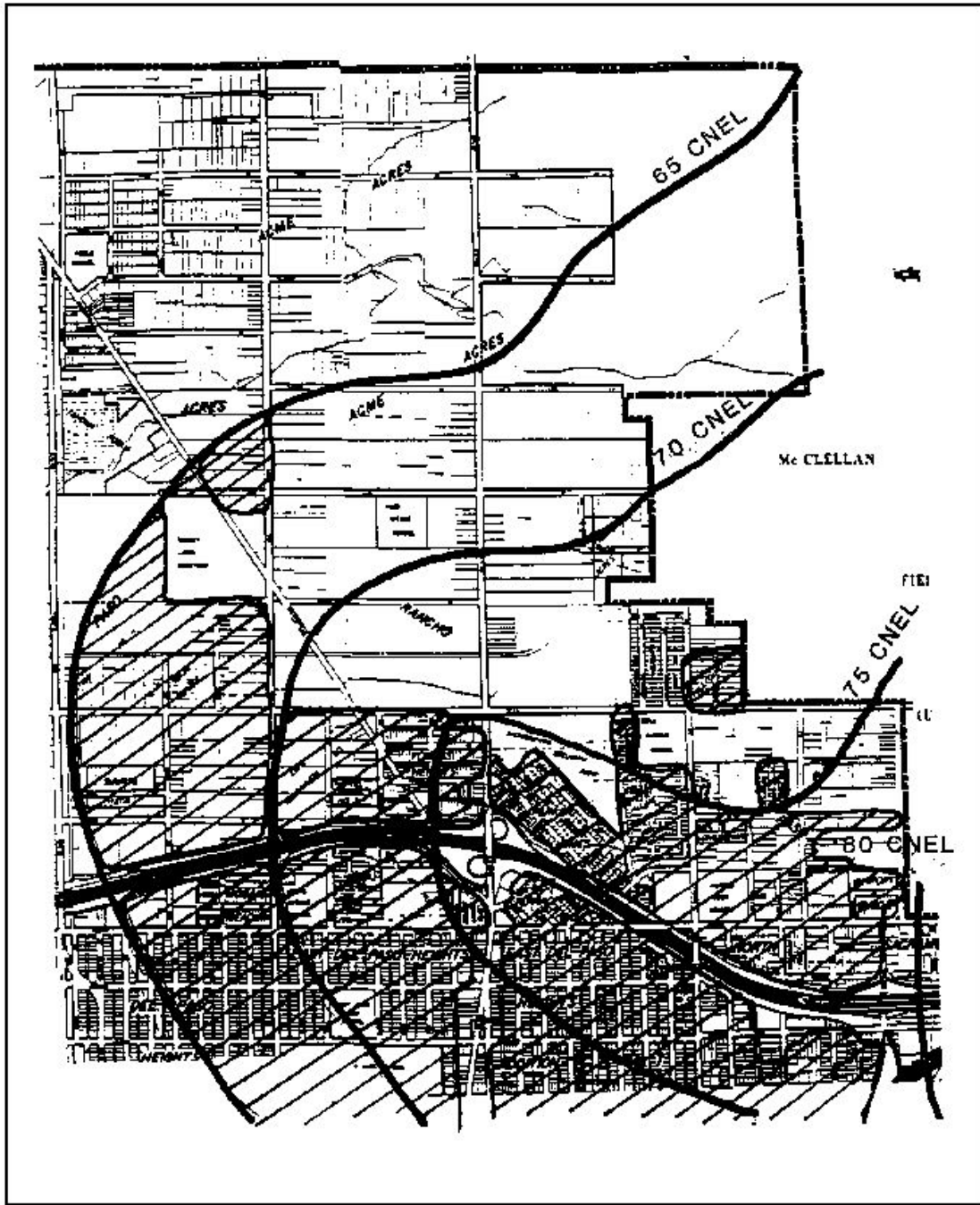
- 1 Single family residential is a compatible land use only if the density is five acres or more per single-family residence.
- 2 Uses compatible only if they do not result in a large concentration of people. A large concentration of people is defined as a gathering of individuals in an area that would result in an average density of greater than 25 people per acre per hour during a 24-hour period ending at midnight, or a single event that would result in the gathering of 50 persons per acre at any time. (See Appendix A)
- 3 No building, structures, above-ground transmission lines, or storage of flammable or explosive material above ground, and no uses resulting in a gather of more than 10 persons per acres at any time.
- 4 No bulk petroleum products or chemical storage.

