



INTRODUCTION

Diverse environmental hazards need to be addressed in planning for urban development. Some of these hazards are natural (e.g., seismic such as surface rupture, ground shaking), some are entirely manmade (e.g., noise) and some are a result of potential natural hazards activated or exacerbated by development activity (e.g., erosion, slope failure).

Some hazards can be avoided by exercising diligence in the development review process through careful land use locational decisions. Other hazards can be tolerated or minimized by adopting appropriate land use regulations and development guidelines and by including mitigation measures in the development review process.

Major Health and Safety Objectives

- *Protect Napa residents, workers, and visitors from natural and manmade hazards*
- *Reduce the potential for flood-related hazards*
- *Ensure safe levels of noise exposure*

This chapter addresses the following issues relating to health and safety:

- Seismic Hazards
- Soil Erosion and Landslide Hazards
- Flooding
- Dam Failure
- Fire Hazards
- Aircraft Hazards
- Hazardous Materials
- Emergency Preparedness and Response
- Noise

SEISMIC HAZARDS

Seismic hazards refer to earthquake-induced ground rupture, ground shaking, liquefaction, or water movement. Earthquakes occur along fault lines. They occur infrequently, but can inflict major damage. Faults within and outside the county could affect the city of Napa in the event of an earthquake, including four active fault zones in the region outside the county: the San Andreas, Hayward, Calaveras, and Healdsburg-Rodgers Creek faults. Three active faults within Napa County -- the Cordelia, the Green Valley, and the West Napa faults -- also pose a risk to Napa residents and property.

There are no known active faults running directly through the city of Napa, so that ground rupture is presumably not a hazard. The primary seismic concern is ground shaking associated with regional and local faults. A large area south of Napa is subject to very strong to very violent ground shaking. The City's basic regulations for addressing seismic hazards are contained in the adopted *Uniform Building Code*, which contains building design standards to resist the effect of seismic ground motion.

Earthquake-generated ground shaking can cause both structural and nonstructural hazards, such as falling ceilings and light fixtures, toppling exterior parapets, shattered glass, and the dislodging of furniture and equipment. As with most communities in the San Francisco Bay Area near active earthquake faults, much of Napa would be susceptible to violent ground shaking.

Another earthquake-induced hazard, liquefaction, occurs when water-saturated, cohesionless soil loses its strength and liquefies during intense and prolonged ground shaking. Areas which have the greatest potential for liquefaction are those areas where the water table is less than 50 feet below the surface and soils are predominantly clean, composed of relatively uniform sands, and are of loose-to-medium density. The poorly consolidated younger alluvium that occupies areas south of the city and along the Napa River are considered to have high to very high potential for liquefaction. The younger soils found on the valley floor in the western part of the city are also subject to moderate to high potential for liquefaction.

Another hazard associated with major earthquakes is the collapse or failure of dams. Because dams can fail through other than seismic activity, and the resultant hazard is from flooding, dam inundation policies are included in the "Flooding" and "Dam Failure" sections of this chapter.

GOAL To minimize the risk to life and property from seismic activity.
HS-1

POLICIES

- HS-1.1 The City shall require that all new buildings be designed and constructed to resist stresses produced by earthquakes. To this end, the City shall require all new buildings to conform to the structural requirements of the most recently adopted edition of the *Uniform Building Code*.
- HS-1.2 The City shall discourage the siting of facilities necessary for emergency services, major utility lines and facilities, manufacturing plants using or storing hazardous materials, high occupancy structures (such as multi-family residences and large public assembly facilities), or facilities housing dependent populations (such as schools and convalescent centers) within areas subject to very strong, violent, or very violent ground shaking, as indicated in the ABAG Groundshaking Intensity Maps (Figure 8-1A and B), unless no alternative is available and adequate mitigation measures can be incorporated into the project.
- HS-1.3 The City shall require soils and geologic studies for proposed development with large client populations (such as schools and convalescent centers) within areas subject to very strong, violent, or very violent ground shaking, as indicated in the ABAG Shaking Intensity Map. Such studies should determine the actual extent of the seismic hazards, optimum location for structures, the advisability of special structural requirements, and the feasibility and desirability of a proposed facility in a specified location. Mitigation measures shall be incorporated as conditions of any project approval.
- HS-1.4 The City shall require special construction features in the design of structures where site investigations confirm potential seismic hazards.

HS-1.5 The City shall require that facilities necessary for emergency services be capable of withstanding a maximum credible earthquake from any of the seven active faults in the region and remaining operational to provide emergency response.

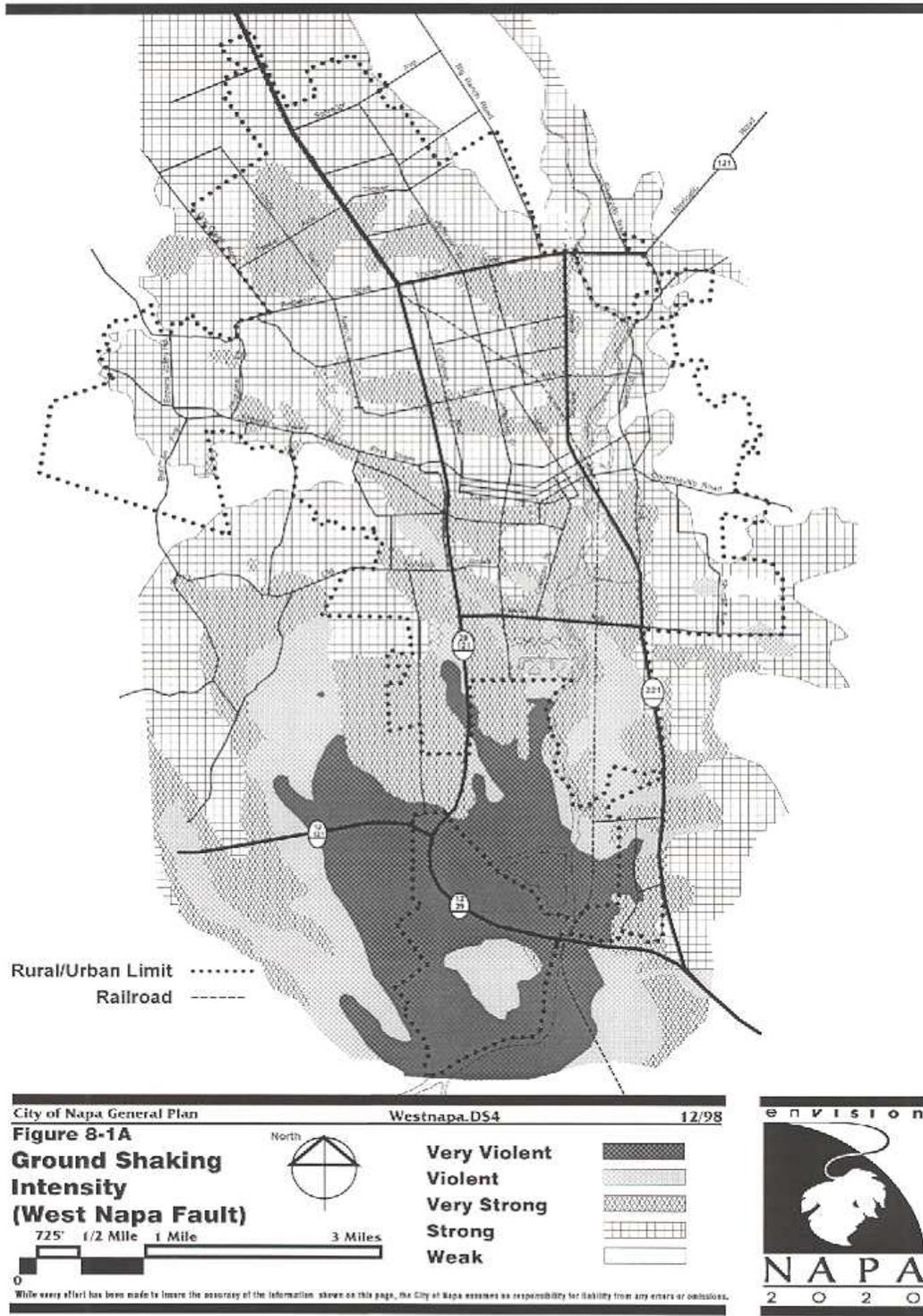
HS-1.6 The City shall encourage the study and rehabilitation of high occupancy structures (such as multi-family residences and large public assembly facilities) susceptible to collapse or failure in an earthquake.

