9

Noise and Safety

Both Noise and Safety are required elements of the General Plan. The Noise element has a direct correlation with the land use, circulation, and housing elements. It guides land use and transportation facilities, since they are common sources of excessive noise levels.

The Safety element provides information “for the protection of the community from unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, and dam failure; slope instability leading to landslides, subsidence, and other geological hazards; flooding; hazardous material accidents; and wildland and urban fire” (Government Code §65302 [g]). Yuba City’s natural setting and physical development patterns create potential risks to health and safety. The Planning Area is located in an area susceptible to flooding and the effects of earthquakes. A goal of the City is to provide exceptional public safety; over half of the City budget is devoted to safety programs to maintain and enhance the quality of life. Other topics addressed in this chapter include geology and soils, emergency response, and hazardous waste management.

9.1 NOISE

The purpose of the Noise element is to set forth policies that regulate the ambient noise environment and protect residents from exposure to excessive noise.

NOISE CHARACTERISTICS AND MEASUREMENT

Noises vary widely in their scope, source, and volume, ranging from individual occurrences such as leaf blowers, to the intermittent disturbances of overhead aircraft, to the fairly constant noise generated by traffic on freeways. Noise is primarily a concern with regard to noise-sensitive uses such as residences, schools, churches, and hospitals.

Noise Measurement

Noise is commonly defined as undesirable or unwanted sound. Three aspects of community noise are used in assessing the noise environment:

- **Level** (e.g., magnitude or loudness) of sound. Sound levels are measured and expressed in decibels (dB) with 10 dB roughly equal to the threshold of hearing. Figure 9-1 shows the decibel levels associated with different common sounds.

- **Frequency** composition or spectrum of the sound. Frequency is a measure of the pressure fluctuations per second, measured in units of hertz (Hz). The characterization of sound level magnitude with respect to frequency is the sound spectrum, often described in octave bands, which divide the audible human frequency range (e.g., from 20 to 20,000 Hz) into ten segments.

- **Variation** in sound level with time, measured as noise exposure. Most community noise is produced by many distant noise sources that change gradually throughout the day and produce a relatively steady background noise having no identifiable source. Identifiable events of brief duration, such as aircraft flyovers, cause the community noise level to vary from instant to
Transient noise events may be described by their maximum A-weighted noise level (dBA) or by their sound exposure level (SEL). SEL values may be summed on an energy basis to compute $L_{eq}$ values over any period of time. Hourly $L_{eq}$ values are called Hourly Noise Levels.

**Reporting Noise Levels**

Measuring and reporting noise levels involves factoring in variations in sensitivity to noise during the daytime versus nighttime hours. Noise descriptors used for analysis need to account for human sensitivity to nighttime noise when background noise levels are generally lower than in the daytime and outside noise intrusions are more noticeable. Common descriptors include the Community Noise Equivalent Level (CNEL) and the Day-Night Average Level (DNL, symbol $L_{dn}$). Both reflect...
noise exposure over an average day with weighting to reflect the increased sensitivity to noise during the evening and night. The two descriptors are roughly equivalent. The CNEL descriptor is used in relation to major continuous noise sources, such as aircraft or traffic, and is the reference level for the General Plan Noise Element under State planning law.

Knowledge of the following relationships is helpful in understanding how changes in noise and noise exposure are perceived:

- Except under special conditions, a change in sound level of 1 dB cannot be perceived;
- A 3 dB change is considered a just-noticeable difference;
- A 5 dB change is required before any noticeable change in community response would be expected. A 5 dB increase is often considered a significant impact; and
- A 10 dB increase is subjectively heard as an approximate doubling in loudness and almost always causes an adverse community response.

**NOISE GENERATION IN YUBA CITY**

The major noise sources in Yuba City are related to vehicular traffic on State Route 20 and Highway 99. Other noise sources include overflights from the Sutter County Airport, railroad activities, and agricultural operations around the edges of the city. Noise produced by industrial facilities has a negligible effect on the City's noise environment. Although the City does not have a Noise Ordinance, noise issues are handled by the City’s Nuisance Ordinance, which regulates the time of day that certain noise-generating activities may take place.

**Traffic Noise**

Traffic noise depends primarily on the speed of traffic and the percentage of truck traffic. Conversely, traffic volume does not have a major influence on traffic noise levels. The primary source of noise from automobiles is high frequency tire noise, which increases with speed. In addition, trucks and older automobiles produce engine and exhaust noise, and trucks also generate wind noise. While tire noise from autos is generally located at ground level, truck noise sources can be located as high as ten to fifteen feet above the roadbed due to tall exhaust stacks and higher engines; sound walls are not effective for mitigating such noise unless they are very tall.

According to common practice, maximum noise levels of 60 dB are considered “normally acceptable” for unshielded residential development. Noise levels from 60 to 70 dB fall within the “conditionally unacceptable” range, and those in the 70 to 75 dB range are considered “normally unacceptable.”

Noise exposure contours for Yuba City were modeled by applying the Federal Highway Administration’s noise modeling procedure. These noise contours are conservative, meaning that the contours are modeled with minimal noise attenuation by natural barriers, buildings, etc. The noise level measured at a specific location may be lower than what is shown on the noise contour map.

**Traffic Noise Levels**

Existing noise conditions in Yuba City were measured at six locations for a 24-hour period between September 10 and September 11, 2001. These six locations were chosen based upon their proximity to
relevant noise sources, including Highway 99, State Route 20, the railroad tracks, and the Sutter County Airport.

