

## **5. SEISMIC AND PUBLIC SAFETY**

## SAFETY ELEMENT

### INTRODUCTION

This element addresses issues of public health and safety. Although the City of Atwater is located in an area where there are few obvious hazards, potential hazards do exist. The intent of the Safety Element is to document potential hazards that must be considered when making decisions on the location, type, and density of development. The main objective of this element is to avoid, to the maximum extent feasible, loss of life, injuries, and property damage due to natural or manmade hazards.

California Government Code Section 65302(g) requires a general plan to have a Safety Element for the protection of the community from any unreasonable risks associated with the effects of various potential hazards. Among these hazards are the following:

- Seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure.
- Slope instability leading to mudslides and landslides.
- Subsidence, liquefaction, and other seismic and geologic hazards.
- Flooding.
- Urban and wildland fires.

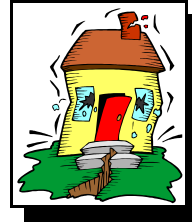
The Safety Element shall also address evacuation routes, peakload water supply requirements, and minimum road widths and clearances around structures.

In addition to the required items, this Safety Element discusses other potential hazards in the Planning Area - dust storms, hazardous materials, and hazards associated with Castle Airport operations. Also, "critical facilities" - facilities that are needed to function during

emergencies - are identified.

### SEISMIC AND GEOLOGIC HAZARDS

#### Seismic Hazards



As noted in Figure 5-1, no known faults are located in the Atwater Planning area. The nearest known fault is the Kings Canyon Lineament, approximately ten miles south of the City. Geological evidence indicates that this fault has not been active within the past 1.6 million years. The closest significant mapped faults lie about 20 miles to the northeast in the Sierra Nevada and 30 miles to the southwest in the Diablo Range. The Bear Mountain Fault, the fault in the Sierra Nevada, has not been active in historic times, but there is evidence of activity within the past



Seismograph measures earthquake activity.

1.6 million years. Faults to the southwest include the San Joaquin and O'Neill Faults (both active within the last 700,000 years) and the Ortigalita Fault. Farther to the west are the Calaveras Fault and the San Andreas Fault, both historically active faults whose earthquakes have been felt in Merced County. The nearest Alquist-Priolo Special Studies Zone is the Ortigalita Fault Zone in southwestern Merced County, about 38 miles from the City. While the Ortigalita Fault has not been active in historic times, it apparently has been active within the last 10,000 years.

The most likely seismic hazard to be experienced by the City is ground shaking, caused by earthquakes generated on active