**Table 3**  
**Continued**

**McClellan Air Force Base & Mather Air Force Base**  
**Land Use Compatibility Guidelines for Safety**

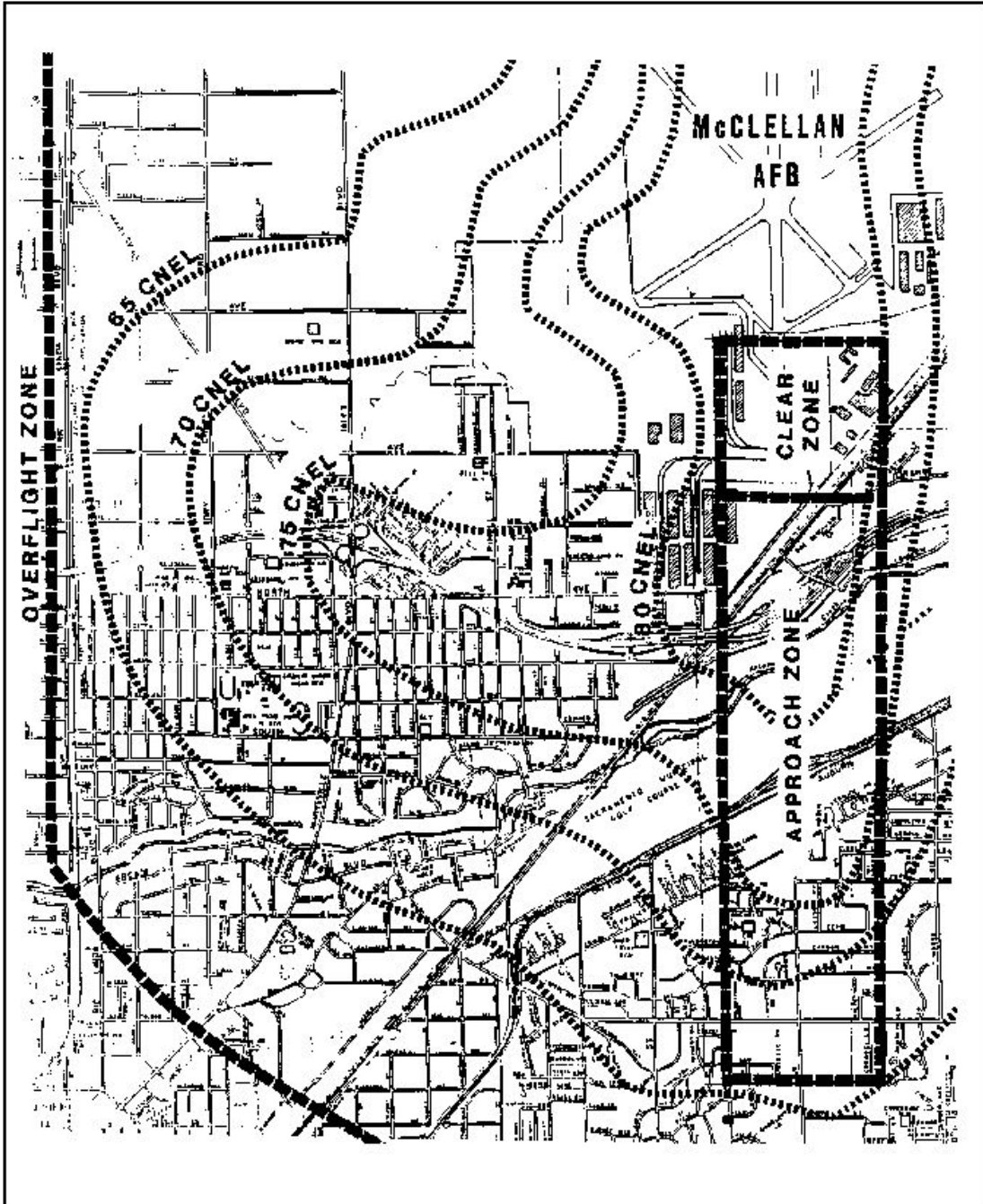
- 5 Tour operator passenger facilities not allowed.
- 6 Uses compatible only if they do not result in a possibility that water area may cause ground fog or result in a bird hazard.
- 7 Household hazardous waste facilities operated as part of an integrated waste management program and resulting in only temporary storage of materials is allowed.
- 8 Uses in buildings must be compatible.
- 9 Use compatible only if requirements of California Education Code, Sections 39005-7, 81036 and 81038 are fulfilled.
- 10 No chapels or funeral homes.
- 11 No clubhouses, bars, restaurants, or banquet facilities. Ancillary uses such as pro shops, snack bars, and specialty food and beverage services are allowed. New course layouts and revisions to existing courses must be reviewed by the ALUC for impacts.
- 12 No high-intensity use facilities, such as structured playgrounds, ball fields, or picnic pavilions.
- 13 No use that would cause electrical interference that would be detrimental to the operation of aircraft or aircraft instrumentation.

Map 10



Land Use Designations Inconsistent With  
CLUP Noise Standards

Planning and Building Department  
City of Sacramento  
**GP**  
GENERAL PLAN  
Updated 1999-2005



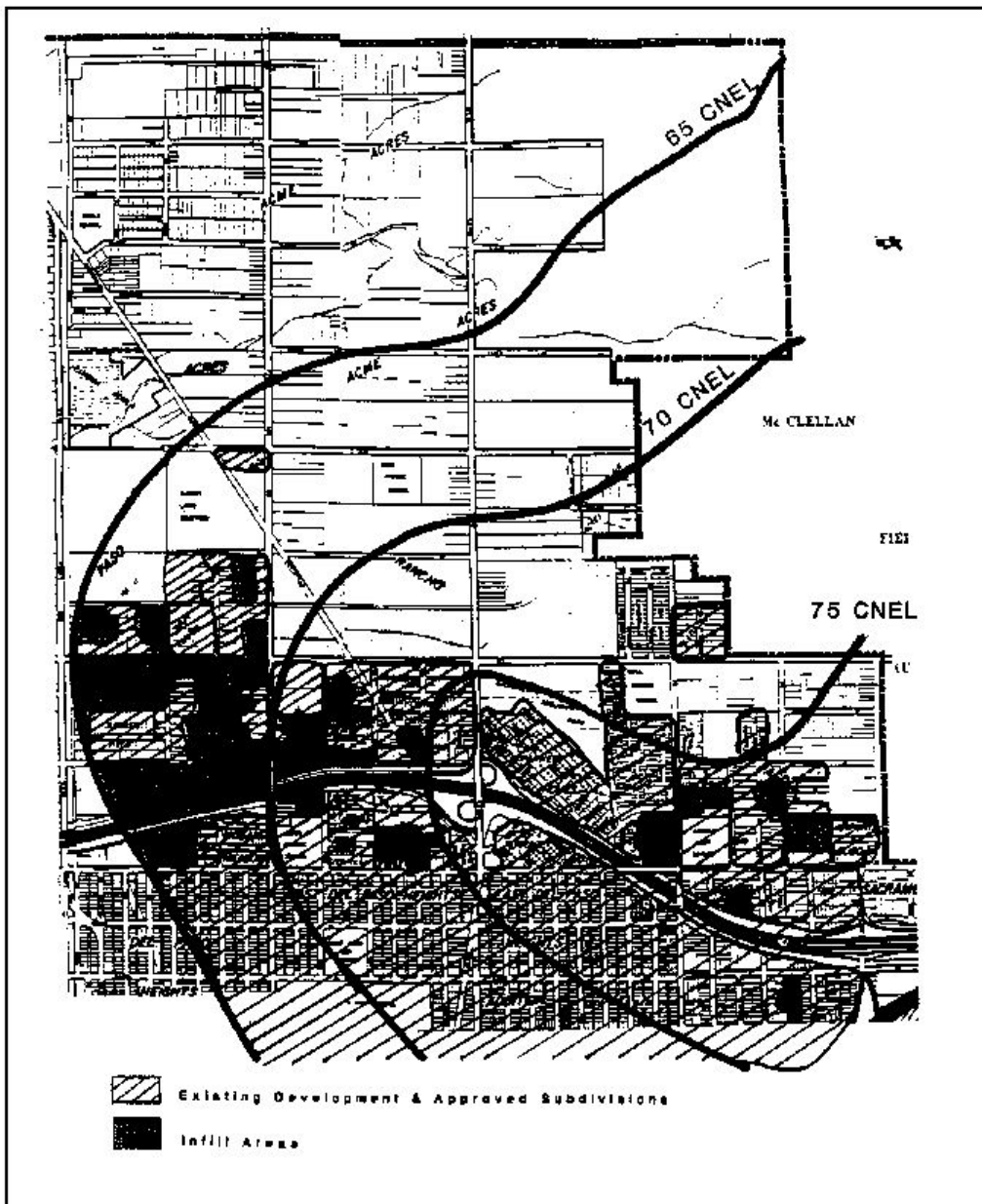
AREA AROUND McCLELLAN AFB  
AFFECTED BY AIRCRAFT NOISE (CNEL LEVELS)  
AND FLIGHT OPERATIONS