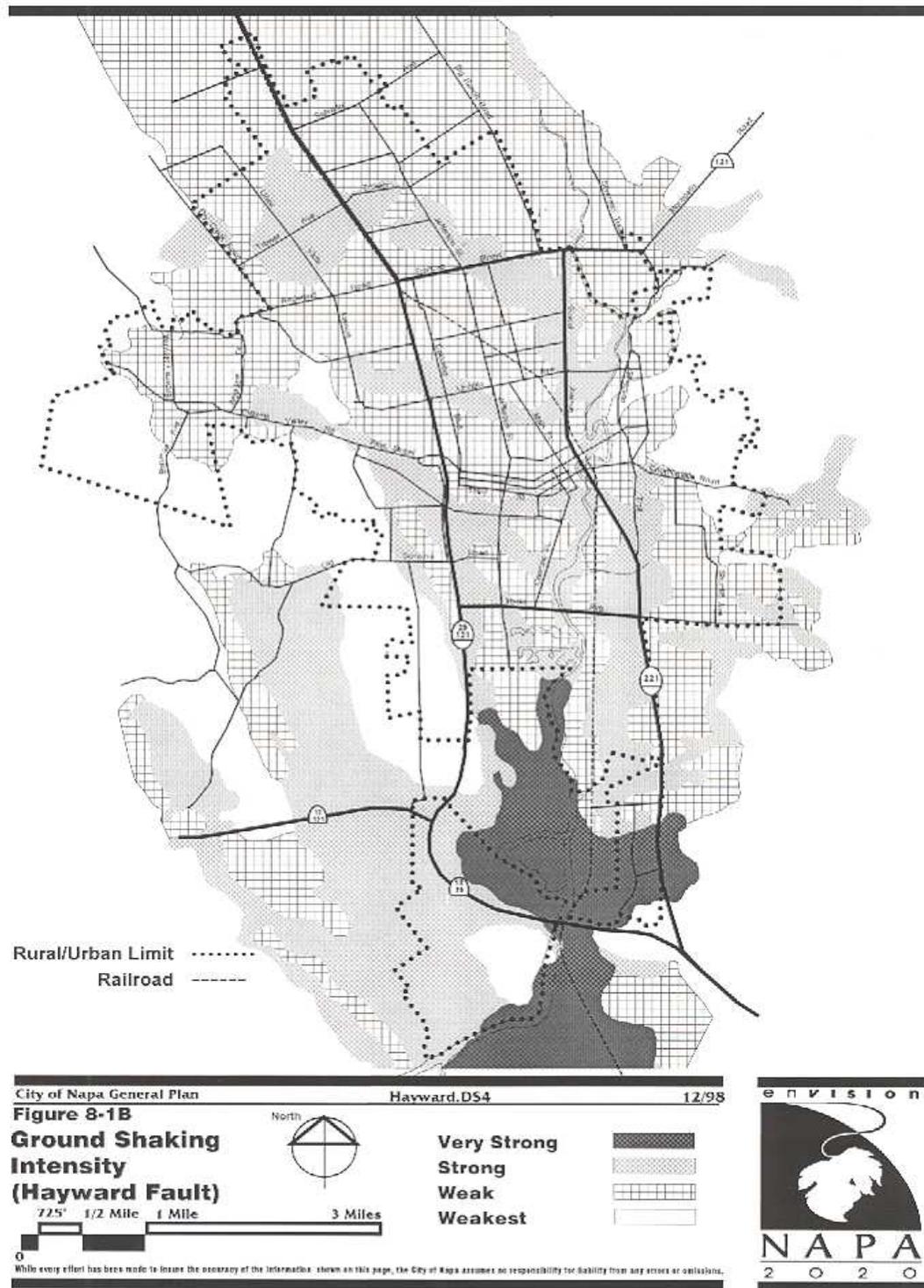
SOIL EROSION AND LANDSLIDE HAZARDS

Soil erosion is a naturally occurring process that can be worsened by human activities. Because the Napa River's watershed is a natural, relatively high producer of sediment, it is particularly sensitive to the effects of soil erosion. Soils are generally susceptible to erosion on steep slopes, particularly if vegetation is removed. Erosion from lands that drain into the river and its tributaries results in sedimentation from the topsoil deposited and carried downstream. Flowing waters with heavy sediment loads are likely to lose flood carrying capacity and overflow and damage adjacent areas. Sediment that collects in storm drains reduces the system's capability to handle flood waters. The ultimate costs of erosion can be high in terms of public safety, property damage, and ongoing maintenance.

Erosion also has impacts on habitats and wildlife. Nutrients removed from topsoil and deposited in waterways can initiate algae blooms that deplete oxygen and kill fish. Excessive sediment deposits on stream bottoms smother fauna and can create a sterile environment. Stream turbidity caused by sediments suspended in the water can reduce photosynthesis in water-based flora leading to reduced habitat food supply.

Soil erosion can take the form of sheet and rill erosion. In sheet erosion, a relatively uniform layer of soil is removed over a large area gradually over time. In rill erosion, streambank and gully erosion can occur from small concentrated water flows. Urban development activities are a significant contributor to streambank and gully erosion which is sensitive to changes in watershed hydrology, rainfall infiltration rates, the amount of hard surfaces, and surface flow diversions.





Landslides are the most dramatic and obvious form of erosion. Landslides consist of rock, soil and/or debris that move downslope by sliding, flowing or falling. Movement ranges from very slow (earthflow) to very fast (debris flow). Landslides vary in size from large blocks of material and slumps to relatively small amounts of surface debris.

Specific factors that affect slope instability include:

- Heavy local rainfall
- Earthquakes.
- Surface materials that are loosely bound together ("unconsolidated").
- Slope steepness.

Susceptibility to soil erosion and landslides varies based on geologic materials and slope steepness. The Generalized Geology Map (Figure 8-2) shows the types and distribution of geologic materials within the Napa area. Geologic materials that are very susceptible to slope failure include sandstones, shales, and mudstones.

The Generalized Slopes Map (Figure 8-3) shows the steepness of slopes divided into three categories: less than 15 percent, 15 to 30 percent, and greater than 30 percent. Within the RUL, the steepest slopes are found in the hilly areas west of Buhman Avenue and south of the Rollingwood subdivisions; north of Browns Valley Road and east of Pinewood Drive; both inside and outside the RUL from Browns Valley Road south to Highway 12/121; south of Hagen Road; and the eastern hills along Montecito Boulevard.

Urban development, with its grading, construction and land alteration (particularly on hillsides), can cause excessive erosion and sedimentation if not regulated properly. Grading for building pads, roads, and landscaping removes natural vegetation that protects topsoil from erosion. Recontouring of the land surface alters natural drainage patterns and can increase surface runoff if not properly designed. General construction activities such as equipment washing and site clearance also indirectly contribute to soil erosion.