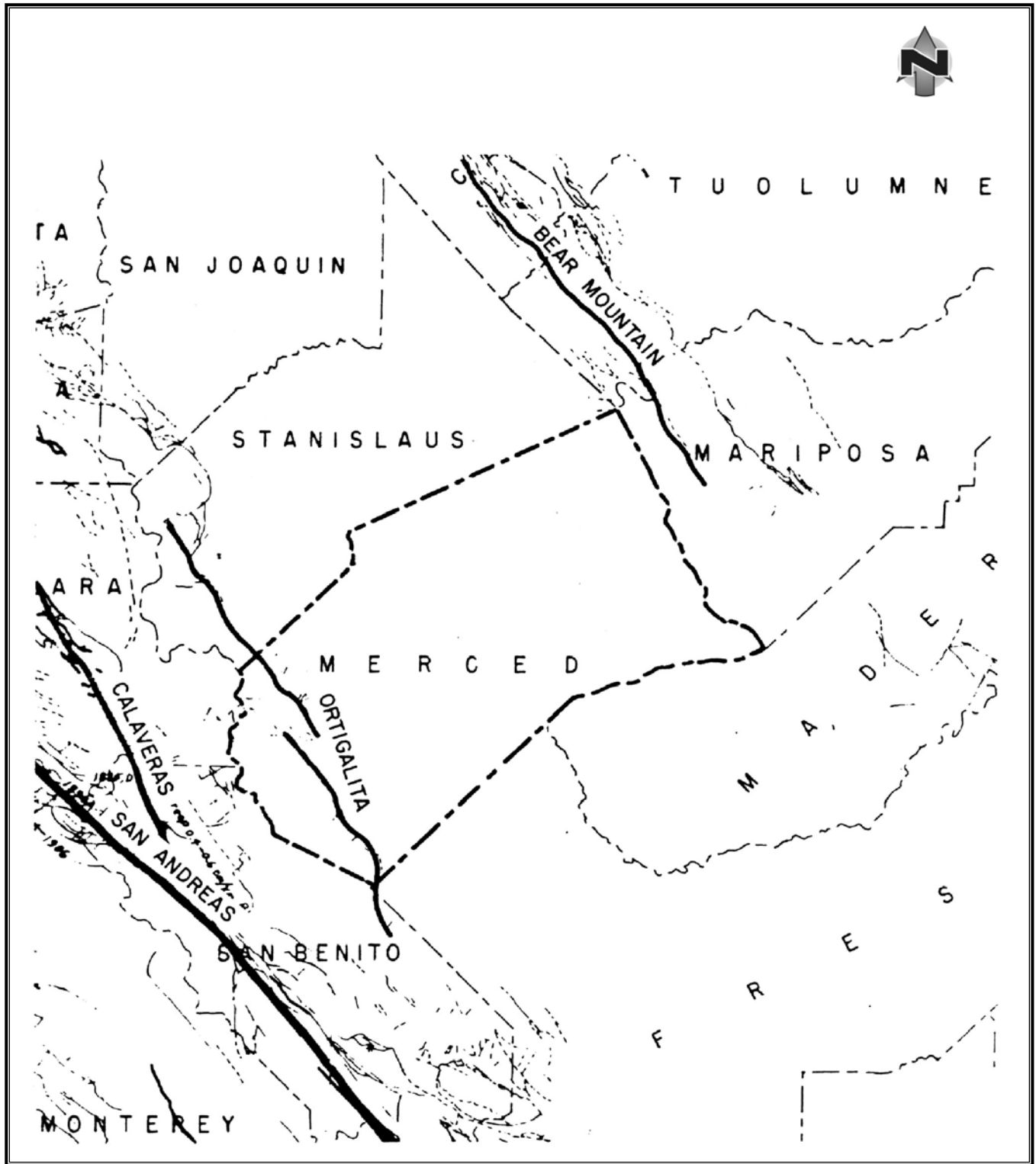


FIGURE 5-1  
GEOLOGIC FAULTS IN AND ADJACENT TO MERCED COUNTY

faults in either the Sierra Nevada or the Coast Ranges. The Merced County General Plan states that documentary evidence exists for five earthquakes that shook the County. They occurred in 1872, 1906, 1952, 1966, and 1984. Information provided by the California Division of Mines and Geology (DMG) indicates that Atwater is within Seismic Zone 3, as defined by the Uniform Building Code. Seismic Zone 3 is identified as likely to sustain damage due to major seismic events, and design inputs for construction of new facilities are required to minimize damage. According to the Earthquake Ground Motion Probabilistic Seismic Hazard Analysis prepared by the DMG, the Peak Ground Acceleration (PGA) that residential and commercial structures should be designed for is 0.22g. The DMG has also indicated that Public Schools and hospitals should be designed for a PGA of 0.26g.

Other hazards, such as lateral spreading, surface cracking or differential settling, are considered unlikely to occur, although no studies have been conducted to determine the likelihood of these hazards. There is a possibility of a liquefaction hazard in the Planning Area. Liquefaction, the complete loss of supportive strength of water-saturated sediment when it is subjected to ground shaking, is known to occur most often in uniform sandy sediments with high water tables. However, studies to ascertain the potential liquefaction hazard have not been conducted.

**GOAL SF-1.** Minimize the threat of personal injury and property damage due to seismic activity.

**Policy SF-1.1.** Require all new development and rehabilitation of existing development to be in compliance with all Seismic Zone 3 requirements of the Uniform Building Code.

**GOAL SF-2.** Reduce the potential for property damage and injury resulting from liquefaction.

**Policy SF-2.1.** Require a geotechnical study for all projects located in areas that are subject to high groundwater tables, as noted in Figure 5-2, to assess the probability of liquefaction occurrence on project site. The geotechnical study shall identify any required design or construction mitigation to reduce potential impacts.

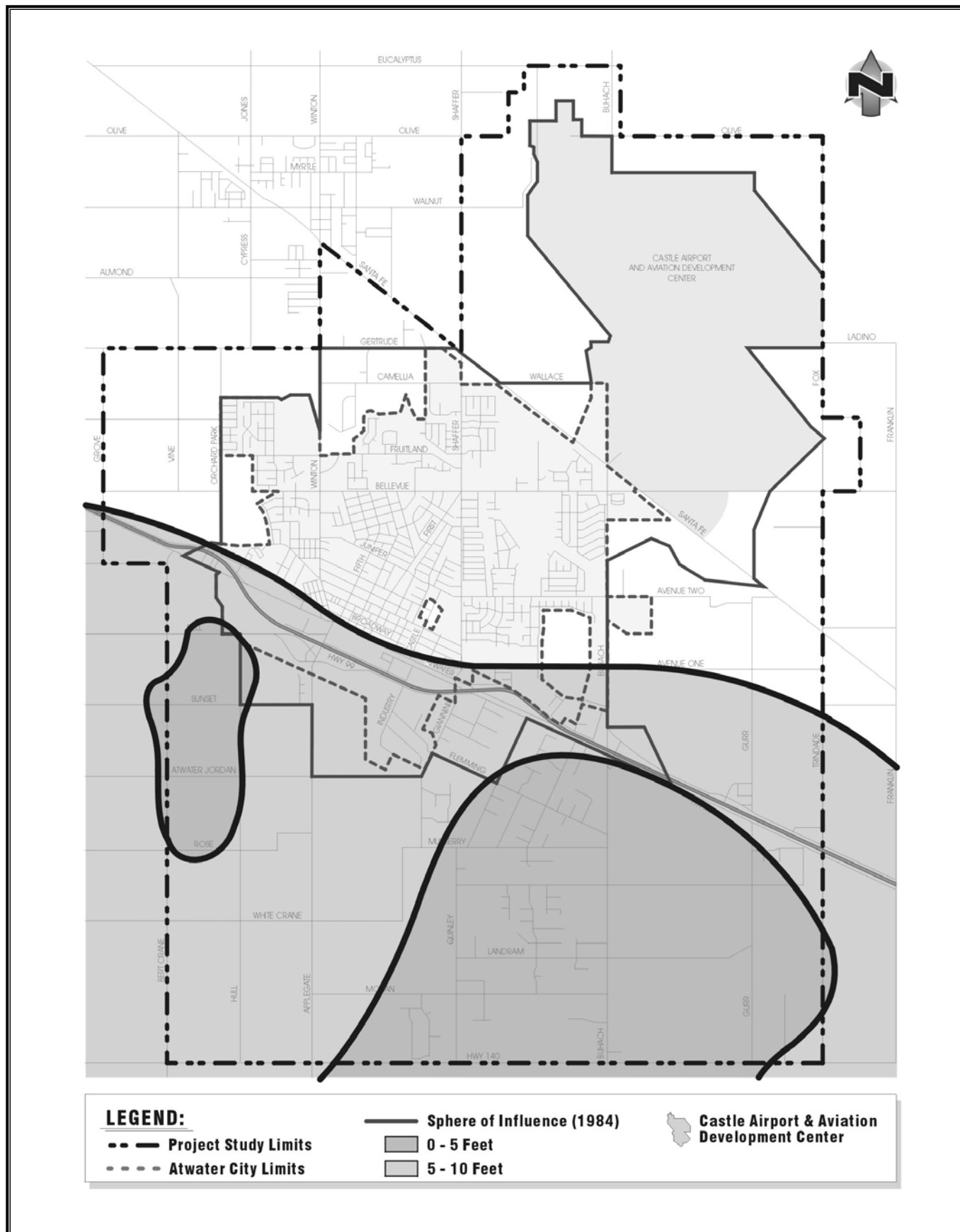
### **SUBSIDENCE**

Subsidence, the gradual settling or sinking of the earth's surface, has been a problem in Merced County, mainly in the southwestern portion. The cause of this subsidence has been the withdrawal of ground water at a rate faster than the recharge of the aquifer, resulting in a situation called overdraft. When subsidence occurs, the soils above the water table are compacted, and the surface ground level lowers. In some parts of California, subsidence of more than 10 feet has occurred. Since the City sits atop a groundwater basin, it is potentially subject to subsidence, if groundwater withdrawal should exceed its replacement.