Planning and Building Department  
City of Sacramento

**GP**

GENERAL PLAN  
update 1995-2005

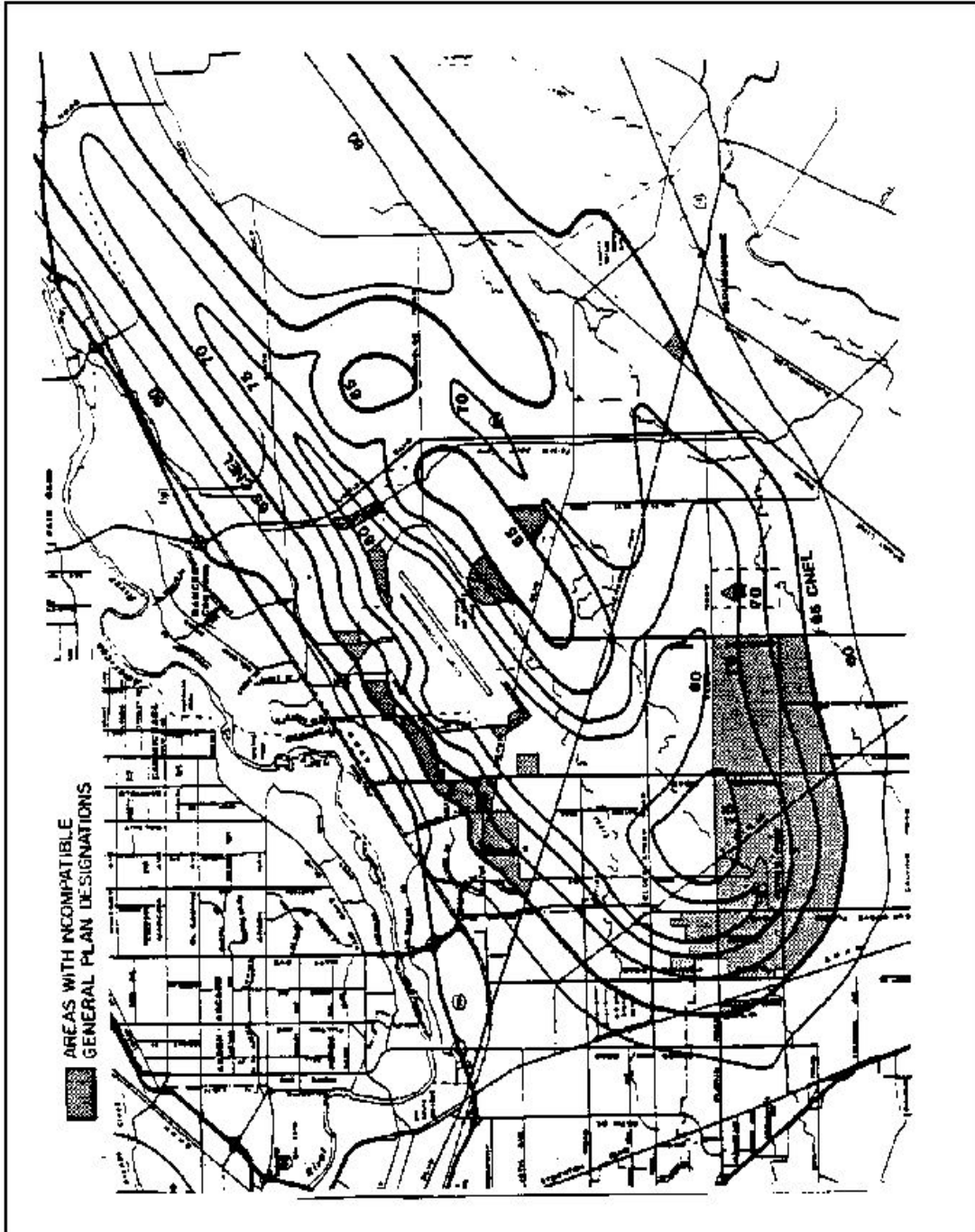
Map 12



Areas Already Devoted To Development

Planning and Building Department  
City of Sacramento  
**GP**  
GENERAL PLAN  
Updated 1995-2005