GOAL To minimize the hazards to people and property caused by soil erosion and landslides.
HS-2

POLICIES

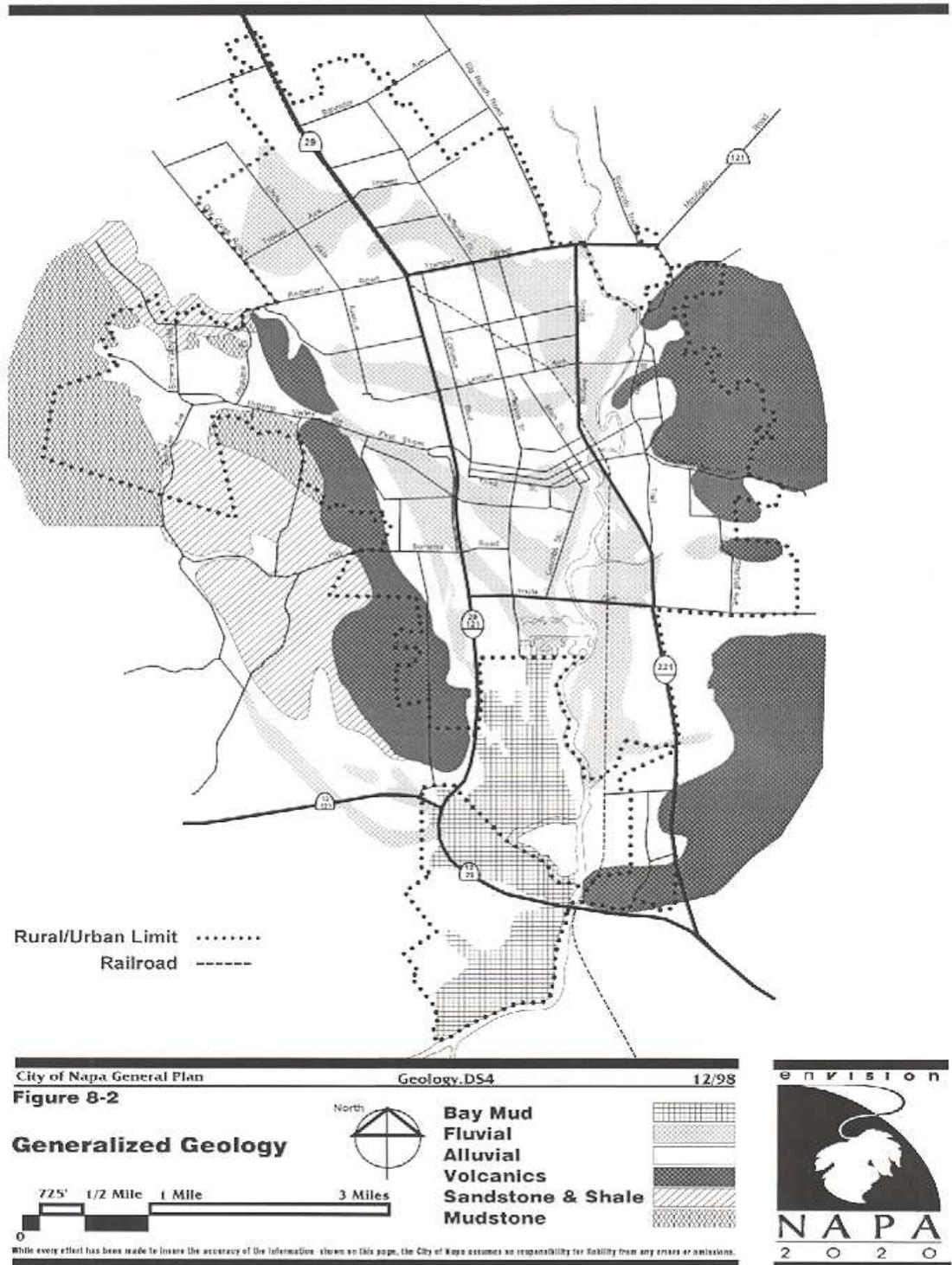
- HS-2.1 The City shall seek to minimize grading and impermeable surfaces in high-erosion areas. If grading or impermeable surfaces are necessary, they shall be properly engineered and drained to reduce runoff and erosion.
- HS-2.2 The City shall consider natural landform contours and geologic conditions in the development of roadways and individual project design.
- HS-2.3 The City shall continue to regulate development on hillsides to reduce the hazards posed by soil erosion and landslides.
- HS-2.4 The City shall require that an erosion control plan be prepared and approved for development on slopes of 15 percent or greater. The plan should include limitations on vegetation removal, revegetation, and installation of other erosion and sedimentation control measures.
- HS-2.5 The City shall continue to apply its *Hillside Development Guidelines* to properties in sensitive hillside locations.

IMPLEMENTATION PROGRAMS

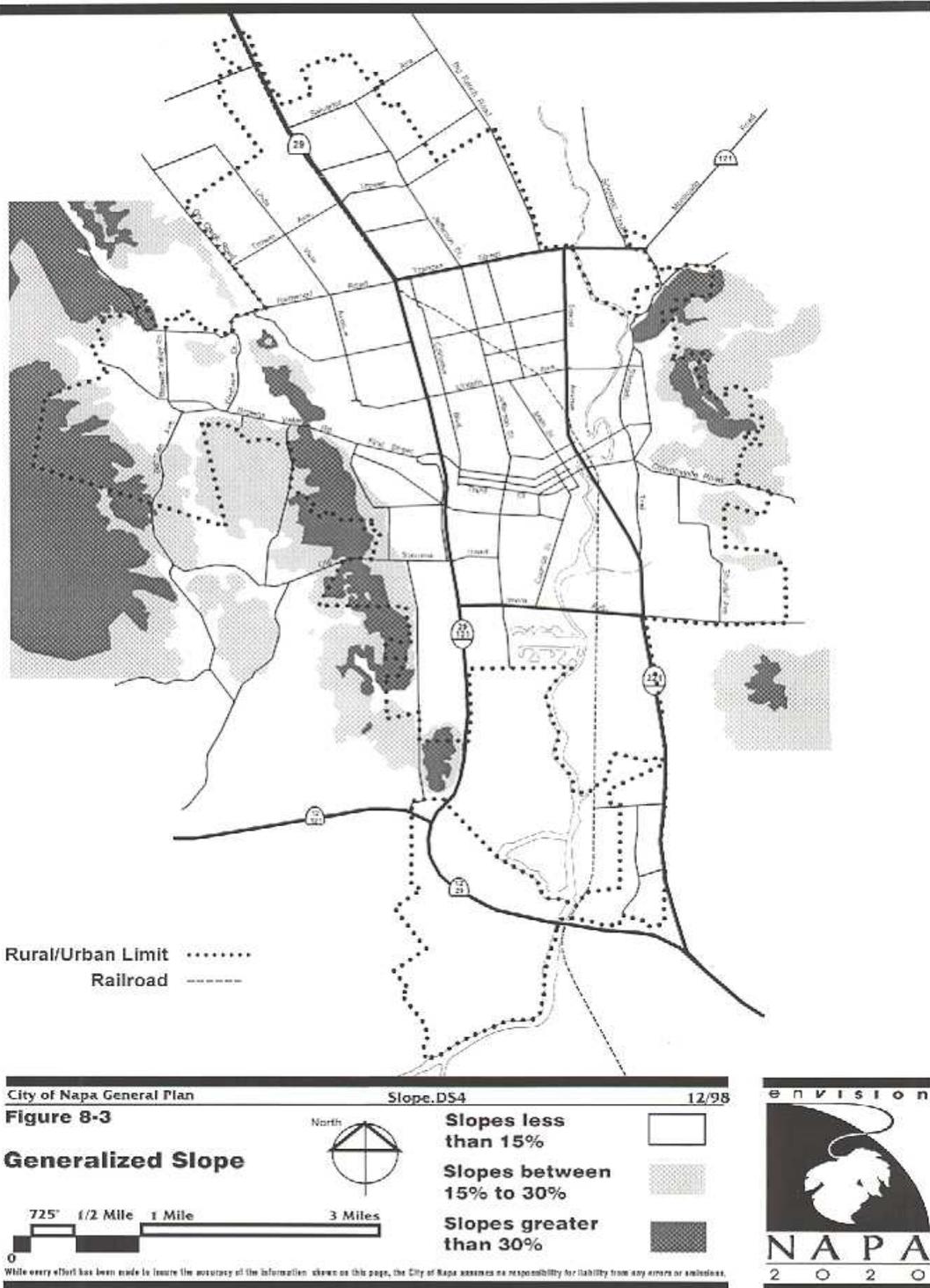
- HS-2.A The City shall prepare and adopt regulations for development on lands within the "general" and "greatest" categories shown on Figure 8-4, Generalized Relative Landslide Susceptibility Map.