**GOAL SF-3.** Prohibit activities which could result in ground subsidence.

**Policy SF-3.1.** Require all project applications that propose extraction of groundwater to include a report evaluating the potential for subsidence. The report shall discuss appropriate mitigation measures to reduce the potential for subsidence.

**Implementation Program SF-3.a.** The City shall annually monitor the elevation of groundwater at City wells, and fluctuations in groundwater levels shall be recorded to determine long-term trends in groundwater elevations.



### FLOODING



Most of the City and the Planning Area lie outside of the 100-year floodplain designated by the Federal Emergency Management Agency (FEMA). However, several areas in the southeastern portion of the Planning Area do fall within the 100-year floodplain (Figure 5-3). This area is bounded approximately by Bellevue Road to the north and Buhach Road to the west. Development within the Castle Parkway area will have to be carefully planned and constructed in order to avoid any potential flood-related impacts.

In addition to Black Rascal and Bear Creeks, the area adjacent to Canal Creek is one of the places subject to possible flooding. In 1992, the U.S. Army Corps of Engineers constructed Castle Reservoir, a flood control reservoir on Canal Creek (Figure 5-4). Located approximately four miles northeast of the City, the reservoir has a maximum storage capacity of 10,400 acre-feet, and it is held back by an earthen dam 52.5 feet high and 2,250 feet long at its crest. Castle Reservoir is the closest reservoir to the City.

**GOAL SF-4.** Avoid damage to persons and property resulting from flooding.

**Policy SF-4.1.** Restrict development within the 100-year floodplain in a manner that effectively prevents damage to persons and property.

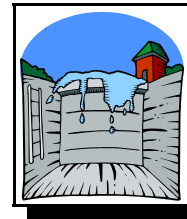
**Implementation Program SF-4.a.** As conditions for development within the 100-year floodplain, the City shall require that the finished floor elevation of the project be at least one foot above the 100-year flood elevations shown on the Flood Insurance Rate Map. The project applicant shall also be required to demonstrate that the project would not impact other properties or significantly contribute to a cumulative impact.

**Implementation Program SF-4.b.** The City shall prohibit any land use activities within the

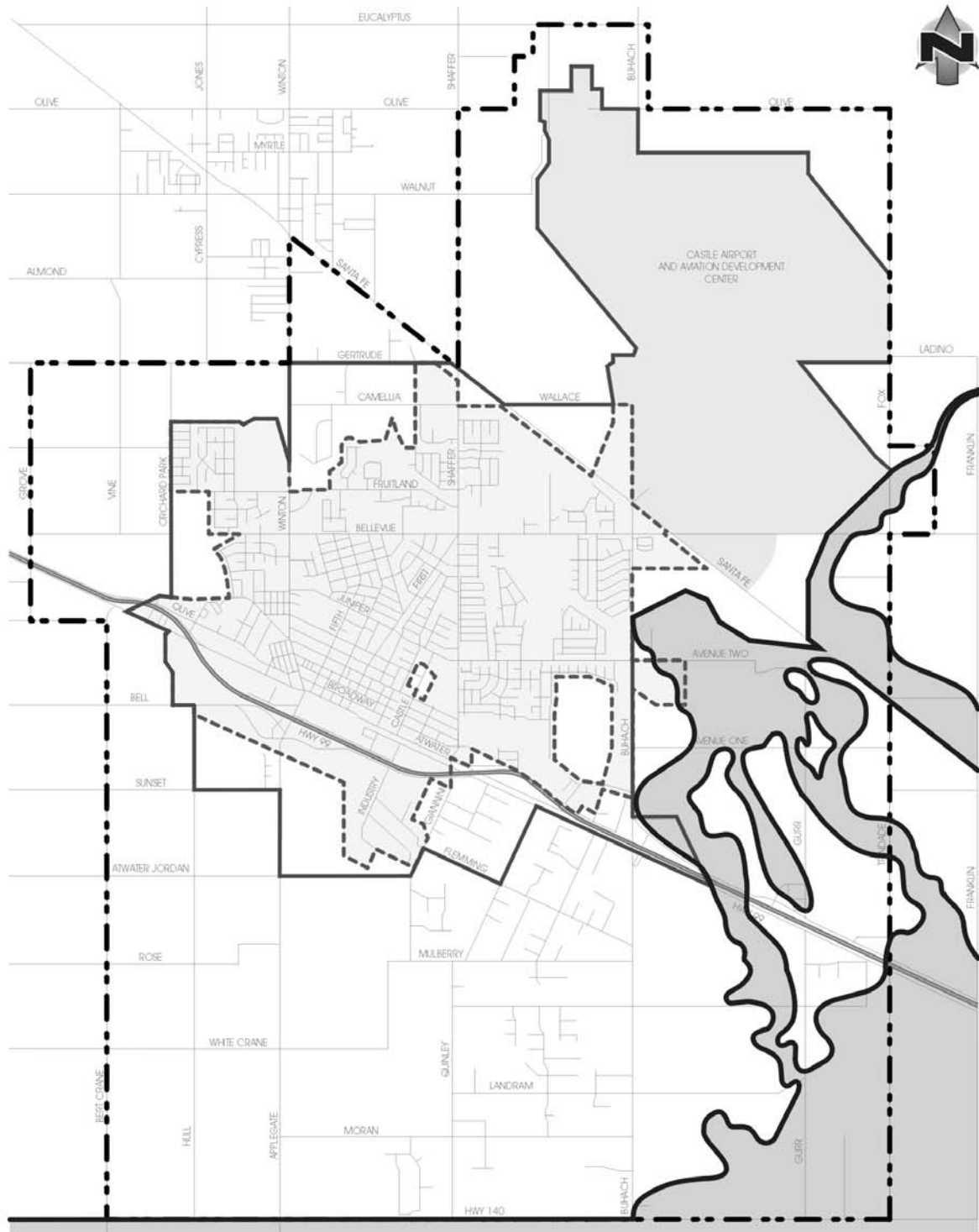
100-year floodplain that could pose a hazard to people or property in the event of a flood, such as the storage of flammable or hazardous materials.