Map 13

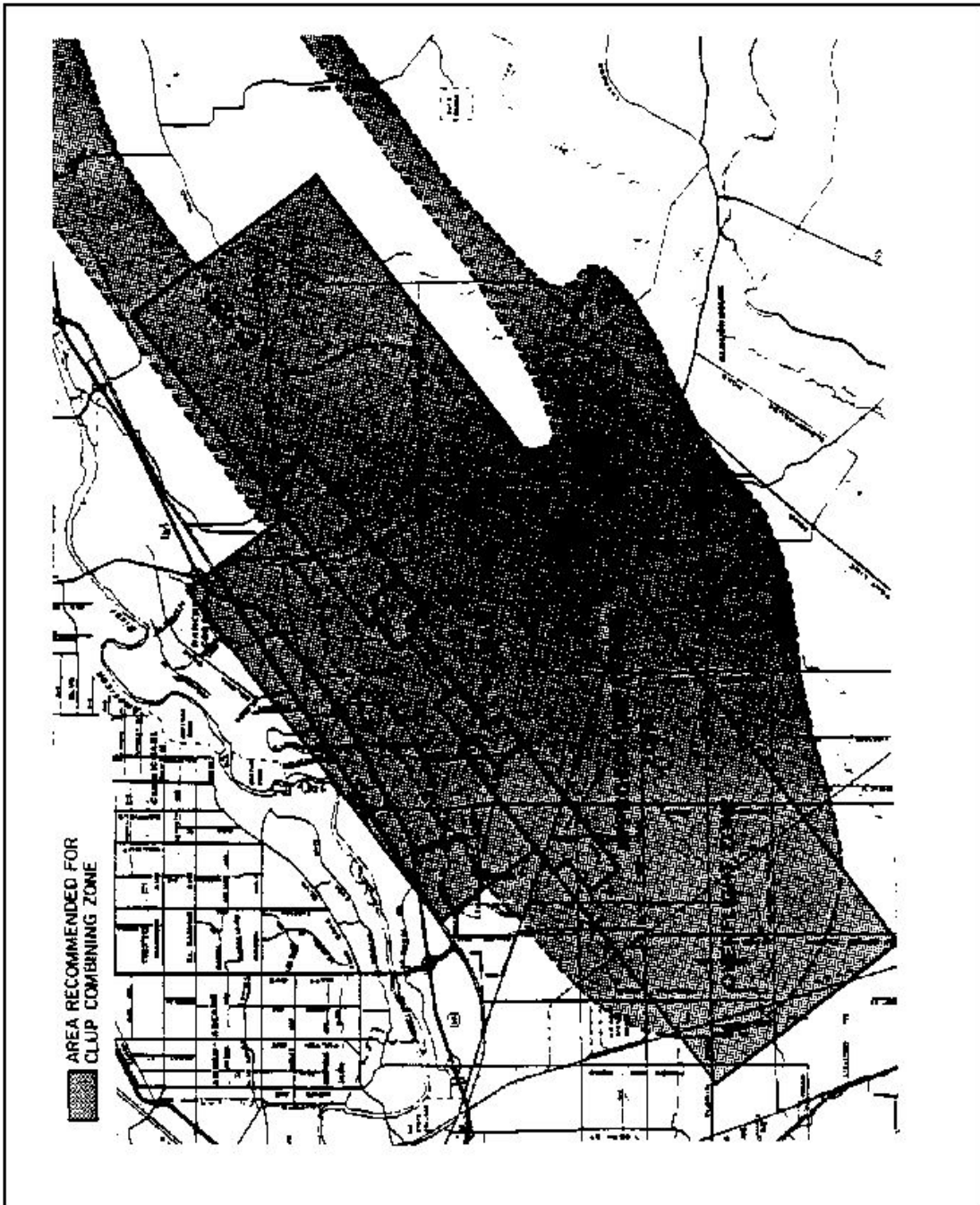


GENERALIZED COUNTY MAP SHOWING MATHER NOISE  
AND COUNTY AREAS AFFECTED BY CLUP GUIDELINES

Planning and Public Works  
City of Sacramento

**GP**

GENERAL PLAN  
update 1995-2005



GENERALIZED COUNTY MAP SHOWING MATHER SAFETY ZONES AND COUNTY AREAS RECOMMENDED FOR COMBINING ZONE

Planning and Building Department  
City of Sacramento

**GP**

GENERAL PLAN  
Update 1999-2005



It is recognized that there are many areas within the City for which it is not feasible to provide further noise mitigation. It is also recognized that some projects, because of their location, design, or size may not be able to incorporate mitigation measures that are feasible for larger projects or for projects in different locations. Specifically, around McClellan Air Force Base, there are areas where the noise contours indicate that it may be clearly infeasible to achieve the “normally acceptable” noise level. Projects in these areas may be allowed to exceed the maximum acceptable noise level. However, each project shall be subject to mitigation measures to maximum extent feasible.

Action a): Prepare a manual to assist project applicants in complying with the Noise Element and to identify those areas and circumstances under which additional noise mitigation is not feasible.

### Policy 3

**Land uses proposed where the exterior noise level would be below the “normally acceptable” limit may be approved without any requirement for interior or exterior mitigation measures.**

Where the exterior noise is below the “normally acceptable” limit, it is assumed that any buildings involved are of normal conventional construction without any special interior noise provisions. This will, under normal circumstances, provide an acceptable interior noise level.

“Maximum acceptable” interior noise levels have not been established for land use categories in Figure 3. The types of interior use in these categories vary substantially. As a general rule, acceptable noise mitigation will be that which provides for interior noise levels comparable to the noise levels that would exist in buildings where the exterior noise is below the “normally acceptable” standard.

### Goal B

**Reduce noise exposure around airports to the maximum acceptable exterior noise levels set forth in Table 1 or to the “normally acceptable” exterior levels described in Figure 3 depending upon the land use.**

### Policy 1

**Request the County Division of Airports to make operational and flight path modifications for Metropolitan Airport as part of the adoption of the new Master Plan that will eliminate conflict with planned uses in the North Natomas Community Plan. If this cannot be done, amendments to the noise standards or land use in the Community Plan and General Plan may be required.**

The noise contours in the Metropolitan Airport Comprehensive Land Use Plan, adopted in January 1994, indicate that the North Natomas Community Plan area is outside the 60 Db CNEL area; however, complaints about noise and noise conflicts can occur in areas with less than 60 Db CNEL.