Figure 9-2 illustrates the results of the 2001 noise monitoring in Yuba City. Some of Yuba City’s existing residential neighborhoods are exposed to moderate noise levels from the City’s main traffic corridors, particularly along State Route 20 and Highway 99. As shown in Table 9-1, the highest noise levels were measured by Meter 2 (Colusa Avenue just west of Highway 99) and by Meter 5 (Colusa Avenue between Market and Shasta), both reflecting noise levels above the “normally unacceptable” range of 70 to 75 dB.

Table 9-1: Summary of Noise Measurement in Yuba City, 2001

<table>
<thead>
<tr>
<th>Meter Site</th>
<th>Location</th>
<th>Date</th>
<th>L_{dn}</th>
<th>CNEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Whyler Road 20 ft. east of Highway 99</td>
<td>Sept 10/11</td>
<td>73</td>
<td>73</td>
</tr>
<tr>
<td>2</td>
<td>Colusa Ave (Highway 20) just west of Highway 99</td>
<td>Sept 10/11</td>
<td>77</td>
<td>77</td>
</tr>
<tr>
<td>3</td>
<td>Samuel Drive at entrance to County Road Department</td>
<td>Sept 10/11</td>
<td>58</td>
<td>59</td>
</tr>
<tr>
<td>4</td>
<td>Reeves Avenue at Olive Street</td>
<td>Sept 10/11</td>
<td>64</td>
<td>65</td>
</tr>
<tr>
<td>5</td>
<td>Colusa Avenue (Highway 20) between Market and Shasta</td>
<td>Sept 10/11</td>
<td>75</td>
<td>76</td>
</tr>
<tr>
<td>6</td>
<td>Onstott Frontage Road just south of Portofino Drive</td>
<td>Sept 10/11</td>
<td>68</td>
<td>69</td>
</tr>
</tbody>
</table>


PROJECTED CONDITIONS UNDER GENERAL PLAN BUILDOUT

Future development within the City’s Planning Area will result in new roads and increased traffic volumes, thus increasing noise levels in some areas. Future noise contours are illustrated in Figure 9-3. Increases in traffic levels can be counteracted by the implementation of alternate forms of transportation and land use design that factor in noise concerns. Locating noise-sensitive uses away from high-noise areas (e.g. major transportation routes) and buffering noise levels through design and landscaping features will help minimize future noise-related land use conflicts. Policies in this chapter establish review criteria for certain land uses to ensure that future noise levels will not exceed acceptable levels near noise-sensitive land uses.

1 Traffic volumes provided by Fehr & Peers Associates. Where traffic volumes on segments of State Route 20 and Highway 99 were not provided by Fehr & Peers Associates, traffic volumes were determined using Caltrans 2000 traffic data. Truck traffic was assumed to comprise 5 percent of traffic volumes. Traffic speeds were assumed to be 5 mph above the posted limit on all roads, except for State Route 20 and Highway 99 where traffic speeds were assumed to be at the posted limit.

Figure 9-2
2001 Noise Contours
Figure 9-3
Future Noise Contours

The policies in this chapter supplement land use, urban design, and transportation policies focused on creating compatible neighborhoods and minimizing overall vehicle trips.

**GUIDING POLICIES**

9.1-G-1 Strive to achieve an acceptable noise environment for the present and future residents of Yuba City.

9.1-G-2 Incorporate noise considerations into land use planning decisions, and guide the location and design of transportation facilities to minimize the effects of noise on adjacent land uses.

**IMPLEMENTING POLICIES**

9.1-I-1 Use the "normally acceptable" noise levels for new land uses as established in Figure 9-4 (Land Use Compatibility for Community Noise Environments) as review criteria.

9.1-I-2 Require a noise study and mitigation for all projects that have noise exposure greater than "normally acceptable" levels. Noise mitigation measures include, but are not limited to, the following actions:

- Screen and control noise sources, such as parking and loading facilities, outdoor activities and mechanical equipment,
- Increase setbacks for noise sources from adjacent dwellings,
- Retain fences, walls, and landscaping that serve as noise buffers,
- Use soundproofing materials and double-glazed windows, and
- Control hours of operation, including deliveries and trash pickup, to minimize noise impacts.

*Proposed development can introduce potential noise sources, even when it is compatible with existing adjacent uses. An example is the handling of large trash bins for multi-family housing. If noise exposure is greater than levels considered normally acceptable, some form of noise mitigation will have to be incorporated, to the extent practicable, unless the impacts are found to be less than significant. The mitigation can be conventional insulation features or techniques that require more complex building or equipment design and site layout. Site design and/or screening techniques can help mitigate the resulting noise. Open space, building orientation and design, and landscaping can be used to buffer or mask sound.*

9.1-I-3 In making a determination of impact under the California Environmental Quality Act (CEQA), consider an increase of four or more DBA to be "significant" if the resulting noise level would exceed that described as normally acceptable for the affected land use in Figure 9-4.

9.1-I-4 Protect especially sensitive uses, including schools, hospitals, and senior care facilities, from excessive noise, by enforcing “normally acceptable” noise level standards for these uses.
### Community Noise Exposure

<table>
<thead>
<tr>
<th>Land Use Category</th>
<th>55</th>
<th>60</th>
<th>65</th>
<th>70</th>
<th>75</th>
<th>80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential - Low Density Single Family, Duplex, Mobile Homes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential - Multifamily</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transient Lodging - Motels, Hotels</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schools, Libraries, Churches, Hospitals, Nursing Homes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auditorium, Concert Halls, Amphitheaters</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sports Arena, Outdoor Spectator Sports</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Playgrounds, Neighborhood Parks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Golf Courses, Riding Stables, Water Recreation, Cemeteries</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office Buildings, Business Commercial and Professional</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial, Manufacturing Utilities, Agriculture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Interpretation:

- **NORMALLY ACCEPTABLE**
  Specified land use is satisfactory, based upon the assumption that any building involved is of normal conventional construction, without any special noise insulation requirements.