 Responsibility: Public Works Department;
 City Council
 Time Frame: FY 99-03
- HS-2.B The City shall require geotechnical studies for projects proposed in areas susceptible to landslides (areas categorized as "general" and "greatest" on Figure 8-4) and adherence to the recommendations of the studies.

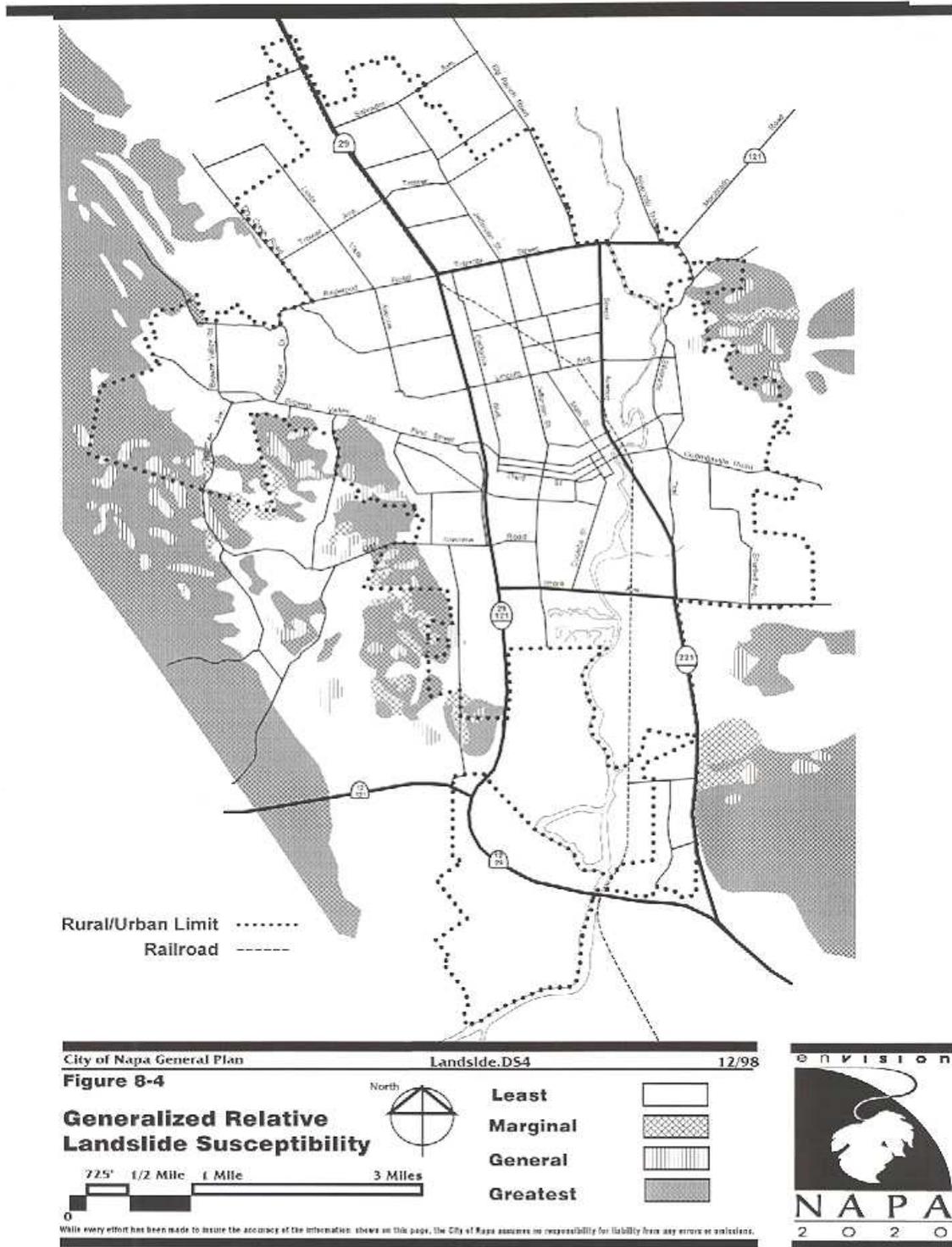
 Responsibility: Public Works Department
 Time Frame: Ongoing



8-6



8-7



8-8

HS-2.C The City shall continue to apply erosion control and hillside development regulations to development in areas of 15 percent or greater slope.

Responsibility: Public Works Department;
Planning Department
Time Frame: Ongoing

FLOODING

Flooding in the Napa Valley results from heavy rainfall, chiefly from December through March, and can result in major damage to urban areas and farmlands. Historically, more than ten damaging valley floods have occurred since 1940, with damage to commercial, industrial, residential, and agricultural areas. Utilities, roads, bridges, and streets also are subject to damage and require repair and clean up.

Flooding in the City occurs when the Napa River's flow at Oak Knoll Avenue (just north of the city limits) exceeds about 15,000 cubic feet per second. Flood hazard conditions exist along the entire length of the Napa River as it flows through the City and also follow the courses of several tributary creeks, including all or portions of Redwood, Browns Valley, Salvador, Milliken, Sarco, Tulocay, and Napa Creeks. These creeks are shown on Figure NR2 in the Natural Resources (Conservation) Element Background of the city's General Plan, and the floodplain is reflected on the City's Floodplain Overlay Zoning District Map shown in this section.

Flood Hazard Area

In 1979, the Federal Emergency Management Agency (FEMA) completed a flood insurance study for the city of Napa. The Flood Insurance Rate Map (FIRM) that was subsequently prepared showed the flood hazard area (the area inundated by a 100-year flood), the floodway, the floodplain, and other flood-related information. This map was revised in 1988 to include data from the 1986 flood.

The current effective Flood Insurance Rate Maps are dated September 26, 2008.

The City participates in the National Flood Insurance Program (NFIP) in order to provide its residents an opportunity to obtain lower rates for flood insurance. In order to participate in the flood insurance program, the City's Floodplain Management Ordinance, located in the Zoning Ordinance (Chapter 17.38) has been approved by FEMA and the City is the Floodplain Administrator. Floodplain Overlay District properties--all or a portion of which are within the floodplain--are subject to the City's

Floodplain Ordinance included as Appendix __. The Floodplain Ordinance includes special standards for development proposed for location in the floodplain and floodway, and regulations for analyzing such development. Figure 8-5, the Floodway Schematic Diagram, illustrates the terms used in formulating the floodplain and floodway concepts

Development that encroaches on the floodplain reduces the land surface area available for floodwaters to spread and thereby exacerbates flooding problems. However, the scarcity of vacant lands suitable for development and high land values in urban areas can create an impetus to develop in the floodplain regardless of potential flooding dangers.