**Implementation Program SF-4.c.** The City shall encourage the construction of regional flood control facilities that will increase protection and/or eliminate existing flood zones within the Planning Area.

### DAM INUNDATION AREAS



Protection from flood hazards created by dam failures is critical to the safety and well-being of Atwater residents. Dam failures can result from a number of natural or man-made causes, such as earthquakes, erosion, improper siting, improper maintenance, rapidly rising flood waters and structural/design flaws. The ability to provide warning for potential victims of flooding from dam failure is influenced by the type of dam constructed, the frequency of inspections for structural integrity, the flood wave arrival time, the ability to notify persons downstream and their ability to evacuate. Aside from loss of life, damage to property and displacement of people, hydroelectric facilities on dams that fail would suffer damage. This could have an impact on life support systems in communities outside the immediate hazard areas. A failure of one of the dams operated by the Merced Irrigation District (MID) that generate electricity could affect supply to the CAADC site, within which the Castle Medical Center is located. Should more of the City choose MID as its electricity supplier and distributor, those customers would likewise be affected.

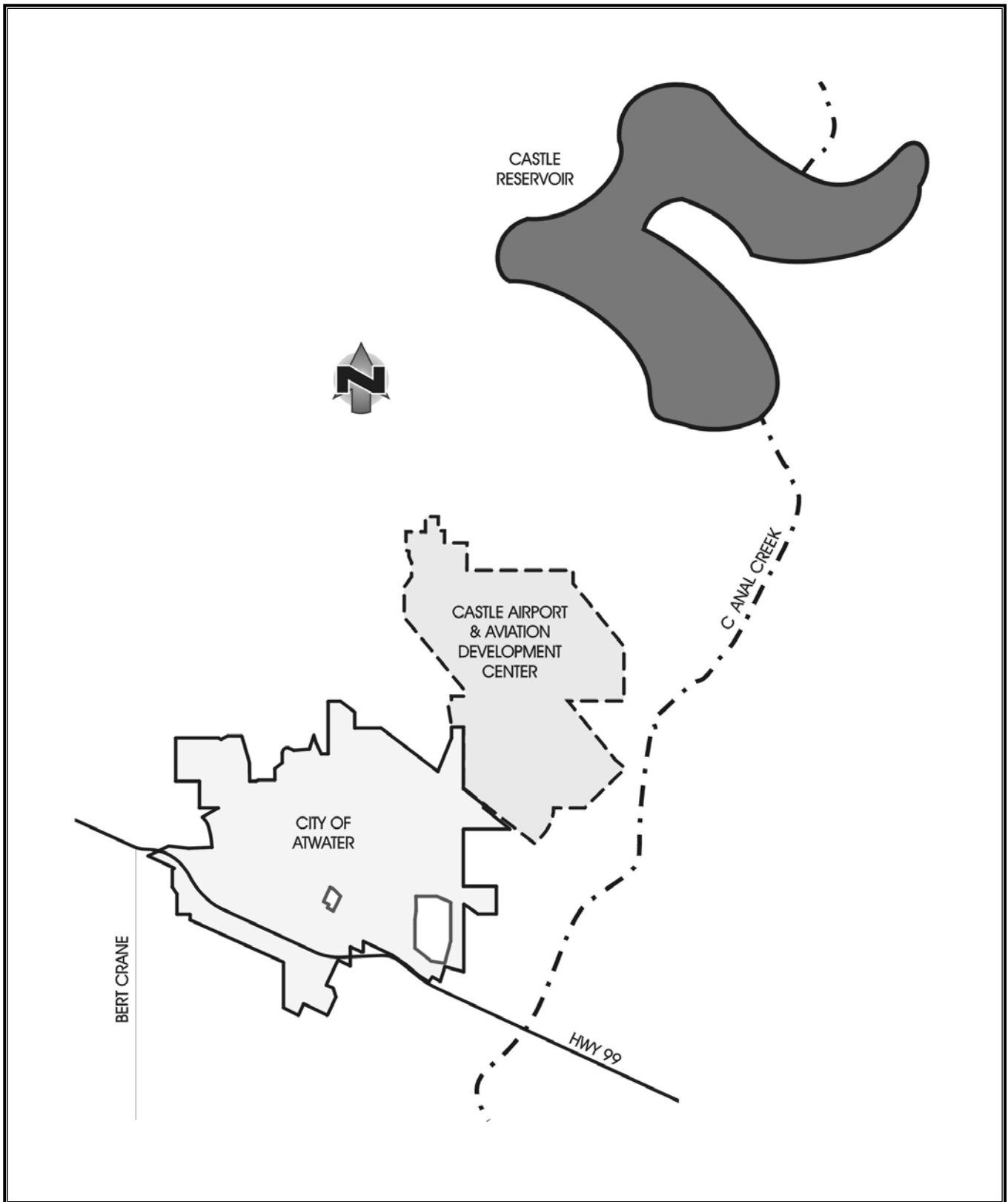


**LEGEND:**

- Project Study Limits
- Atwater City Limits

- Sphere of Influence (1984)
- 100 Year Flood Area

**Castle Airport & Aviation Development Center**





## Safety Element

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Figure 5-5 depicts potential dam failure inundation areas that would affect Atwater. Failure of the Lake Yosemite dam, northeast of Merced, would inundate most of the City. Only the CAADC site and the far northern and northwestern peripheries of the City would be outside the inundation area. Representatives from the Army Corps of Engineers have stated that a dam inundation area map is currently not available for Castle Reservoir.

**GOAL SF-5.** Reduce potential flood impacts resulting from dam failures.

**Policy SF-5.1.** Ensure that the City's Emergency Plan is updated to include dam failure inundation as a potential emergency and procedures for the efficient and orderly notification and evacuation of potential dam inundation areas.

**Policy SF-5.2.** Request that the U.S. Army Corps of Engineers provide information relative to the potential dam inundation area associated with Castle Reservoir.

### FIRE HAZARDS



Wildland fires are a common hazard in California. The combination of dry summers, widespread vegetation, and the proximity of urban development to vegetated areas has led to many devastating fires. Lightning causes many of these fires. The rest are caused by humans, either accidentally or intentionally. In Merced County, grass and brush lands are the most likely places for wildland fires. Since Atwater lies outside these areas, the risk of wildland fire is low.