- **CONDITIONALLY ACCEPTABLE**
  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. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

- **NORMALLY UNACCEPTABLE**
  New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

- **CLEARLY UNACCEPTABLE**
  New construction or development should generally not be undertaken.

Source: California Governor’s Office of Planning and Research, 1990.
9.1-I-5 Discourage the use of sound walls. As a last resort, construct sound walls along highways and arterials when compatible with aesthetic concerns and neighborhood character. This would be a developer responsibility.

*The construction of sound walls will be considered where noise mitigation to acceptable levels by other means is not feasible.*

9.1-I-6 Require new noise sources to use best available control technology (BACT) to minimize noise from all sources.

9.1-I-7 Minimize vehicular and stationary noise sources and noise emanating from temporary activities, such as construction.

*The City’s Nuisance Ordinance restricts the hours of operation for a variety of noise sources, and State laws limit the noise levels of motor vehicles and some activities at industrial plants.*

## 9.2 SEISMIC AND GEOLOGIC HAZARDS

### GEOLOGY AND SOILS

Sutter County is part of the Great Valley geomorphic province, otherwise known as the Central Valley of California. The Central Valley stretches 500 miles in a generally northwest to southeast direction and averages about 40 miles in width between the Coast Ranges in the west and the Sierra Nevada in the east. This area is characterized by flat-lying sedimentary rocks overlain by alluvial soils, which can be up to 200 feet deep near the Sacramento River.

Geologic and soils hazards discussed here include erosion, subsidence, and expansive soils.

**Erosion**

The process of erosion involves the breaking down of soils and rocks and the transporting of broken fragments to another location. Water is the dominant cause of erosion and is also the most likely means of transporting broken down materials. The rate of erosion depends upon the texture of rock or soil, the composition, soil permeability, slope, vegetative cover, and precipitation amounts. The potential erodability of soil in Yuba City is considered slight, since land within the Planning Area is generally flat (slopes are less than 9 percent), annual precipitation levels are low (between 15 and 21 inches), and wind velocities are low. Therefore, erosion is not considered a critical issue in Yuba City.

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2 County of Sutter General Plan 2015: Background Report, November 1996. pg. 10-1.

3 Ibid, pg. 10-1.

4 Ibid, pg. 10-8

5 Ibid, pg. 10-8.
Subsidence

Subsidence is the vertical displacement downward of the ground surface, the direct result of groundwater and oil and gas withdrawal. Subsidence is common in California, although mostly in areas where the subsurface consists of compressible silt and clay, and mostly due to the withdrawal of groundwater. Although to date subsidence caused by groundwater withdrawal in Sutter County is very small, groundwater pumping in the Sacramento Valley has increased in recent years. The damaging effects of subsidence can include gradient changes in transportation, utility, and flood control facilities. Subsidence hazard overall is low in Yuba City since the Sacramento and Feather Rivers provide significant groundwater recharge and since most residents do not rely on groundwater for drinking water supply. In addition, there are no natural gas or oil withdrawals in the Planning Area.

Expansive Soils

Expansive soils have the potential to significantly shrink or swell with changes in moisture content. Type and amount of the silt and clay content in the soil will determine the amount of shrink or swell associated with the various levels of water content. Soils comprised of sand and gravel are not expansive soils. Expansive soils are most likely to be found in basins and basin rims, and any structure located on expansive soils can be significantly damaged should the soil suddenly shrink or swell. In Yuba City, the extreme southwestern corner of the Planning Area is the only area with expansive soils.

Fault Zones

The California Mining and Geology Board defines active faults as those for which there is evidence of surface displacement within the last 11,000 years. Faults may also be considered active based on surface displacements within the last 200 years. However, a fault with no evidence of surface displacement does not mean that the fault is inactive. Potentially active faults are those for which there is evidence of surface displacement within the last 1.6 million years, and not within the last 11,000 years. Such faults are considered potentially active since this period of time is short in geologic terms. Finally, there may be seismic risk associated with faults that have not yet been identified. Small and moderately large earthquakes may result from such faults and are considered background seismicity or floating earthquakes, activity in which the expected sources and locations are unknown.

No active earthquake faults are known to exist in Sutter County, although active faults in the region could produce ground motion in Yuba City. Earthquakes of M5.0 or greater have occurred on fault systems in the region, including the San Andreas. Approximately 15 miles west of Sutter County, the Central Valley Blind-Thrust Fault is known to have caused an estimated M6.5 earthquake in 1892.

Ibid., pg. 10-9.
Ibid., pg. 10-9.
Ibid., pg. 10-11.
Ibid., pg. 10-2.
Ibid., pg. 10-2.
Ibid., pg. 10-2.
Ibid., pg. 10-3.
addition, two earthquakes of M4.0 and M4.9 occurred between 1900 and 1974 with epicenters near Williams. The Foothills Suture Zone along the western slope of the Sierra Nevada is also considered active, with a M5.7 earthquake occurring in 1975 in the northern portion of the Zone in Butte County.¹³

Potentially active faults do exist in Sutter County in the area of the Sutter Buttes. These faults are small and have exhibited activity in the last 1.6 million years, but not in recent history (200 years).¹⁴

**Effects Of Earthquakes**

Potential hazards related to major earthquakes include ground shaking, surface rupture along the fault zone, and related secondary ground failures. Typical seismically-induced ground failures include liquefaction, lateral spreading, ground lurching, seiches, and landslides. Liquefaction is the temporary loss of cohesion in saturated, granular soils. Lateral spreading is the horizontal movement of loose, unconsolidated sedimentary deposits and imported fill material. Lurching is the horizontal movement of soil, sediments or fill found on steep slopes and embankments. A seiche is the periodic oscillation of a body of water resulting from seismic shaking. All of these secondary ground failures could cause major structural damage to existing buildings, including tilting or settlement of foundations, twisting and breaking of structural building components, debris shedding, and potentially even collapse of buildings. In the case of seiches, damage to levees and dams could be significant. However, since the potential for ground shaking in Sutter County is low to moderate, it is unlikely that subsequent ground failure would occur in Yuba City. Furthermore, landslides are unlikely due to the relatively flat topography within the Planning Area.