Policy 2

**Encourage the Air Force to consider the standards set forth in the Noise Element when evaluating changes in Air Force Base operations.**

Policy 3

**Work with SACOG to define urban areas within the City, which should be exempt from Comprehensive Land Use Plan Noise Regulations affected by McClellan Air Force Base.**

**Goal C**

**Eliminate or minimize the noise impacts of future development on existing land uses in Sacramento.**

Policy 1

**Review projects that may have noise generation potential to determine what impact they may have on existing uses. Additional acoustical analysis may be necessary to mitigate identified impacts.**

There are areas of the City, which are considered relatively quiet (ambient levels below" normally acceptable" noise levels). While new development in these areas might not cause the "normally acceptable" noise level for existing development to be exceeded, it is recognized that such new development might cause an increase in ambient noise considered significant in terms of impacts on existing uses.

Policy 2

**Enforce the Sacramento Noise Ordinance as the method to control noise from sources other than transportation sources.**

**Goal D**

**Reduce noise levels in areas where noise exposure presently exceeds the standards established in Figure 3.**

Policy 1

**Continue to enforce the provisions of sections 27-150 and 27-151 of the State Motor Vehicle Code. These sections require that all vehicles be equipped with a properly maintained muffler and that exhaust systems not be modified.**

Policy 2

**Encourage the incorporation of the latest noise control technologies in all projects.**

## **Goal E**

**Reduce noise and potential hazard to people and properties wherever feasible in City Areas directly affected by McClellan and Mather Air Force Base operations.**

### **Policy 1**

**Administer provisions of the adopted Comprehensive Land Use Plans for McClellan and Mather Air Force Bases through the use of City modified guidelines for land use compatibility with noise and safety influence.**

### **Policy 2**

**Use the guideline provisions in Tables 2 and 3 when approving development projects in areas undergoing urbanization.**

### **Policy 3**

**Declare the developed, urbanized areas delineated on Map 12 as exempt from Policy 2 referenced guidelines.**

### **Policy 4**

**Initiate and adopt Zoning Ordinance provisions, which establish combining zones to evaluate applicable development projects for consistency with the noise and safety guidelines. Allow for the replacement of damaged or decayed structures, consistent with other zoning provisions, within the combining zones.**

## **THE NOISE EXPOSURE MAP**

The purpose of the noise exposure map is to provide the information necessary to make a determination of a site's noise exposure. The Noise Exposure Map prepared for the City of Sacramento presents this information graphically for the following sources:

- § Airports
- § Freeways
- § Railroads
- § Local Streets

To provide for the maximum utility of the Noise Exposure Map, the contribution of each source at a given location can be determined. Using a technique described later, the contributions of the individual sources can be added together to determine the overall noise exposure. Knowing the contribution of each source can be useful in determining strategies for mitigating the total noise level at a site.

The Noise Exposure Map at a scale of 1-inch equals 1000 feet is on file at the Department of City Planning and Development. Figures 4a, 4b, and 4c are reductions of this Map. The following paragraphs will aid in the use of the City of Sacramento's Noise Exposure Map.

Noise contours (lines on the Noise Exposure Map showing locations of equal noise exposure) have been shown for the airports. As noted in the discussion on the major noise sources in the City of Sacramento, the noise contours developed for the Air Force Bases and for the Sacramento Executive Airport are shown only down to an Ldn of 65 db. The noise exposure contours prepared for Sacramento Metropolitan Airport are shown down to an Ldn of 60 db.

Noise contours in 5 db decrements down to an Ldn of 60 db have been prepared for the freeways and are shown on the maps on file at the Department of City Planning and Development. On the reductions included in this report, only the Ldn 60 db contour is shown for the sake of clarity. The noise exposure along the freeways varies significantly due to the influence of the vertical alignment of the freeway (that is, whether it is at grade, elevated, or in cut) and the presence of sound walls. There is therefore no set relationship for determining the location of a contour to a given location.

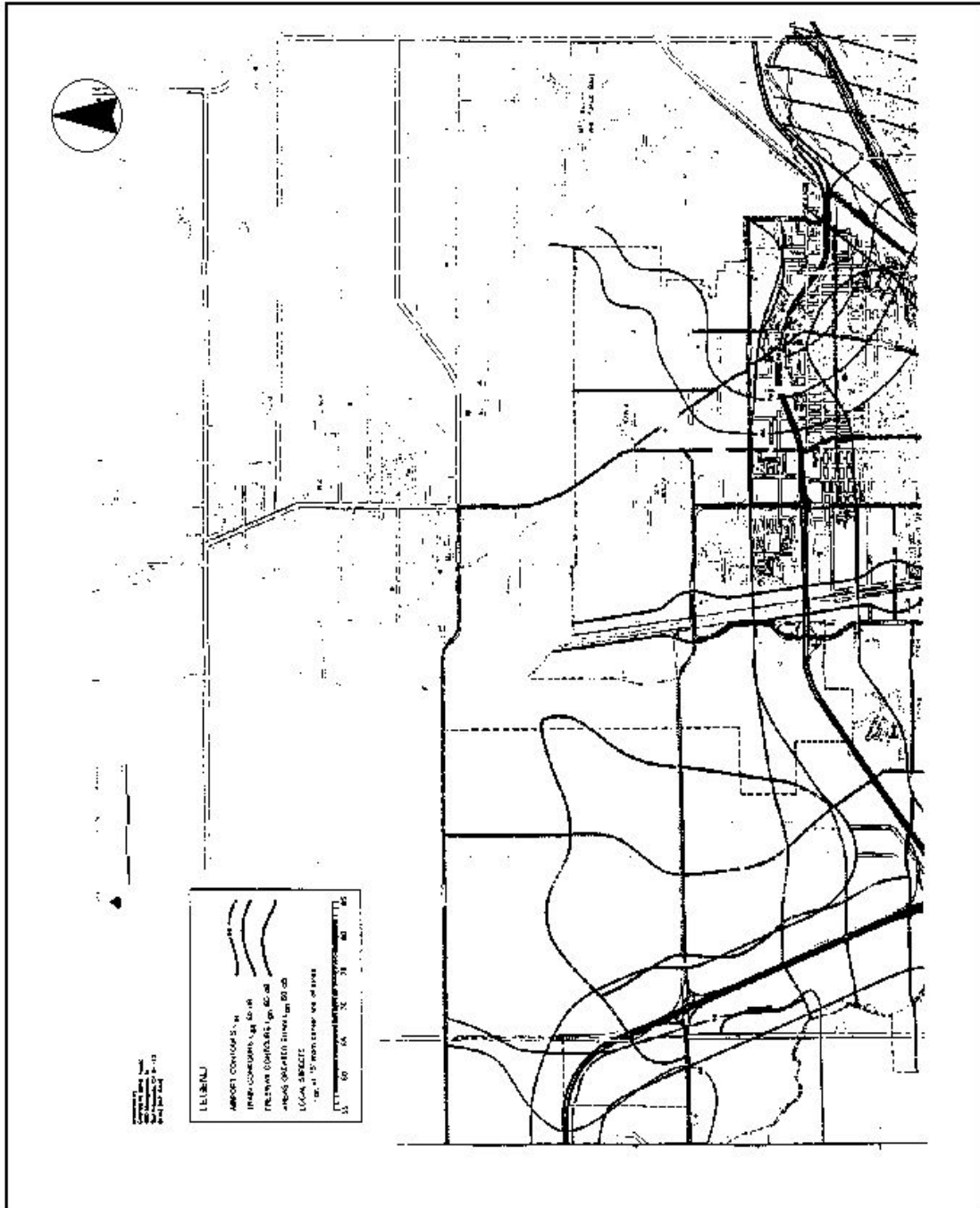
For the railroads, the Ldn 60db contours only are shown on the Noise Exposure Map. Since the active railroads are "at-grade" and no sound walls have been constructed, the major factor determining the location of the contours (excepting the shielding by intervening buildings) is the distance from the tracks. To simplify the map, the other contours have not been shown. These contours have been adjusted to show the influence of whistle sounding at "at-grade" crossings. If it is desired to know the location of the 65, 75, or 80 Ldn contours along one of the railroad lines, obtain the distance from the General Plan's Environmental Impact Report.