Of greater concern to the City are urban fires. Urban fires have several causes, including the presence of flammable substances, faulty electrical wiring, human carelessness, and arson. The Uniform Building Code, adopted by the City, sets minimum construction standards to ensure fire safety. In addition, activities that use flammable or explosive materials are subject to more stringent safety

requirements to prevent fires.

**GOAL SF-6.** Reduce the potential for both urban and wildland fires to occur.

**Policy SF-6.1.** Maintain, and if feasible improve, the City's ISO rating of 5.

**Policy SF-6.2.** Ensure that all new development and redevelopment of older projects conform to the fire safety provisions of the Uniform Building Code.

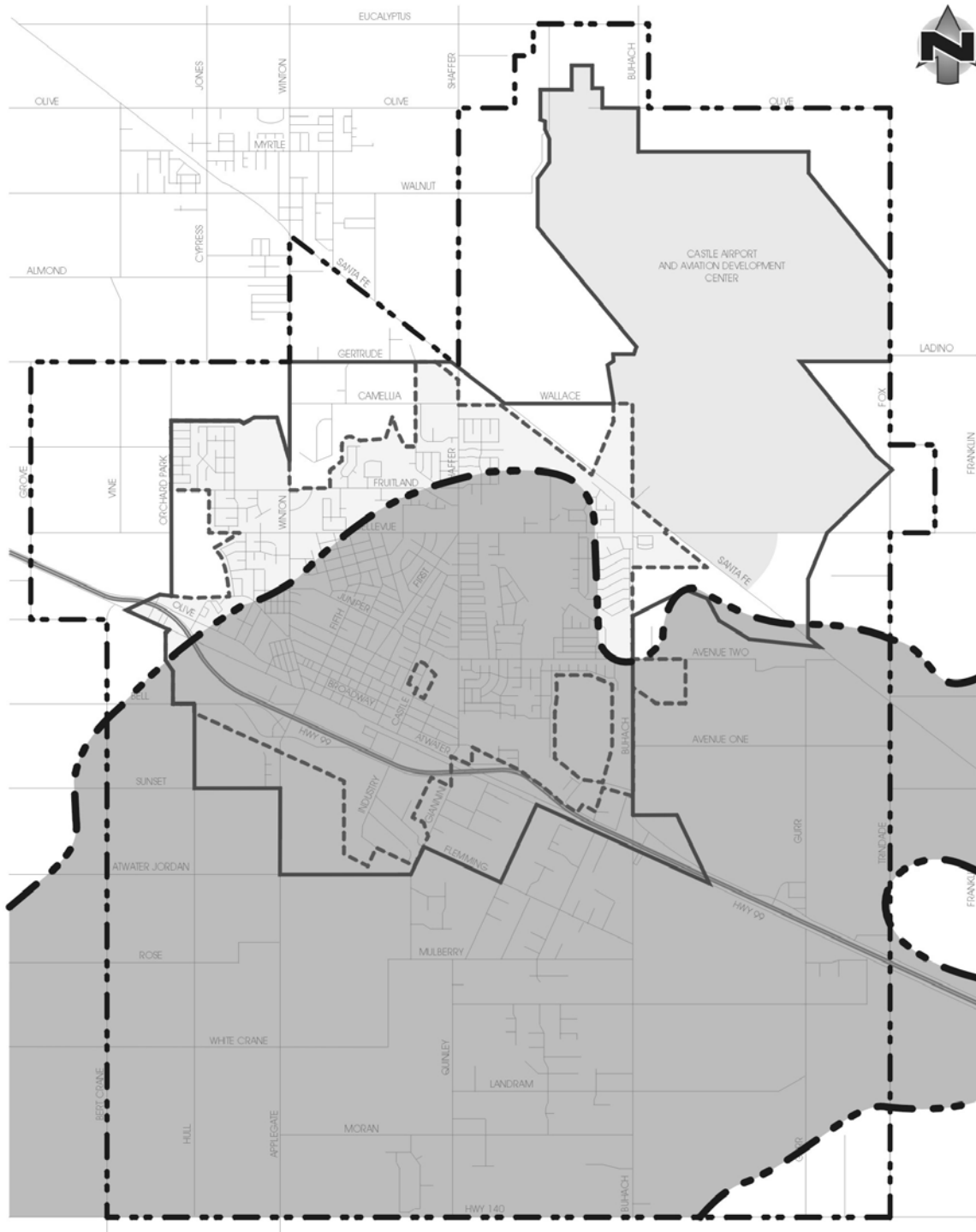
**Policy SF-6.3.** Maintain and augment mutual and automatic aid agreements with the Merced County Fire Department.

**Policy SF-6.4.** Support the relocation of Merced County Fire Department's Station 82 to the proposed Applegate Road location to provide better fire protection service to the McSwain-South Atwater area.

**Implementation Program SF-6.a.** Enforce the requirements of Public Resources Code Sections 4290 and 4291 on all development projects, the provisions of which include, but are not limited to, the following:

- Maintain structural roofs free of vegetative growth and debris.
- Remove any portion of trees growing within 10 feet of chimney/stovepipe outlets.
- Maintain screens over chimney/stovepipe outlets or other devices that burn any solid or liquid fuel.

**Implementation Program SF-6.b.** Develop a comprehensive vegetation and weed abatement program for open space areas, including those located in existing subdivisions.



**LEGEND:**

-- Project Study Limits  
 ... Atwater City Limits

— Sphere of Influence (1984)  
 - - - Lake Yosemite

 Castle Airport & Aviation Development Center

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### WIND EROSION AND DUST STORMS



A hazard not generally well known, but which has occurred in the San Joaquin Valley, is the erosion of soils due to wind. The removal of soil by wind causes several problems. Not only does it have the effect of denuding the land like water erosion, it also increases particulate matter pollution and reduces visibility. This can create hazards on the highways in the area. For example, a dust storm in the area between Selma and Fowler on May 19, 1997 led to a multiple vehicle collision involving 27 cars and three trucks. Fifteen people suffered injuries in the accident. However, the San Joaquin Valley itself is not the only source for dust. On September 14, 1997, a dust storm blanketed San Joaquin and Stanislaus counties, reducing visibilities from 30 miles to one mile at the Modesto Airport. The dust was so severe that people were warned to take children inside. The source of this storm was the Delta area, where northerly winds generated by the passage of a cold front stirred up dust.