**Response of Structures To Earthquakes**

Existing structures in the Planning Area could be affected by the types of earthquake-induced effects listed above, but to varying degrees based on length, intensity, and distance of the earthquake from a given building. New structures are required to adhere to current California Uniform Building Code (CUBC) standards, providing adequate design, construction and maintenance of structures to prevent exposure of people and structures to major geologic hazards. In particular, any critical facilities such as hospitals, fire and police stations, and emergency communications and operations centers must be adequately designed, constructed and maintained with the goal of remaining functional after a large seismic event. The use of flexible utility connections, building anchors, and adequately reinforced concrete can reduce the loss of life and damage to buildings for human occupancy.

Ground shaking intensities are measured using the Modified Mercalli Intensity Scale. This is a 12-point scale of earthquake intensity based on local effects experienced by people, structures, and earth materials. Effects range from those that are detectable only by seismicity recording instruments (I) to total destruction (XII). Most people will feel Intensity IV ground motion indoors and Intensity V outside. Intensity VI ground shaking will cause some heavy furniture to move, plaster to fall, and minor chimney damage. Intensity VII will cause considerable damage in poorly designed or constructed buildings (including some broken chimneys), slight to moderate damage in well-built

¹³ Ibid., pg. 10-3.
¹⁴ Ibid., pg. 10-3.
ordinary structures, and negligible damage in buildings of good design and construction. Intensity VIII will cause great damage in poorly designed or constructed buildings (including fall of chimneys, factory stacks, columns, walls, etc.), considerable damage in ordinarily substantial structures (including some partial collapse), but slight damage in specially designed structures.

**GUIDING POLICY**

9.2-G-1 Minimize risks of property damage and personal injury posed by geologic and seismic hazards.

**IMPLEMENTING POLICIES**

9.2-I-1 Review proposed development sites at the earliest stage of the planning process to locate any potential geologic or seismic hazards.

*Following receipt of a development proposal, engineering staff shall review the plans to determine whether a geotechnical review is required. If the review is required, then the applicant shall be referred to geotechnical experts for further evaluation.*

9.2-I-2 Prohibit structures intended for human occupancy within 50 feet of an active fault trace.

*Although no active faults are located within the Planning Area, this policy would apply if a new fault was discovered. It is also the City’s intent to discourage homes, offices, hospitals, public buildings, and other similar structures over the trace of an inactive fault and to allow uses within setback areas that could experience displacement without undue risk to people and property.*

9.2-I-3 Require comprehensive geologic and engineering studies of critical structures regardless of location.

*Critical structures are those most needed following a disaster or those that could pose hazards of their own if damaged. They include utility centers and substations, water reservoirs, hospitals, fire stations, police and emergency communications facilities, and bridges and overpasses.*

9.2-I-4 Require preparation of a soils report as part of the development review and/or building permit process for development proposed in the area depicted with expansive soils.

*The southwest corner of the City is underlain by expansive soils that must be taken into account during building design if cracking and settling of structures are to be minimized. The report would not be necessary when soil characteristics are known, and the City’s Building Official or Public Works Director determines it is not needed.*

9.2-I-5 Provide information for property owners to rehabilitate existing buildings using construction techniques to protect against seismic hazards.

*The City-adopted Uniform Building Code specifies seismic standards for new construction, as well as for additions or expansions to buildings. It is in the community’s best interest to do all that is necessary to ensure that all structures meet current seismic standards.*
9.2-I-6 Control erosion of graded areas with revegetation or other acceptable methods.

Plant materials for revegetation should not be limited to hydro-seeding and mulching with annual grasses. Trees add structure to the soil and take up moisture while adding color and diversity.

9.2-I-7 Maintain and update, as appropriate, the City’s emergency preparedness programs, plans, and procedures to ensure the health and safety of the community in the event of an earthquake or other disaster.

The City shall inform community and business leaders and residents regarding all aspects of disaster preparedness, including plans for evacuation and alternative access routes and provisions. The City shall also provide a coordinated emergency response in the event of any local or regional, natural or man-made disaster. This shall be supported by ongoing awareness and training programs in disaster planning and response.

9.2-I-8 Encourage the purchase of earthquake insurance.

Earthquake insurance provides a public benefit in that financial aid is often provided swiftly, allowing repair and rebuilding to proceed quickly and uniformly across the City.

9.3 DRAINAGE, STORMWATER, AND FLOODING

Drainage and stormwater runoff are related issues, contributing to potential flooding, which is the most significant risk to life and property in the Yuba City Planning Area. Because of their relationship, all of these topics are addressed in this section.

DRAINAGE SYSTEM

The Yuba City Planning Area is located on an alluvial terrace that generally drains to the southwest. The Sacramento River drains the entire county and the Sacramento Valley with the final outlet being the Delta and San Francisco Bay. Drainage facilities in Yuba City include the Gilsizer Slough, Live Oak Canal, and various City facilities. These facilities are summarized below and illustrated in Figure 9-5.