The noise exposure along City streets is shown by a code indicating the Ldn (to the nearest 5 db) at a distance of 75 feet from the center of the street. The calculated Ldn at 75 feet to the nearest decibel is given for the surface streets in the plan's EIR. Noise contours were not plotted for the City streets as their influence tends to be localized to the block adjacent to the streets due to the acoustical shielding provided by the buildings along the streets. The shielding provided by intervening buildings significantly reduces the emanation of surface traffic noise to subsequent blocks. (See the Traffic Noise Section for a discussion of this shielding). If it is necessary to determine the noise exposure along a City street at a distance other than 75 feet then an adjustment must be made to the Ldn. Information also in the EIR can be used to determine this adjustment.

The Map depicts the noise exposure at approximately ear height, 4-1/2 to 5-1/2 feet above the ground. It is important to remember this when using the Map to evaluate a project's noise exposure. For example, the noise exposure outside of upper stories of proposed buildings will in most cases be higher. The requirements of this Noise Element apply to all floors of buildings.

On the Noise Exposure Map, the noise contributions of the freeways and the railroads have been added. The area exposed to an Ldn of 60 db or greater due to these sources is shaded. Similar mitigation measures are used to mitigate the influence of both sources. The overall noise exposure at a given site can be obtained by adding together, on an energy basis, the noise exposures of each source affecting a site. This technique is described in the EIR, followed by an example of how to determine the Ldn at a specific site. When used in the manner described above, the Noise Exposure Map can be used to determine whether a CAC Title 24, part 2 acoustical report will be required for multi-family housing projects.

Figure 4A



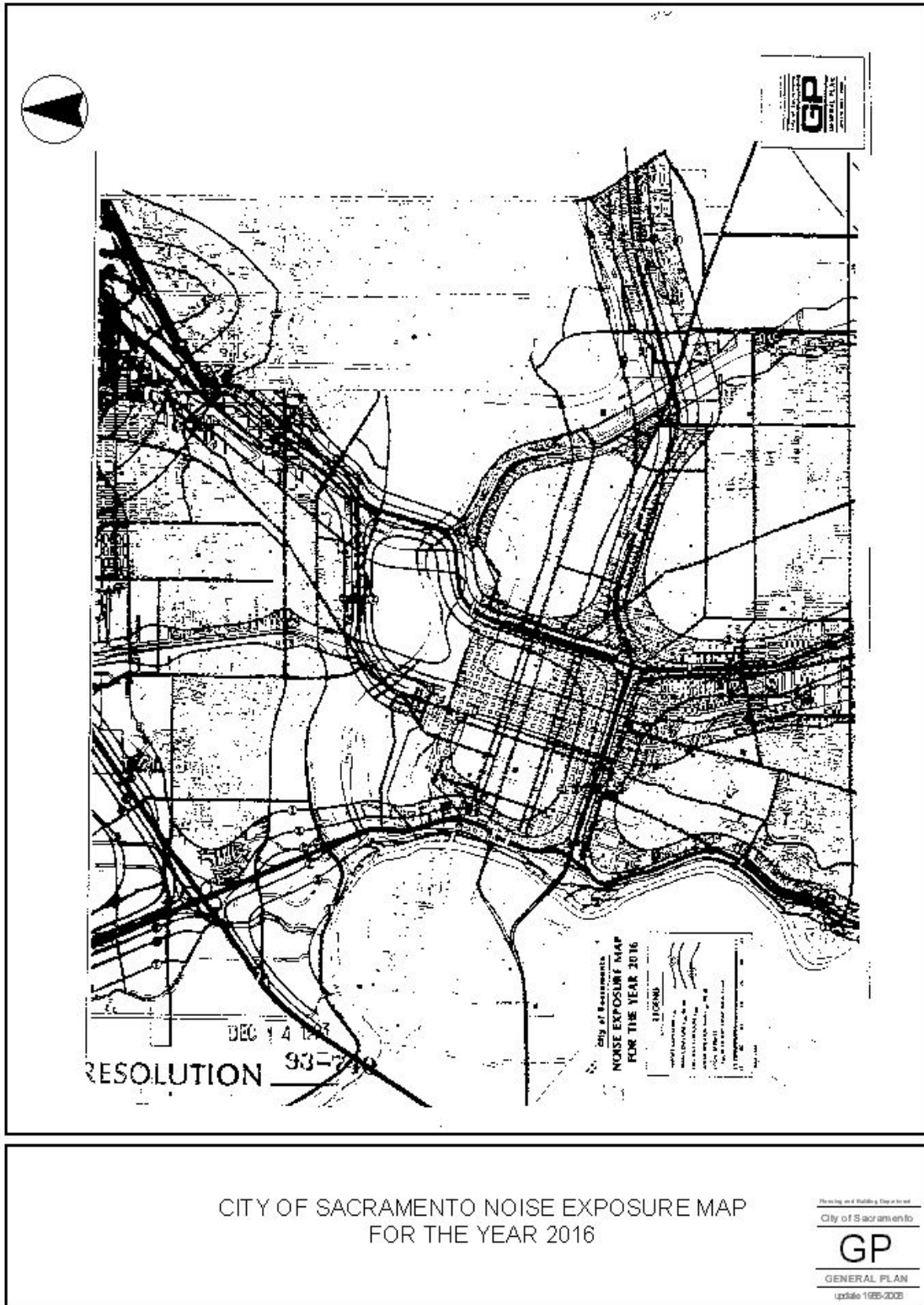
CITY OF SACRAMENTO NOISE EXPOSURE MAP  
FOR THE YEAR 2016