Activities by humans, such as the plowing of land, can increase the likelihood of a wind erosion hazard. As depicted in Figure 5-6, the U.S. Soil Conservation Service (now known as the Natural Resources Conservation Service) has designated the northwestern portion of the Planning Area as an area subject to wind erosion. Most of the City sits on Atwater sandy soil. This soil has been rated as having a severe hazard of wind erosion. Urban development and agricultural activities in the area could increase the hazard if proper mitigation measures are not implemented.

**GOAL SF-7.** Prevent activities that contribute to increased wind erosion.

**Policy SF-7.1.** Require all projects that involve grading or other earth moving activities to implement dust control measures to reduce dust emissions.

**Policy SF-7.2.** Cooperate with other appropriate law enforcement and emergency service agencies in planning for and implementing measures that reduce potential hazards caused by significant dust storms.

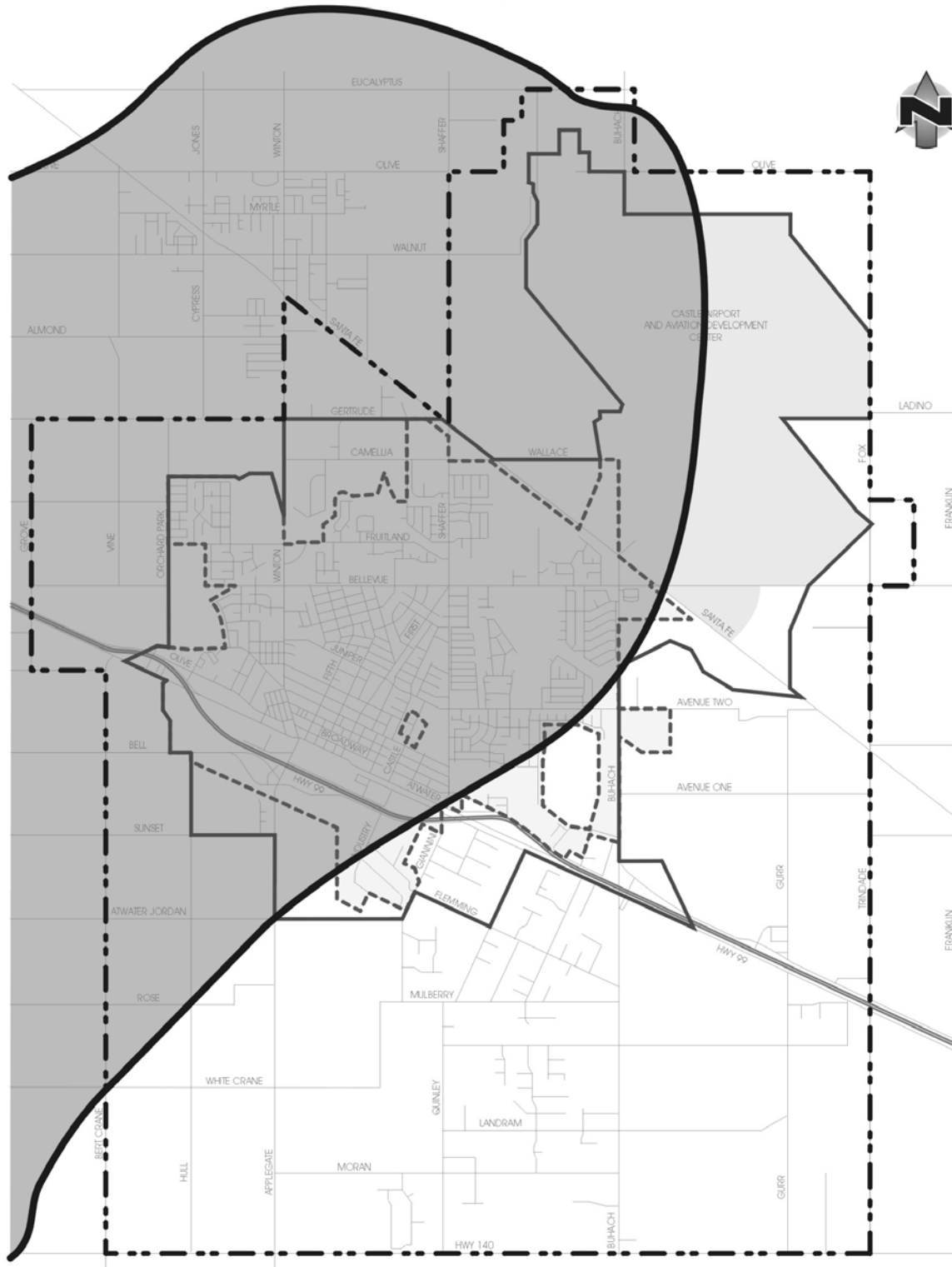
**Implementation Program SF-7.a.** The City planning staff, in cooperation with the Public Works and Building Departments, shall prepare a standard set of conditions for the control of dust emissions during grading and other earth moving activities. These standards shall not preclude the placement of other dust control conditions that may be deemed necessary. No standard conditions shall be removed unless the project applicant demonstrates that the condition will not be necessary to attain dust control objectives.

### AIRPORT-RELATED HAZARDS



B52 Bomber of the type formerly stationed at Castle AFB

Operations at Castle Airport could pose a potential hazard to future development within the Planning Area. Prior to October 1995, Castle Airport operated as Castle Air Force Base. Its primary mission was to serve as a base for long-range bombers, but it was also a site for training of bomber and air refueling crews. The potential hazards associated with military aircraft operations were obvious, particularly since the long-range bombers carried nuclear weapons. However, for most of its years of operation, the approach and departure zones from Castle Air Force Base were over agricultural land. Thus, the most significant safety hazard was a possible accident involving an aircraft carrying nuclear weapons. During the years of the base's operation, there were no accidents that threatened the safety of people or property within the City.