- **Gilsizer Slough.** At one time, this natural drainage channel drained Yuba City and areas to the south of the urban area. The Slough discharges to the State Drain, which flows north to State Pumping Plant No. 2, and then into the Sutter Bypass. Tributaries to the Gilsizer Slough are included in the Gilsizer County Drainage District, except for a small area north of Colusa Highway, which is pumped into the Feather River.

- **Live Oak Canal.** This facility once drained runoff from areas north of Pease Road including an area that is now part of the Tierra Buena County Drainage District. The area north of Pease Road is now drained by the State East Interceptor Canal. This canal drains to the Sutter Bypass through the Wadsworth Canal.

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City Facilities. Portions of north and south Yuba City are drained to holding ponds. This water is then pumped over the levee into the Feather River. The Garden Highway/Bogue Road area is also pumped into the Feather River.

The City’s Capital Improvement Program (CIP) for 2001-2006 includes nine planned drainage improvements, which are listed in Table 9-2.

Table 9-2: Planned Drainage Improvements

<table>
<thead>
<tr>
<th>Title</th>
<th>Funding (Current/Future)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burns Drive Detention Pond Repairs</td>
<td>Current</td>
</tr>
<tr>
<td>Corporation Yard Storm Drain</td>
<td>Current</td>
</tr>
<tr>
<td>Olive Street Storm Drain</td>
<td>Current</td>
</tr>
<tr>
<td>Onstott Drainage Improvements</td>
<td>Current/Future</td>
</tr>
<tr>
<td>Starr Drive Storm Drain</td>
<td>Current</td>
</tr>
<tr>
<td>Forbes Street Storm Drain: Clark to Olive</td>
<td>Future</td>
</tr>
<tr>
<td>Richland and Jones Road Storm Drain</td>
<td>Future</td>
</tr>
<tr>
<td>B Street Storm Drain: Boyd to Courthouse</td>
<td>Future</td>
</tr>
<tr>
<td>B Street Storm Drain: Courthouse to 2nd</td>
<td>Future</td>
</tr>
</tbody>
</table>

Source: City of Yuba City Capital Improvement Program, Fiscal Years 2001-2006.
Source: City of Yuba City, 2001.
EXISTING FLOOD MANAGEMENT FACILITIES AND PLANNED IMPROVEMENTS

Structural flood management methods provide the primary defense against flooding in Sutter County. Flood management in the County includes a series of reservoirs, levees, and bypasses completed between the 1920s and 1960s. Levees and earthen embankments are the most commonly used methods of containing high water levels along the Sacramento and Feather Rivers. A bypass system running from the Sutter Buttes southeast through Sutter County accommodates additional flows in times when the capacity of the Sacramento River levee system is exceeded. The Sacramento River can flow directly into the Sutter Bypass by way of two free-flow weir structures. The Feather River drains the eastern portion of the Sacramento Valley from Oroville to just south of its confluence with the Bear River.

The most significant risk from flooding in the Yuba City Planning Area results from the potential for dam or levee failure. The U.S. Army Corps of Engineers has evaluated the levees along the Sacramento and Feather Rivers to increase the level of flood protection. Improvements associated with this evaluation are underway, as listed in Table 9-3. Approximately 20,000 parcels and upwards of $1 billion in property would be impacted by a failure in the levee system. The levee along the Feather River contain the 100-year flood zone, confining the zone to primarily undeveloped areas and protecting developed areas from inundation. Figure 9-6 shows the extent of the 100-year and 500-year floodplains in the Yuba City Planning Area.

Table 9-3: Planned Improvements to Levee Reaches from Yuba City

<table>
<thead>
<tr>
<th>Levee Reach</th>
<th>Recurrence Interval Without Improvements</th>
<th>Recurrence Interval With Improvements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feather River upstream from Honcut Creek</td>
<td>50 years</td>
<td>200+ years</td>
</tr>
<tr>
<td>Feather River between Honcut Creek and Jack Slough</td>
<td>50 years</td>
<td>175+ years</td>
</tr>
<tr>
<td>Feather River between Jack Slough and Yuba River</td>
<td>60 years</td>
<td>150+ years</td>
</tr>
<tr>
<td>Feather River between Yuba River and Bear River</td>
<td>70 years</td>
<td>150+ years</td>
</tr>
</tbody>
</table>

Source: County of Sutter General Plan 2015: Background Report, November 1996. Pg. 10-17.

DAM SAFETY

There are 10 dams located outside Sutter County that could cause significant flooding should failure occur. Table 9-4 lists six dams that are located on the Feather River and Yuba Rivers. Failure of any one of these dams could cause significant flooding in Yuba City. These dams are under the jurisdiction of the California Department of Water Resources (DWR), Yuba County Water Agency, Pacific Gas & Electric, and the Corps of Engineers.

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17 Ibid., pg. 5-28.
18 Ibid., pg. 5-28.
19 Ibid., pg. 5-28.
Figure 9-6

Flood Zones

Source: FEMA, 1996.

- Developed Land
- 100-Year Flood Zone
- 500-Year Flood Zone

Planning Area

Potential Interchange
Table 9-4: Dams Located Upstream from Yuba City

<table>
<thead>
<tr>
<th>Dam</th>
<th>Owner</th>
<th>Stream</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oroville Dam</td>
<td>State Department of Water Resources</td>
<td>Feather River</td>
<td>Earth</td>
</tr>
<tr>
<td>New Bullards Bar</td>
<td>Yuba County Water Agency</td>
<td>Yuba River</td>
<td>Radius arch</td>
</tr>
<tr>
<td>Lake Almanor</td>
<td>Pacific Gas &amp; Electric</td>
<td>Feather River (North Fork)</td>
<td>Earth and rock</td>
</tr>
<tr>
<td>Thermalito Afterbay Dam</td>
<td>State Department of Water Resources</td>
<td>Feather River</td>
<td>Earth</td>
</tr>
<tr>
<td>Thermalito Forebay Dam</td>
<td>State Department of Water Resources</td>
<td>Feather River</td>
<td>Earth</td>
</tr>
<tr>
<td>Englebright Dam</td>
<td>Corps of Engineers</td>
<td>Yuba River</td>
<td>Radius arch</td>
</tr>
</tbody>
</table>


GUIDING POLICIES

9.3-G-1 Protect the community from risks to lives and property posed by flooding and stormwater runoff.