Although development will occur within the City's floodplain, flooding problems need not be aggravated if the encroachment that occurs is carefully regulated. To this end, the City's Floodplain Management Regulations provide regulations whose purpose is to: 1) protect the public health, safety and welfare of residents and property potentially affected by flood hazards; 2) reduce the costs incurred by the City from inappropriate and unsuitable development located in the floodplain; 3) minimize the need for rescue and relief efforts associated with flooding; 4) minimize the length of time of business interruptions; 5) minimize damage to public facilities and utilities; and 6) implement the regulations of the National Flood Insurance Program and Related Regulations administered by FEMA.

Flood Evacuation Area (FEA)

During the 1986 flood, many city residents affected by the flood would not evacuate their residences until the situation became so hazardous that emergency assistance was required. This caused the diversion of emergency services from other city areas of need into the areas inundated by floodwater. During the flood, the Public Works Department made field observations of those residential properties that were inaccessible by emergency vehicles (access to the properties was under approximately 18 to 24 inches of floodwater). The area encompassing those residential properties was called the Flood Evacuation Area or FEA (see Figure 8-6, Flood Evacuation Area Map which encompasses a portion of the Floodplain).

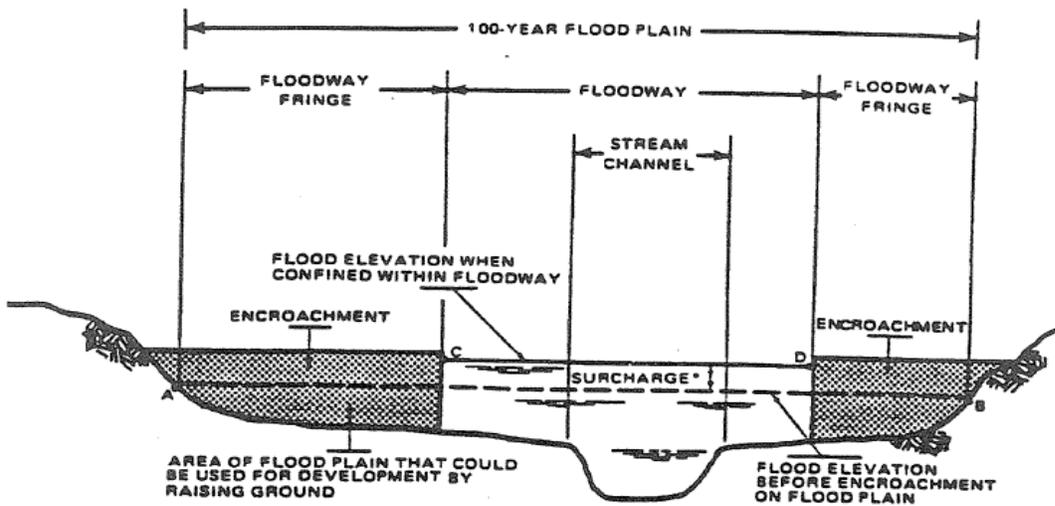
In order to reduce exposure to future flooding, residential development in the FEA was placed under a temporary development moratorium to provide the City an opportunity to study alternative non-residential land uses for the vacant and underdeveloped residential properties. This study was completed in 1987 and

culminated in reclassifying the undeveloped and underdeveloped residential parcels to non-residential land uses and adopting regulations for the future residential development of the remaining residential areas.

The most significant FEA land use regulation requires that any proposed residential development in the FEA resulting in more than four dwelling units on a parcel must have a flood evacuation plan approved by the Public Works Department. The plan must show how the residents of the proposed development can safely walk or drive out of the floodplain during a flood. In reviewing the adequacy of a proposed flood evacuation plan, the Public Works Department considers: 1) existing and future streets; 2) drainage and flood control facilities that could affect the proposed development; and 3) the technical and economic feasibility of the proposed flood evacuation procedures and/or improvements. It has been the City's experience that it is difficult to prepare an acceptable flood evacuation plan.

Since the time the FEA land use regulation was

established, the Napa River Flood Protection Project began construction in 2000 and a number of improvements have been completed. The improvements to date have effectively lowered the water surface elevation in several areas, possibly making them less subject to flooding. Also, the City Council approved the Downtown Mixed Use and Residential Infill Strategy in 2004 to encourage residential mixed-use projects on sites throughout the downtown area. To help facilitate more residential projects in the downtown, and in light of the potential for greater flood protection in some parts of the downtown area, an alternative to an approved flood evacuation plan is an approved hydraulic analysis. The analysis must demonstrate that a property to be developed for residential use greater than four units and an adjacent evacuation route is out of the floodplain. It still may be necessary to provide an accompanying flood evacuation plan that illustrates a safe evacuation route, depending on the location of the property in relationship to inundation flows from the creek and river. The determination for what type of analysis will be required will be made by the Public Works Department on a project-by-project basis. (R200693, 6/6/06)



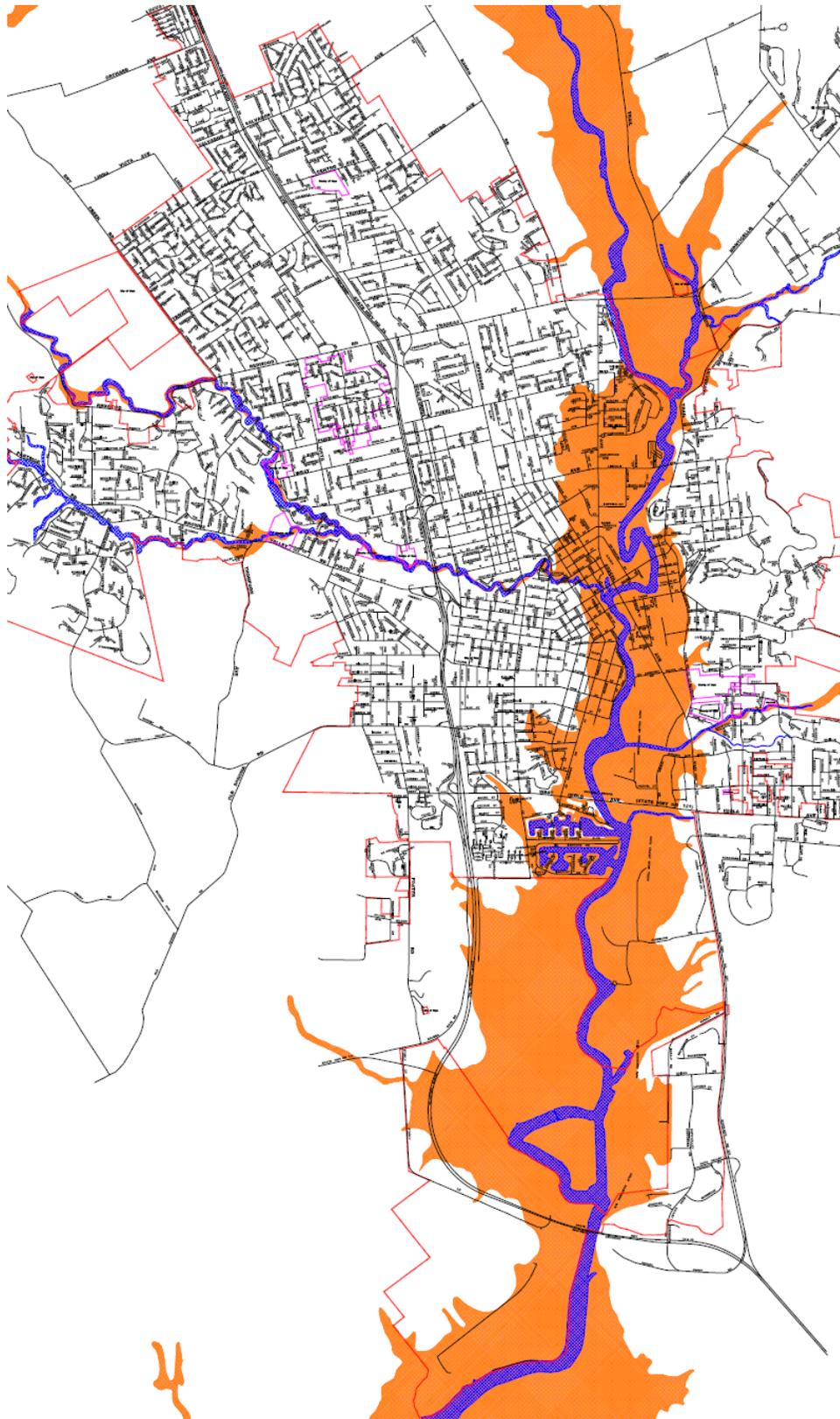
LINE AB IS THE FLOOD ELEVATION BEFORE ENCROACHMENT.
 LINE CD IS THE FLOOD ELEVATION AFTER ENCROACHMENT.
 *SURCHARGE IS NOT TO EXCEED 1.0 FOOT (FEMA REQUIREMENT) OR LESSER AMOUNT IF SPECIFIED BY STATE.