**LEGEND:**

- Project Study Limits
- - - Atwater City Limits

- Sphere of Influence (1984)
- Areas Subject to Wind Erosion

 Castle Airport & Aviation Development Center

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With the closure of Castle Air Force Base, the facility has been converted to civilian uses, and the safety hazard from military aircraft has largely disappeared. However, airport operations could still pose a safety hazard, mainly to industrial and commercial activities located within and adjacent to the CAADC site. The Merced County Airport Land Use Compatibility Plan places the central portion of the CAADC site and lands to the southeast which are generally north of Santa Fe Drive within Zones B1 and B2. Zones B1 and B2 are approach/departure zones. Prohibited uses within these zones include aboveground storage of hazardous materials, children's schools and day care centers, libraries and other highly noise-sensitive uses, hospitals, and nursing homes. Also, hazards to flight, which include physical, visual, and electronic forms of interference with the safety of aircraft operations, are prohibited in these zones. Residential uses are limited to one unit per five acre parcel in Zone B1 and one unit per acre in Zone B2. Population concentrations are limited to 25 persons per acre in Zone B1 and 50 persons per acre in Zone B2. Land uses designated by the City of Atwater in Zones B1 and B2 include those indicated within the Castle Air Force Base Reuse Plan Land Use Map as Airport and Airport Related, Business Park, Educational Commercial Recreation (Castle Air Museum), Open Space, and Visitor Commercial. Outside the CAADC, lands within Zones B1 and B2 are designated as Business Park, Urban Reserve/Business Park, Urban Reserve, and Agriculture/Area of Interest. No residential development is proposed other than the residential uses permitted under current County of Merced agricultural classifications.

The northeastern section of CAADC and the CAADC Fringe area are within Zone C, an area commonly overflown by aircraft at an altitude of 1,000 feet or less. Prohibited uses include children's schools and day care centers, libraries, hospitals and nursing homes, and hazards to flight. Residential uses are limited to eight units per acre in Zone C. Population concentrations are limited to 100 persons per acre. Land uses designated by the City of Atwater in Zone C

include that area indicated within the Castle Air Force Base Reuse Plan Land Use Map as Correctional Facility. Outside the CAADC, lands within Zone C are designated as Urban Reserve/Business Park, Urban Reserve, and Agriculture/Area of Interest. A portion of the area designated by Merced County as the Franklin-Beachwood RRC/SUDP also falls within Zone C. No residential development is proposed other than the residential uses permitted under current County of Merced agricultural classifications and residential land uses permitted in the County of Merced's Community Plan for the Franklin-Beachwood area.

Zone D for Castle Airport, which covers areas overflown less frequently or at higher altitudes than Zones A through C, affects lands within the eastern portion of the Atwater Planning Area, lands north of Santa Fe Drive which are outside of Zone B2, and most of the area between Santa Fe Drive and SR 99 east of Trinidad Road. Only hazards to flight are prohibited within this zone. There are no specified limitations for residential densities or population concentrations. Land uses designated by the City of Atwater in Zone D include those indicated within the Castle Air Force Base Reuse Plan Land Use Map as Commercial, Commercial Recreation, Visitor Commercial, Open Space, Educational Commercial Recreation, Business Park, and Medical. Outside the CAADC lands within Zone C are designated as Business Park, Medium Density Residential, Urban Reserve, Urban Reserve/Business Park, and Agriculture/Area of Interest. A portion of the area designated by Merced County as the Franklin-Beachwood RRC/SUDP also falls within Zone D.

As demonstrated above, land uses applied on the City of Atwater's Land Use Diagram and Reuse Plan Land Use Map, have been designed to ensure consistency with the Merced County Airport Land Use Compatibility Plan. Issues such as conformance with population concentration limitations or open space requirements will be addressed on a case by case basis as new development or redevelopment activities are

proposed.

**GOAL SF-8.** Avoid new incompatible development within established Airport Safety Zones.

**Policy SF-8.1.** Ensure that land use development in the area surrounding Castle Airport is consistent with the applicable provisions of the Merced County Airport Land Use Compatibility Plan.

**Implementation Program SF-8.a.** The City shall adopt the Primary Compatibility Criteria as outlined in Table 2A of the Airport Land Use Compatibility Plan and apply these criteria in the evaluation of projects proposed within the Castle Airport influence area.

## **HAZARDOUS MATERIALS**



Hazardous materials consist of "injurious substances", which include flammable liquids and gases, poisons, corrosives, explosives, oxidizers, radioactive materials, and medical supplies and waste. These materials are either generated or used by various commercial and industrial activities. Hazardous wastes are injurious substances that have been or will be disposed. Potential hazards arise from the transport of hazardous materials, including leakage and accidents involving transporting vehicles. Particular transportation routes of concern include State Highway 99 and the railroads. There also are hazards associated with the use and storage of these materials and wastes.

The California Department of Toxic Substances Control maintains the Hazardous Waste Information System, which keeps a record of hazardous waste generators in the state. Sixteen sites with Atwater addresses are listed in the state records. However, some of these sites are actually located outside the city limits. Some of the wastes include photochemical/photoprocessing waste, oil-containing wastes, and oxygenated

solvents.

The Merced County Health Department maintains a list of businesses that are state-regulated hazardous waste generators. There are 77 listed businesses that are in the Atwater area, with 18 of them located in the unincorporated area. The most frequently listed businesses are service stations, automobile repair shops, medical facilities and offices, manufacturing firms, and food processors.

The City of Atwater Emergency Plan outlines the responsibilities for the management of hazardous material incidents. For incidents that occur on roadways, the on-scene management responsibility rests with the primary traffic investigative authority. Incidents taking place at locations other than roadways, such as industrial plants, will be managed by the City's Fire Department. All City agencies will support and assist the appropriate agency in charge of response. The Chief of Police will develop a hazardous materials incident response plan supported by other agencies.

The CAADC site has been a place of particular concern for hazardous materials and waste. Past operations at Castle Air Force Base had commonly utilized aviation and motor fuels, motor oils and lubricants, hydraulic fluids, cleaning solvents, pesticides, paints and thinners. As of February 1995, 209 sites with soil contamination were identified for environmental remediation, of which 161 will require little or no action. Four sites were proceeding with remediation and another four are pending remediation. The remaining sites require further study before any decisions on cleanup are made. Hazardous sites are identified under the Air Force's Installation Restoration Program (IRP). There were 33 IRP sites at the former Castle Air Force Base, according to the Castle EIS. The Department of Defense will be responsible for the cleanup of these sites.