9.3-G-2 Collect and dispose of storm water in a safe and efficient manner.

9.3-G-3 Ensure that dams and levees are properly maintained for long-term flood protection.

IMPLEMENTING POLICIES

9.3-I-1 Implement the drainage improvements identified in the City’s Capital Improvement Program.

9.3-I-2 Continue to work with the U.S. Army Corps of Engineers to implement levee improvements on the Feather River. Incorporate features in the levee system to ensure flood protection and at the same time improve the connection between the city and the river.

9.3-I-3 When necessary, require new development to prepare hydrologic studies to assess storm runoff impacts on the local and subregional storm drainage systems and, if warranted, require new development to provide adequate drainage facilities and to mitigate increases in storm water flows and/or volume to avoid cumulative increases in downstream flows. Developers shall provide an assessment of a project’s potential impacts on the local and subregional storm drainage systems, so that the City can determine appropriate mitigation to ensure that system capacity and peak flow restrictions are not exceeded.

9.3-I-4 Restrict new development in areas subject to 100 year flooding, as shown in Figure 9-6.

9.3-I-5 Provide information to property owners about the availability of flood insurance. This policy can be implemented with counter handouts and stories in the City’s newsletter and pages on the City’s website.
9.3-I-6 As new development occurs, work with Sutter County to establish drainage areas that serve the entire Planning Area.  

A new drainage study may be appropriate to determine the best means to establish drainage areas that would safely channel runoff and provide protection from flooding.

9.3-I-7 Utilize parks for the secondary purpose of storm water storage.

9.4 EMERGENCY RESPONSE

EMERGENCY PLANNING

The California Emergencies Services Act (State Government Code Section 8550-8668) requires each city to prepare and maintain an Emergency Plan for natural, manmade, or war-caused emergencies that result in conditions of disaster or in extreme peril to life. In addition, the City has specific procedures for hazardous materials emergency response (described below in Section 9.5).

The City of Yuba City in conjunction with the County of Sutter has developed a Multi-Jurisdiction Multi-Hazard Mitigation Plan (MJMHMP) in accordance with the California Disaster Mitigation Act of 2000. The plan was approved by the City Council of the City of Yuba City on September 18, 2007, and the Federal Emergency Management Agency (FEMA) approved the plan on January 23, 2008. The plan provides guidance and insight into hazards that exist in Yuba City and suggests possible mitigation projects. This plan should be consulted when addressing known hazards to ensure the general health and safety of Yuba and Sutter County residents.

POLICE SERVICES

Police Department

The Yuba City Police Department currently has a staff strength of 45 sworn peace officers and 26.5 civilian staff members, augmented by 19 part-time Reserve Peace Officers, 35 Volunteers, and 10 Police Cadets. The Yuba City Police Department offers a service ratio of 1.06 officers per 1,000 residents. The Police Officers of the Department comprise the following: 1 Chief of Police, 2 Division Commanders, 3 Lieutenants, 8 Police Sergeants, and 31 police officers. As shown in Figure 6-3, the Department is located at 1545 Poole Boulevard; off-site facilities are in use at the Yuba City Mall, Yuba City Fire Station #3, and the Richland Housing Resource Center.

The Department has two divisions, Field Operations and Investigations. The Police Department serves Yuba City in four “beats,” divided by Gray Avenue and the Colusa Highway. The first beat covers the City’s northwest quarter; the second beat serves the northeast corner; the third beat serves the southwest corner, and the fourth covers the City’s southeast corner. While the City has recently annexed a large area with 7,500 people to what would be the fifth beat, this region is being policed under an agreement with the Sutter County Sheriff’s Office and California Highway Patrol. However, in Fiscal Year 2003/2004, 11 sworn officers will be added to the force and the Department will assume responsibility for this 7,500 population. The service ratio would then become 1.12 to 1000 residents. The current nationally-accepted standard service ratio is 1.25 officers per 1,000 residents, and the California standard ranges from 1.4-1.7 per 1000 residents.
Response Standard

The Police Department’s achieved performance standard for emergency response times is three minutes for all priority one calls. There is no official standard for non-emergency responses, though 20 minutes is the accepted norm.

FIRE AND LIFE SAFETY SERVICES

The Yuba City Fire Department (YCFD) provides fire protection and suppression and life safety services for the City. The Department responds to structural and wildland fires, emergency medical service, and hazardous/toxic material spills in the Planning Area. On September 10, 2001, the Yuba City and Walton Fire Departments officially merged, expanding the Fire Department’s service area from a three-station department protecting 44,000 residents spread over nine square miles to a five station department protecting 60,000 residents spread over about 30 square miles. The Department’s five stations are located throughout its jurisdictional area: four in Yuba City proper and one in the unincorporated community of Tierra Buena.

Response Standard

The internal response time standard has been that the Department provide service within six minutes of the 911 call being received, 90 percent of the time. The City expects to be able to maintain this standard. The YCFD recently completed a Standards of Response Coverage Study that resulted in recommended performance objectives and specific response level standards for common risks experienced in the community. These objectives and standards are incorporated into the General Plan (see Policy 9.4-I-1).