Floodway Cross Section

(from FEMA Flood Insurance Study, 3/18/88)

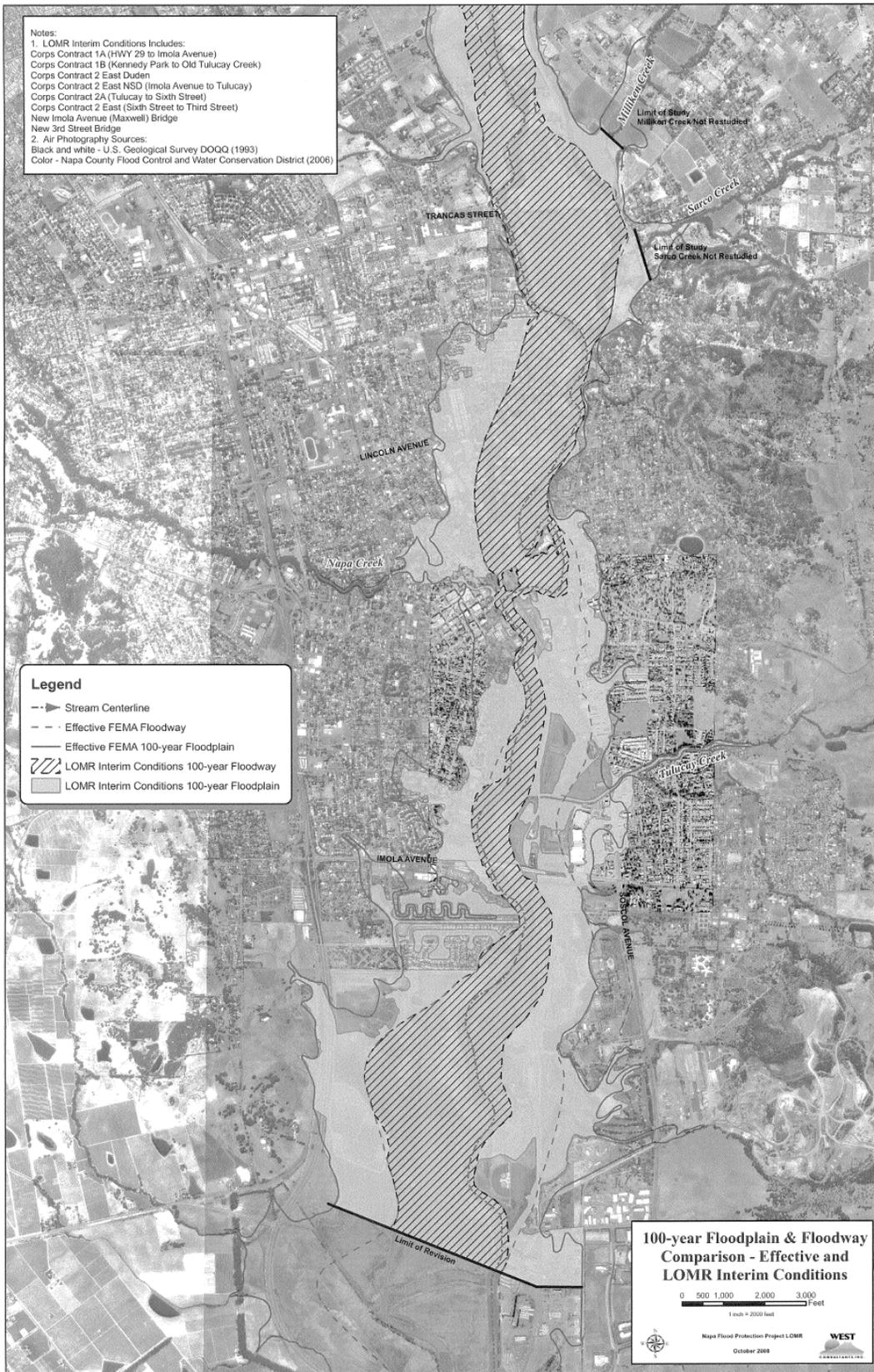
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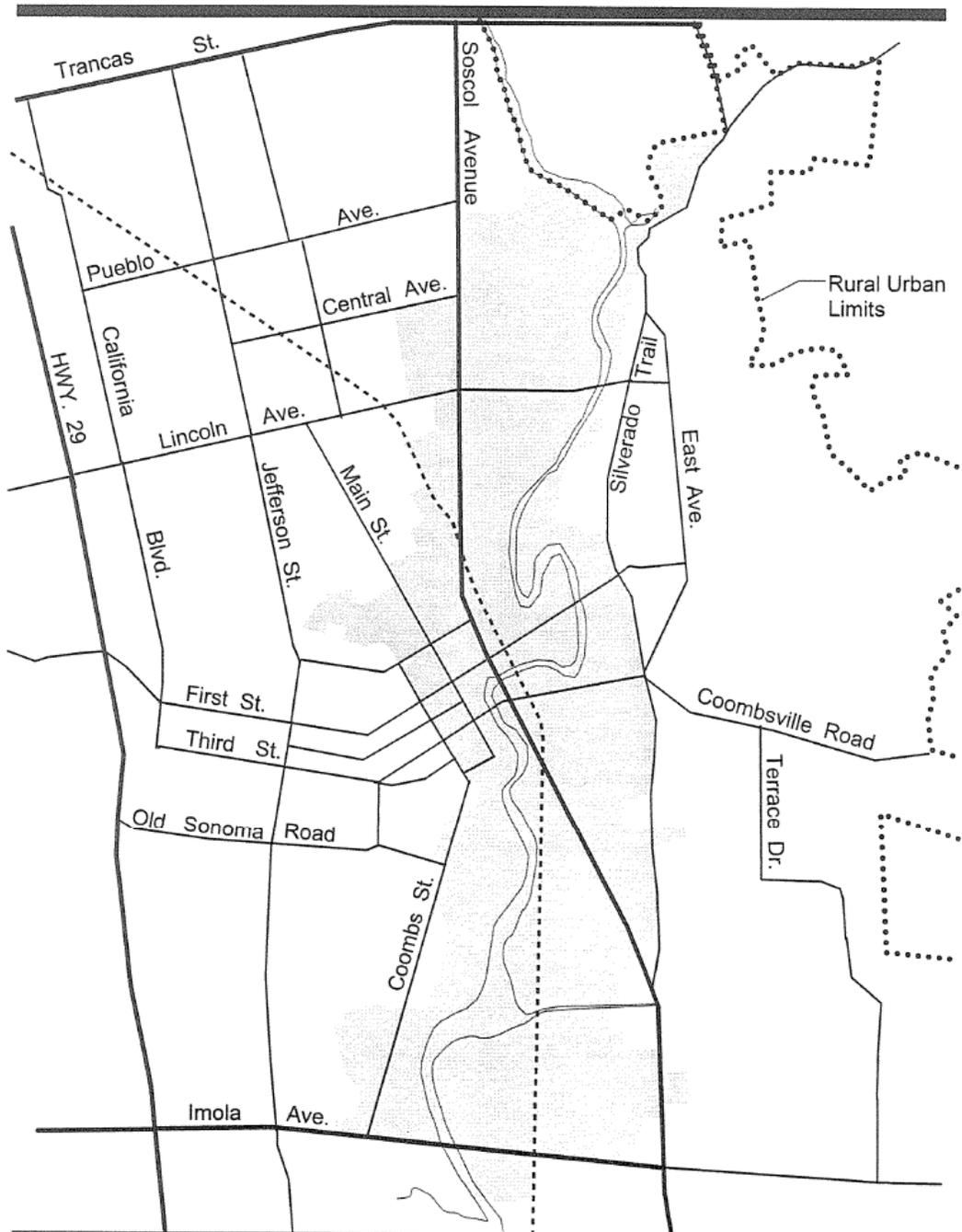