According to the Base Conversion Agency, a



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Draft Final Record of Decision (ROD) for the remediation program at Castle was submitted to federal and state regulators with jurisdiction over the cleanup in October 1997. The ROD is a public document that explains what methods will be used to clean up the contaminated areas. After the ROD has been finalized, the full remediation program will be implemented.

**GOAL SF-9.** Prevent potential contamination and hazards resulting from the inappropriate storage, transport, and handling of hazardous materials.

**Policy SF-9.1.** Require new development projects which produce, store, utilize, or dispose of significant amounts of hazardous materials or waste to incorporate appropriate state-of-the-art project designs and building materials to protect employees and adjacent land uses.

**Policy SF-9.2.** Promote the routing of vehicles carrying potentially hazardous materials along transportation corridors that reduce the risk of exposure to the public and sensitive environmental areas.

**Policy SF-9.3.** Encourage continued monitoring of hazardous material cleanup at the CAADC site, and monitoring of hazardous material use or storage at the site.

**Implementation Program SF-9.a.** Require that applications for projects that will generate hazardous wastes or utilize hazardous materials include detailed information regarding the types and volumes of hazardous materials that will be involved and plans for hazardous waste reduction, recycling, and storage.

**Implementation Program SF-9.b.** Forward all proposed development projects which involve the manufacture, use, and/or storage of hazardous materials to the Merced County Environmental Health Department, to ensure that all appropriate business and emergency plans are required and any other special requirements or mitigation measures are incorporated into conditions of approval for

the project.

### EMERGENCY PREPAREDNESS AND RESPONSE



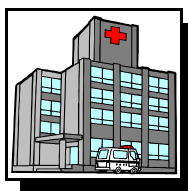
Responsibility for day-to-day emergency response falls to the Atwater Police and Fire Departments, which are first responders in emergency situations. Under more extreme general emergency conditions, other City departments become involved, along with State, County, and private agencies as needed. Response procedures are described in the City of Atwater Emergency Plan, dated November 1984. The Emergency Plan is in the process of being updated.

**GOAL SF-10.** Ensure that adequate emergency vehicle access is provided to developed areas.

**Policy SF-10.1.** Require each residential subdivision over 50 units in size to have at least two points of access.

**Policy SF-10.2.** Continue to require all cul-de-sacs to have a length no greater than 600 feet and to have a sufficient turnaround area for emergency response equipment.

### CRITICAL, SENSITIVE AND HIGH OCCUPANCY FACILITIES



The General Plan Guidelines define "critical facilities" as those "which either (1) provide emergency services or (2) house or serve many people who would be injured or killed in case of disaster damage to the facility. Examples include hospitals, fire stations, police and emergency services, utility facilities, and communications facilities." Although identification of critical facilities is not required by codes pertinent to the safety element, it serves a useful purpose. It singles out those facilities for which special maintenance plans and actions are necessary to ensure their ability to function during emergencies or to reduce the impairment of

services provided by these facilities. Within the Atwater Planning area, the following are considered critical facilities:

- Atwater Fire Department stations (Main and CAADC).
- Atwater Police Department building
- Atwater City Hall (colocated with Police Department).
- Merced County Fire Department Stations 82 (Atwater) and 88 (Winton).
- Water supply lines and wells.
- Wastewater treatment plant, pumping stations, and trunk lines.
- Major electrical transmission lines and substations.
- Major communication lines and microwave transmission facilities.

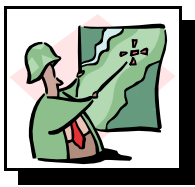
Critical facilities also include major roadways which may serve as principal evacuation routes. These are discussed in the evacuation route section below.

**GOAL SF-11.** Ensure that critical facilities are located and designed to remain functional during and after a seismic event.

**Policy SF-11.1.** Require all critical facilities to be designed or retrofitted in conformance with standards for Seismic Zone 3 in the Uniform Building Code (UBC).

**Implementation Program SF-11.a.** The City shall conduct an inventory of critical facilities to determine if any do not conform to the seismic safety standards in the UBC. The City shall notify any nonconforming facility that it must correct its deficiencies, and the City shall correct deficiencies found in its own facilities.

### EVACUATION ROUTES



Evacuation procedures may be enacted following an overall situation assessment and evaluation of alternatives such as relocation, temporary facilities, and the establishment of "safety zones." When evacuation is determined to be necessary,

the most expedient routes would be identified by emergency officials. The populace would be notified and provided with information on evacuation routes. Additional transportation would be mobilized, and traffic control and direction would be provided as necessary.

Attachment B of the City's Emergency Plan identifies primary and secondary evacuation routes. Primary evacuation routes include Atwater Boulevard, Winton Way, Shaffer Road, Buhach Road, Santa Fe Drive, and Bellevue Road. Secondary routes include Juniper Avenue, Broadway and First, Third and Fifth Streets. Both railroad lines are identified as "barriers." No explanation is given as to what the term signifies, but presumably this designation was applied because potential blockage of evacuation routes by trains could occur. State Highway 99 carries the same designation, perhaps because of its limited access. However, the highway could also serve as a major evacuation route, depending upon the circumstances.

The location of an emergency incident will influence the choice of evacuation routes used. For example, a flood in the 100-year zone may close off Buhach Road, Santa Fe Drive, and State Highway 99. A hazardous material incident on State Highway 99 or the railroad tracks would close off these routes and any roads within the vicinity. Significant evacuation problems are not anticipated, since the local road system provides many alternative routes. One area of particular concern for evacuations is the CAADC site. Should an incident occur on Santa Fe Drive or on the BN&SF tracks, there could be some difficulty in evacuating the site quickly due to the limited number of current access points. The creation of additional access points is anticipated as part of full civilian reuse of the site.

**GOAL SF-12.** Provide for the orderly evacuation of residents in the event of a disaster.

**Policy SF-12.1.** Pursue the development of more access routes to and from the CAADC



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site.

**Policy SF-12.2.** Encourage construction of the proposed Castle Parkway/Santa Fe Drive interchange so as to improve traffic flow and facilitate evacuation from the CAADC site.

**Implementation Program SF-12.a.** Work with the Castle Joint Powers Authority to develop and implement a circulation plan to increase vehicle access to the CAADC. Options that may be considered and adopted include, but are not limited to, the extension of nearby roadways such as Bellevue Road and Ladino Avenue.