The YCFD defines response time as follows:

Response time is actually calculated from the time that the Public Safety Dispatcher picks up the telephone until the first unit arrives at the scene of the emergency. This time is known as “total reflex time.” Total reflex time includes three components: call processing, turnout time, and travel time. Call processing describes the process whereby the Dispatcher receives the call and gathers information from the call maker and notifies the fire department. Turnout time is described as the period of time when the emergency responders are notified of the emergency and initiate their response to the emergency. Travel time is described as the period of time when the emergency vehicle carrying the emergency responders is actually responding to the emergency until it arrives at the emergency scene. The response standards reflect total reflex time.
Figure 9-7
Fire Stations & Service Areas

Source: Yuba City Fire Department, 2001.
Fire Station Facilities

The Yuba City Fire Department currently staffs five engine companies in its five fire stations (see Table 9-5). Stations 1, 2, 3, and 4 are located within Yuba City’s City Limits; Station 7 in Tierra Buena also provides initial response service in the Yuba City Planning Area. Stations 1 and 4 are staffed with three full-time firefighters and Stations 2, 3, and 7 are staffed with two full-time firefighters 24 hours a day.

Table 9-5: Fire Station Locations and Facilities, Yuba City Planning Area

<table>
<thead>
<tr>
<th>Location</th>
<th>Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station 1</td>
<td>824 Clark Avenue Engine, Reserve Engine, Truck, Rescue Vehicles</td>
</tr>
<tr>
<td>Station 2</td>
<td>1641 Gray Avenue Engine, Reserve Engine</td>
</tr>
<tr>
<td>Station 3</td>
<td>795 Lincoln Road Engine, Reserve Engine</td>
</tr>
<tr>
<td>Station 4</td>
<td>211 South Walton Avenue Engine, Reserve Engine, Watertender, Brush Fire Unit</td>
</tr>
<tr>
<td>Station 7</td>
<td>2855 Butte House Road Engine, Reserve Engine, Brush Fire Unit, Air Utility</td>
</tr>
</tbody>
</table>

Sources: Yuba City Fire Department, November 29, 2001.

Future Demand

Growth in the southwest section of the Planning Area will necessitate construction of another fire station in the area to maintain adequate response times. As growth occurs, the water supply distribution system will need to be extended to improve fire water flow in some parts of the Planning Area.

GUIDING POLICIES

9.4-G-1 Ensure continued adequate law enforcement capabilities.

9.4-G-2 Minimize the risk of personal injury, property damage, and environmental damage from fire, hazardous chemicals releases, natural and human made disasters.

9.4-G-3 Maintain current police and fire response times and staffing ratios.

IMPLEMENTING POLICIES

9.4-I-1 Maintain the Fire Department performance objectives and response standards set forth in Table 9-6.

9.4-I-2 Prepare and disseminate information, including a page on the City’s website, about emergency preparedness.

This information should describe how emergency response will be coordinated and where residents can obtain emergency information.

9.4-I-3 Conduct periodic emergency management exercises with City personnel and surrounding jurisdictions.
Table 9-6 Performance Objectives and Standards

<table>
<thead>
<tr>
<th>Goal</th>
<th>Performance Objective</th>
<th>Response Time Standard*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Structure Fires</strong></td>
<td>Provide effective response force of YCFD personnel, including a Chief Officer and mutual aid responders</td>
<td>Stop a serious fire from escalating beyond the location where it is found (i.e., conducting a search and rescue for fire victims, confining fire damage to the area near or in the room of origin, and limiting heat and smoke damage to the area or floor of origin.)</td>
</tr>
<tr>
<td><strong>Pre-Hospital Emergency Medical Incidents</strong></td>
<td>Provide an effective response force, including at least one person certified and capable of providing Advanced Life Support</td>
<td>Arrive soon enough to assess patients and prioritize care to minimize death and disability; stabilize patients to prevent additional suffering; and intervene successfully in life-threatening emergencies.</td>
</tr>
<tr>
<td><strong>Wildland Fires</strong></td>
<td>Provide an effective response force of YCFD personnel, including a Chief Officer and mutual aid responders.</td>
<td>Stop escalation of an initial wildland fire beyond the area where found. Typically this means controlling the fire to the area of origin without spread to adjacent structures or escalating to a size requiring additional resources to obtain control.</td>
</tr>
<tr>
<td><strong>Hazardous Materials &amp; Technical Rescue</strong></td>
<td>Provide a trained and effective initial response force to incidents involving hazardous materials, technical rescue, water rescue, confined space, and trench rescue.</td>
<td>Assess incident, and if possible stabilize or recognize that additional assistance is needed. This may include personnel with specialized training and certification from YCFD and/or other agencies.</td>
</tr>
</tbody>
</table>

* Response standards are based on total flex time, as defined by YCFD in this chapter.

Source: Yuba City Fire Department, 2003.
9.4-I-4 Require adequate access for emergency vehicles, including adequate street width and vertical clearance on new streets.

9.4-I-5 Continue implementation of the City Sprinkler Ordinance throughout the Planning Area.

9.4-I-6 Review proposed development applications for compliance with adopted fire safety standards and staffing ratios.

Construction of a new fire station in the southwest section of the City will be required to maintain standards. Construction of this facility will take place in conjunction with new development in the southwest area.

9.4-I-7 Continue to conduct building and fire code enforcement to ensure safe structures.

The City has an active program for both building and fire code enforcement. The program is delivered by building inspectors, fire inspectors and code enforcement officer(s).

9.4-I-8 Extend water distribution pipes, as needed, to maintain and improve fire water flows.

9.4-I-9 Support community training and volunteer programs to enhance emergency preparedness.