Planning and Public Development  
City of Sacramento

**GP**

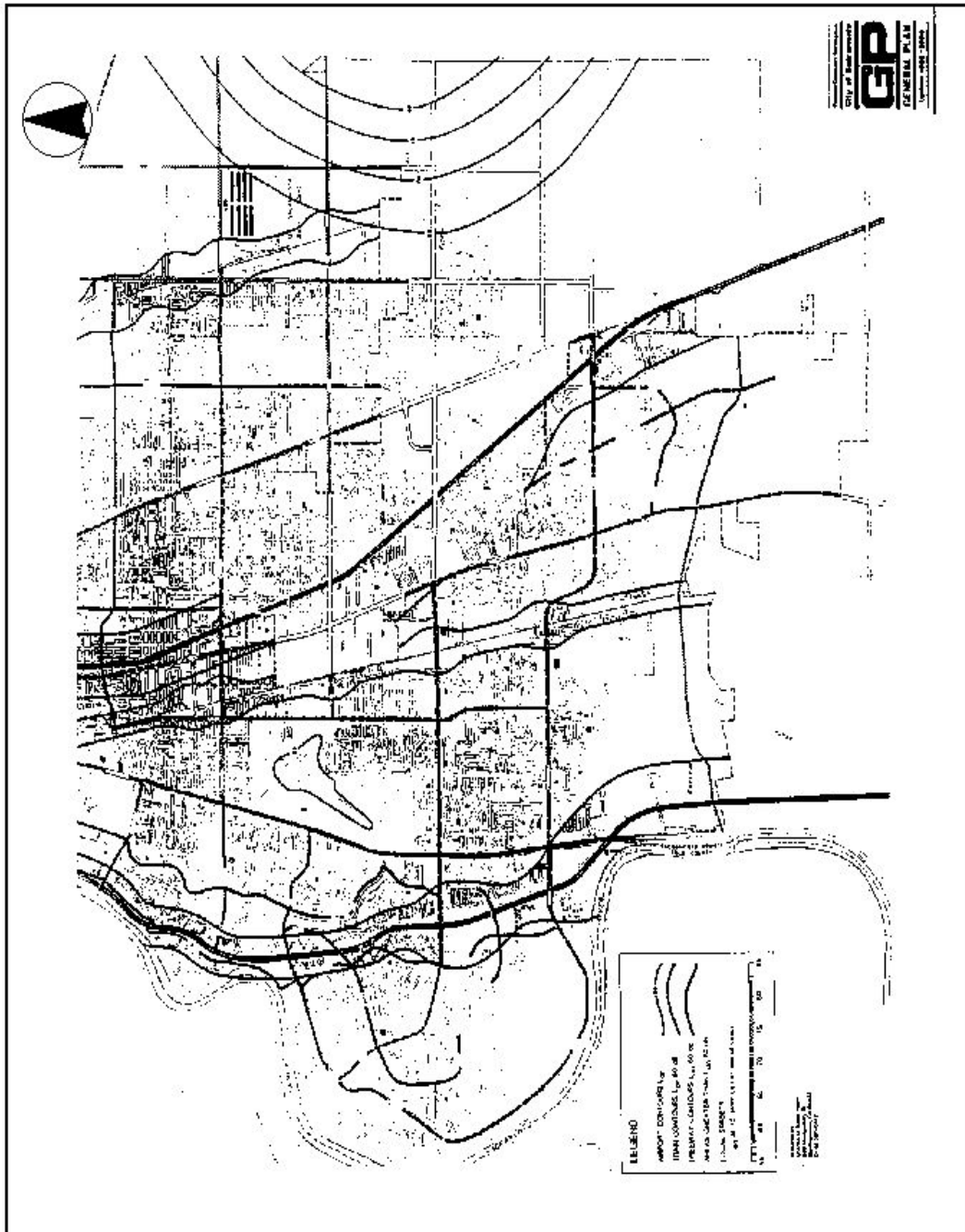
GENERAL PLAN  
update 1995-2005

Figure 4B



(Amended 12/14/93 by Resolution #93-740)

Figure 4C



CITY OF SACRAMENTO NOISE EXPOSURE MAP  
FOR THE YEAR 2016

Planning and Building Department  
City of Sacramento  
GP  
GENERAL PLAN  
update 1999-2005

The regulation requires that an acoustical report be prepared for every project exposed to an exterior Ldn of greater than Ldn of greater than 60 db. The purpose of the report is to show what steps will be undertaken to achieve an interior noise environment not in excess of an Ldn of 45 db in compliance with the State standards.