City of Napa
100 year floodplain for
Napa River and Creeks

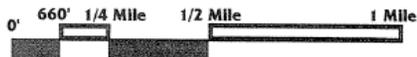
PWD 2006





City of Napa General Plan Evac.DS4 12/98
Figure 8-6

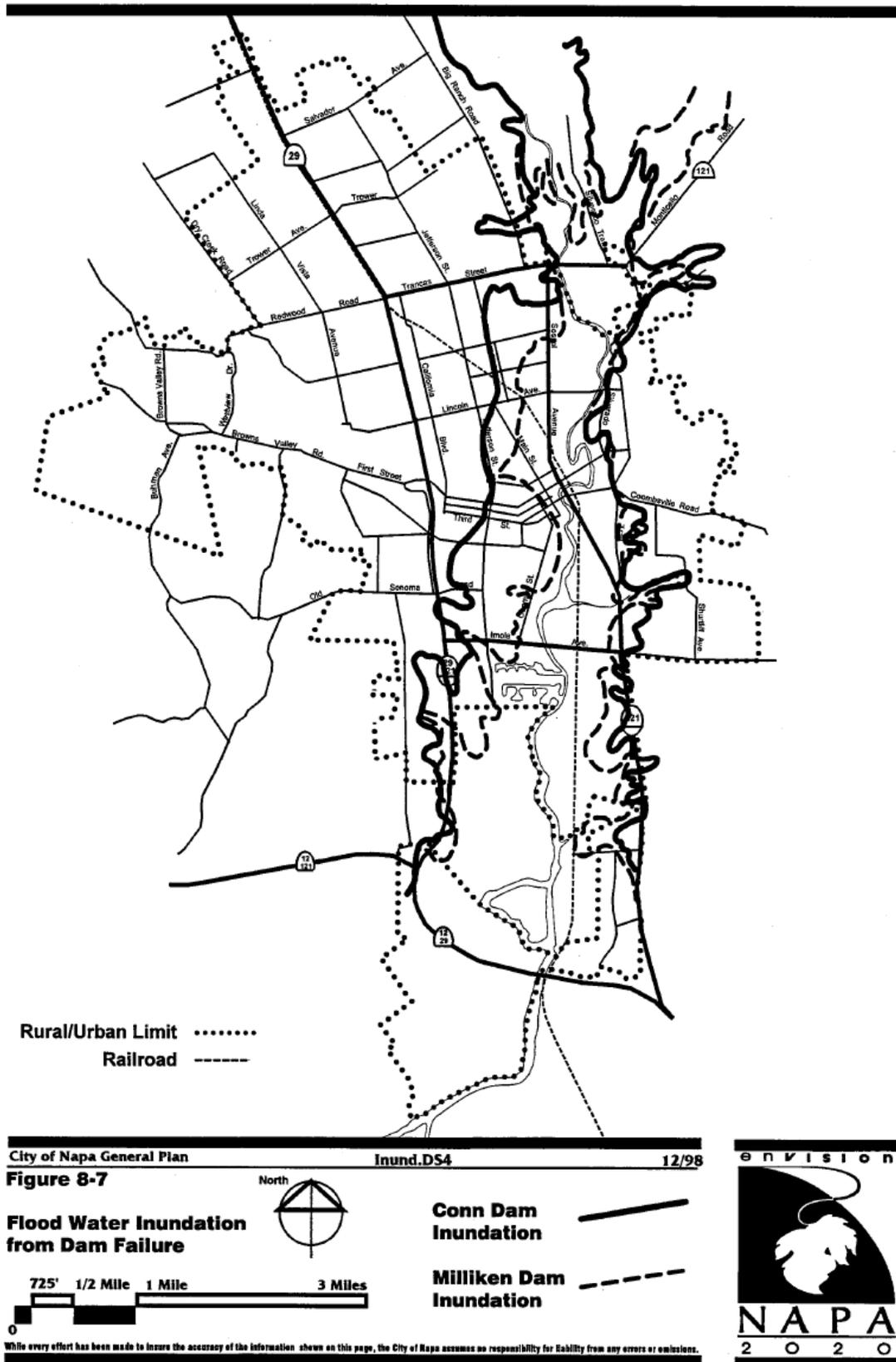
Flood Evacuation Area

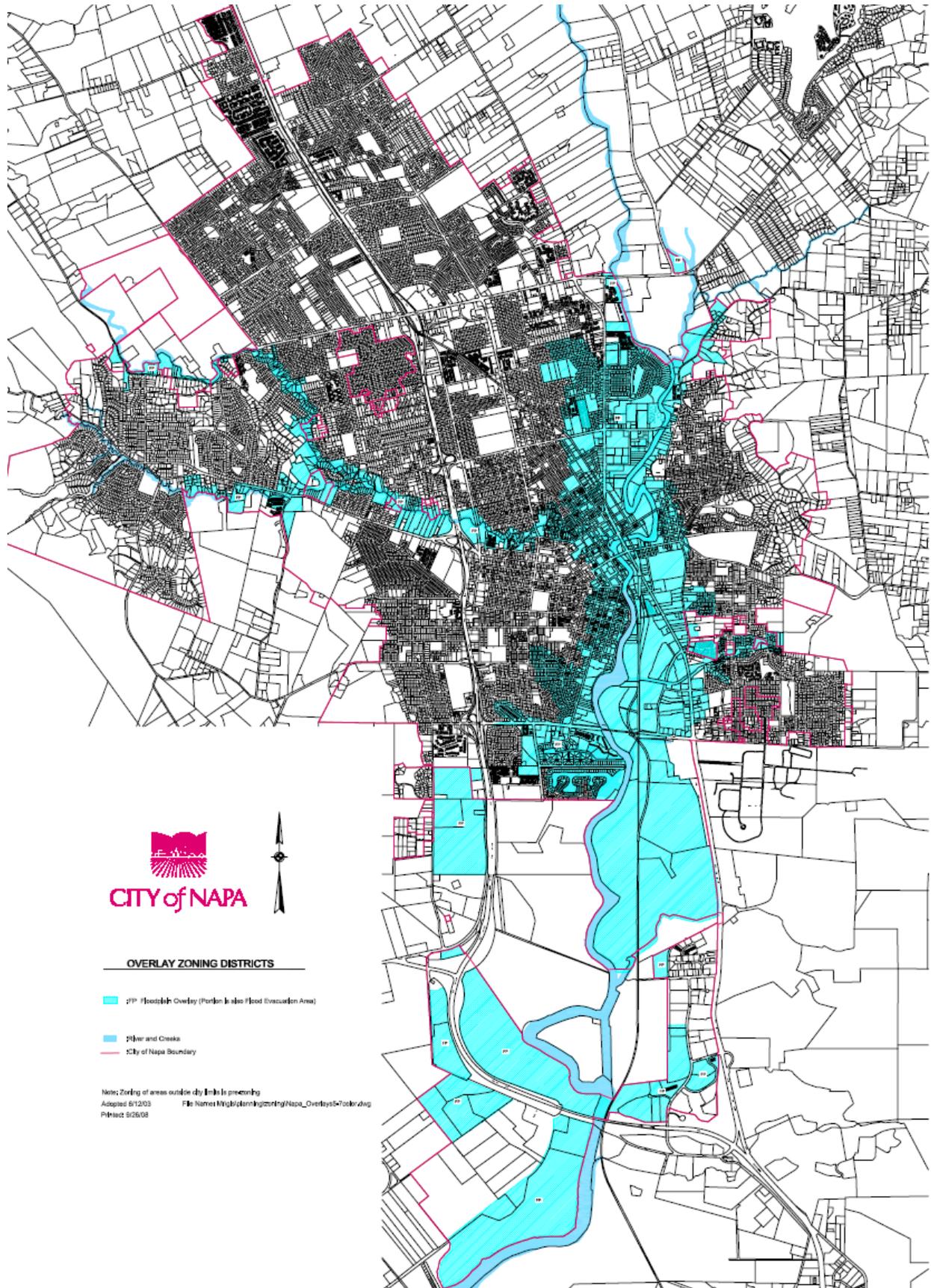


Flood Evacuation Area

Source: City of Napa Public Works Department
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Napa River Flood Protection Project

The Napa River Flood Protection Project was authorized as a federal project in 1965 but early studies met with considerable resistance from local citizens. In 1975 a project design was developed incorporating local issues of concern. In 1976 a referendum to determine the acceptability of the flood control project narrowly passed, but a subsequent referendum in 1977 opposing the project passed and placed the project on inactive status.

Following the devastating flood of 1986, the Napa County Flood Control and Water Conservation District petitioned Congress to reactivate the flood control project. In response, the Army Corps of Engineers prepared an action plan and began engineering design studies in 1989. The Corps, as the responsible lead agency, subsequently prepared a set of studies and a Draft Environmental Impact Report (DEIR) which was available for public comments up until May 1995. The selected flood control project described in the Design Memorandum consists of levees, setback floodwalls, sheetpile walls, streambank protection, channel excavation, and a bypass channel at the Oxbow. Maintenance roads, recreation trails, hazardous material review, remediation of project lands, and environmental mitigation are included in the plan.

In response to public concern about the project's design, visual impacts, loss of recreational opportunities, and other environmental impacts, the Corps' flood control project's executive committee agreed to investigate a "Two Track Design Concept." Track 1, the primary track proposed that the Corps revise the construction plans and respond to the concerns raised during public review of the DEIR. Track 2 proposed the establishment of a Technical Design Committee to study alternatives such as watershed management, dams, alternatives to flood walls, and opportunities for river restoration under the guidance of a Community Coalition, which would formulate a community consensus of alternatives to the Corps' flood control project design.

By June 1996, the Community Coalition completed a lengthy set of workshops and public meetings, and proposed a plan for both flood protection and watershed management. Key features include: 1) land acquisition for river widening; 2) business and home relocation assistance; 3) recreational facilities and open space; 4) toxic cleanup; 5) an Oxbow "dry bypass;" 6) utility relocations and pumping plants; 7) levee and floodwall construction; and 8) bridge replacements.

In December 1997, using the Community Coalition's conceptual plan for a "Living River" Flood Protection Project, the Corps reissued a General Design

Memorandum (GDM) and Supplemental Environmental Impact Statement/Report (SEIS/SEIR). In March 1998, a ½-cent sales tax ballot initiative passed by a 68% vote, allowing the District to provide the required 50% local share of funding to implement the project.