9.5 HAZARDOUS MATERIALS

Some topics regarding public safety can be dealt with only at a regional level, or fall within the responsibility of public agencies other than Yuba City. The use and transportation of hazardous substances is one example for which public safety depends in large part on the actions taken by the State and Federal governments, as well as the County.

HAZARDOUS WASTE MANAGEMENT

The Sutter County Hazardous Waste Management Plan was adopted in 1990, as required by State law. The plan establishes a waste management hierarchy, which focuses on waste reduction and minimization. The Plan includes a comprehensive approach to management of hazardous wastes in the County, including siting criteria for new waste management facilities, educational and enforcement efforts to minimize and control the hazardous waste stream, and policies to maintain a unified data base on businesses that generate waste. The Sutter County Community Services Department is the local agency responsible for enforcing a variety of hazardous material and waste, requirements.

The majority of the hazardous waste generated in the county (95 percent) is from small quantity generators (SQGs), who do not manifest shipments of hazardous waste, and from individual households. The predominant hazardous waste stream produced by both manifested generators and estimated for all small quantity generators in Sutter County is waste oil. As a result, Sutter County’s generator programs, as recommended in the Sutter County Hazardous Waste Management Plan, focus on encouraging recycling of waste oil.

HAZARDOUS MATERIALS MANAGEMENT IN YUBA CITY

Although Yuba City does have businesses that use hazardous materials, hazardous waste is not generated in large amounts and a waste disposal facility is not likely to be sited in the City. However, a concern exists due to the transportation of hazardous materials through or near the City. The California Highway Patrol and California Department of Transportation have primary responsibility in regulating the transportation of hazardous waste and materials. Accidents involving hazardous materials are possible due to the transport of such materials via highways and rail.

To prepare for events that could endanger the health and safety of its citizens, Yuba City has taken several steps to provide plans for immediate responses to disasters such as hazardous materials spills. Currently, the Yuba City Fire Department is part of the Region III Hazardous Materials Response Team. There are 2 Level 1 Hazardous Materials Teams in the Region. One of the Hazardous Materials Teams is located in Oroville, and the other is located in Marysville. Yuba City currently has seven Hazardous Materials Specialists who are a part of the Marysville team.

In the event of a hazardous materials spill within the City, the Police and Fire Departments are simultaneously sent to the scene to respond and assess the situation. The fire department keeps two firefighters with special hazardous materials training on each shift. If a spill occurs on the freeway, the California Highway Patrol will call upon the City’s resources in identifying, isolating, and if necessary, evacuating the area. In all cases, the Sutter County Environmental Health Department shall be contacted and in some cases, will be consulted on containment and mitigation.

In Yuba City, waste oil and household hazardous wastes are collected at the Yuba-Sutter Household Hazardous Waste Facility at 134 Burns Drive. This facility is jointly operated by Yuba and Sutter Counties.

Through Local Emergency Planning Commission (LEPC) grants, the City Hazardous Materials Specialists have conducted pre-plan visits to numerous sites within the city that handle hazardous materials. Information regarding the type of chemicals used at each site is computerized for quick access in emergency response planning, should an accident occur at one of the locations. The City intends to eventually pre-plan all 40 sites in the city, as well as the major roadway and rail corridors used for hazardous materials transport.

HAZARDOUS WASTE STORAGE AND LEAKAGE SITES

The State of California’s Department of Toxic Substances Control (DTSC) in Yuba City maintains a list of sites that represent hazardous waste facilities subject to corrective action, lands designated as hazardous waste properties or border zone properties, and public drinking water wells which contain detectable levels of organic contaminants and which are subject to water analysis. The DTSC also includes data gathered by the State Water Resources Control Board, which reports a list of all Leaking Underground Storage Tank (UST) sites and all solid waste disposal facilities from which there is a migration of hazardous waste. The most recent list was published in April 1998 and included 28 sites in Yuba City with leaking USTs, most of which were gas stations. There are two cleanup and abatement orders listed for the discharge of hazardous wastes.

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GUIDING POLICY

9.5-G-1 Minimize the risk of property damage and personal injury resulting from the production, use, storage, disposal, or transportation of hazardous materials.

IMPLEMENTING POLICIES

9.5-I-1 Promote the reduction, recycling, and safe disposal of household hazardous wastes through public education and awareness. Expand collection programs in conjunction with new growth in the city.

9.5-I-2 Continue to pursue funding to conduct pre-plan visits to hazardous materials sites within the city, as well as major roadway and rail corridors used for hazardous materials transport.

9.5-I-3 Require the clean-up of sites contaminated with hazardous substances.

The California Environmental Protection Agency publishes the Hazardous Waste and Substances Sites List, which identifies properties in the City that have the potential for hazardous materials contamination. Contaminated sites are threats to the quality of groundwater and shall be cleaned through decontamination of soils and filtration of groundwater. Clean-up shall be required in conjunction with new development, reconstruction, property transfer of ownership, and/or the continued operation after the discovery of contamination. Continual business operation may be permitted during clean-up or remediation of the contamination, as long as the clean-up proceeds in accordance with an approved clean-up plan.

9.5-I-4 Implement policies contained in the Sutter County Hazardous Waste Management Plan that encourage and assist the reduction of hazardous waste from businesses and homes.

9.5-I-5 Require businesses generating hazardous waste to pay necessary costs for local implementation of programs specified in the County Hazardous Waste Management Plan, as well as the costs associated with emergency response services for a hazardous materials release.

9.5-I-6 Specify routes for transporting hazardous materials, taking into account areas of projected new growth.

These routes should not pass through residential areas or other sensitive areas. Specific time periods for transport should be established to reduce the impact and accident risk during peak travel periods.