### **NOISE ASSESSMENT REPORT GUIDELINES**

Where an acoustical report is required, the following guidelines should be used. The intent of these guidelines is to promote consistency for studies done in Sacramento. It is recognized that every project is different and that therefore the scope of each assessment will be different.

The report should be prepared, supervised, by an acoustical engineer with the following minimum qualifications: registration as a professional engineer in California, 5 years experience and/or membership in the Institute of Noise Control Engineers.

Suggested Contents of Noise Assessment Reports:

1. A brief description of the project, particularly its potential to create a noise impact or sensitivity to environmental noise.
2. Measurement of the existing noise environment. If the project is noise sensitive, for example, a multi-family housing project, then at least one 24-hour measurement should be made. Short-term measurement at near-by potentially impacted locations may be sufficient for projects, which have a potential to create a noise impact during specific hours (a car wash, for example). A discussion of the measurement results should be included with a description of the noise sources and their contribution to the environment. The Ldn at noise-sensitive sites should be described. The Ldn (measured or calculated) and the typical Leq and L90 for the period (S) of interest at potentially impacted receivers should be reported.
3. For noise-sensitive projects, the report must describe in detail how the City's guidelines for development of compatible land uses will be met.
4. If the project is a noise generator, then an assessment of the project's potential noise impact shall be made. The assessment shall include an evaluation of the potential "Community Response" as described, for example, in the International Standards Organization (ISO) Recommendation R-1996. Mitigation measures should be considered if the project would increase the Ldn at a noise-sensitive location by more than 4 db, or cause the overall level to exceed that considered normally acceptable for the land use category, or to be expected to generate significant adverse community response.
5. A description of the future noise environment, including: (1) year analyzed, (2) the noise source (s), (3) average daily level of activity (traffic volumes, trains per day, etc.) and where obtained.
6. Method used to predict future noise levels.
7. A post-project measurement program to evaluate the effectiveness of proposed mitigation measures. The results must be submitted to the Planning Department.



## **NOISE MITIGATION MEASURES**

In some situations it is necessary to construct noise-sensitive developments in noisy areas. The following discussion of noise mitigation is intended to provide an overview of the kinds of steps that can be taken to reduce or eliminate noise impacts. Noise control engineering is a complex discipline. Any proposed solutions to noise problems must not interfere with structural, architectural, or building code requirements. Noise mitigation measures should also be assessed against other community values such as open space, aesthetics, maintenance problems, etc. Each project has its own special problems, and mitigation measures, which are cost-effective if it is included in a project during the design phase. The measures or combinations used to mitigate noise fall into four major categories:

- § Site Planning
- § Architectural Layout
- § Noise Barriers
- § Construction Modifications

### **Site Planning**

Proper site planning to reduce noise impacts is the first area that should be investigated for a given report. By taking advantage of the natural shape and terrain of the site, it is often possible to arrange the buildings and other uses in a manner, which will reduce and possibly eliminate noise impact. Planned unit developments are particularly conducive to site planning techniques. Site planning techniques include:

1. Increasing the distance between the noise source and the receiver.
2. Placing non-noise sensitive land uses such as parking lots, maintenance facilities, and utility areas between the source and the receiver.
3. Using non-noise sensitive structures such as garages to shield noise-sensitive areas.
4. Orienting buildings to shield outdoor spaces from a noise source.

### **Architectural Layout**

In many cases noise reduction requirements can be met by giving attention to the layout of noise-sensitive spaces. Bedrooms, for example, will be considerably quieter if placed on the side of the house facing away from the freeway. Similarly, balconies facing freeways should be avoided. Quiet outdoor spaces can be provided next to a noisy freeway by creating a U-shaped development, which faces away from the highway. Proper architectural layout can often eliminate the need for costly construction modifications.

## Noise Barriers

Noise barriers or walls are commonly used to reduce noise levels from ground transportation noise sources and industrial sources. Noise barriers serve a dual purpose in that they can reduce the noise level both outdoors and indoors.

To be effective, a noise barrier must be massive enough to prevent significant noise transmission through it, and high enough and long enough to shield the receiver from the noise source. A safe minimum surface weight for a noise barrier is 3-1/2 lbs/sq. Ft. and the barrier must be carefully constructed so that there are no cracks or openings. To be effective, a barrier must interrupt the line-of-sight between the noise source and the receiver. As an example of this relationship, consider a flat area with a housing tract next to a road. If there are no diesel trucks on the road, a 7-foot high barrier will reduce the traffic noise by about 8 dBA.

If there are trucks then the noise from the trucks will only be reduced by about 4 dBA. The reason is that the stacks of the diesel trucks will be visible above the barrier and the direct noise path will not be completely interrupted.

Another important and often overlooked consideration in the design of noise barriers is the phenomenon of "flanking." "Flanking" is a term used to describe the manner by which a noise barrier's performance is compromised by noise passing around the end of a barrier. Short barriers regardless of height provide essentially no reduction in the overall noise level. The effects of flanking can be minimized by bending the wall back from the noise source at the ends of the barrier.

In addition to meeting acoustical requirements, noise barriers must be evaluated for possible maintenance problems, aesthetic and environmental considerations, safety conflicts, and cost.

## Construction Modifications

If site planning, architectural layout, noise barriers, or a combination of these measures does not achieve the required noise reduction for the building in question, it will be necessary to modify the building's construction. Indoor noise levels due to exterior sources are controlled by the noise reduction characteristics of the building shell. The walls, roof, ceilings, doors, windows, and other penetrations are all determinants of the structure's overall noise reduction capabilities.

In general, windows and doors are the acoustical weak links in a building. Often all that is required is that the windows be sealed on the noisy side of the building and an alternative means of ventilating the building provided. Beyond this, thicker windows or double-glazed windows will be required. Doors should not be located on the side of the building facing a noisy source. If they are, they should be solid-core doors and should be equipped with an appropriate acoustical door gasket. In cases where more noise reduction is required, the ceiling/roof and/or the walls must be modified to provide the required noise reduction. The actual modifications will depend on the amount of noise reduction required.