The project has been named the "Napa River/Napa Creek Flood Protection Project" and is now considered a national model for flood projects. The project design covers a 6-mile stretch of the Napa River, in the City of Napa from Highway 29 at the Butler Bridge on the south to Trancas Street on the North. Napa Creek improvements extend for about one mile, from the Creek mouth at the Napa River upstream to Jefferson Street. The "living river" design reduces flood water levels through the removal of old levees to create the 600 acre South Wetlands Opportunity Area; riverbank terracing from Kennedy Park to Third Street to reconnect the River to its historic floodplain; removing or replacing bridges that impede flood flows; and creating bypass channels at River and Creek oxbows. Riverside trails are incorporated into the design of floodwalls and levees throughout the Project Area. The Project is being built in sections, working generally from downstream to upstream. . Approximately 300 parcels were to be acquired and 109 buildings removed in order to facilitate the project design. Construction began in 2000, with original completion anticipated by about 2008; however, delays in full federal funding the project have slowed the Flood Project. Current anticipated timelines for completion are about 2016.

Still, major improvements have been completed to date. They include the South Wetlands Opportunity Area; a railroad realignment from Kennedy Park to Eighth Street; completion of the Maxwell Bridge, the Third and First Street Bridges over the Napa River; floodplain terracing from south of the city through to Third Street and the Soscol Avenue/Oxbow Bypass Bridge and sections of the Napa River Trail. These improvements have generally reduced flood levels in the lower reaches and have filled several properties so that they are out of the floodplain. In 2007-08, FEMA requested that the Napa County Flood District document these changes as a result of improvements completed to date.

In mid 2008, the District submitted a Letter of Map Revision, or LOMR documenting the 100 year floodplain and floodway under these interim conditions. See map. The interim conditions also incorporate new information from more recent flood events and local flood information. The updated map substantially reduces the floodway on the east side of the river south of about First Street, and takes other land out of the floodplain.

In September, 2008, FEMA agreed the submitted Letter of

Map Revision is technically adequate and will incorporate the revisions in its preliminary FIS report and DFIRM panels anticipated in April, 2009 beginning a community review time, followed by publication in the Federal Register and local newspapers for a 90 day appeal period. After this, FEMA issues a Letter of Final Determination, which may occur by September and become effective after 6 months or by early 2010.

Also in 2008, a detailed drainage study was completed for Salvador Creek to identify the 100 year floodplain for this drainage basin. FEMA has also technically accepted this study and is expected to revise the City's flood insurance rate maps to include properties along Salvador Creek between Highway 29 and Summerbrooke Circle in the map revisions described above. Meanwhile, all development affecting this drainage channel must provide no net increase in 2, 10, 25 or 100 year peak runoff.

The new levees and floodwalls that have been recently completed along the Napa River have been certified by the Army Corps and will be maintained by the Flood District, areas subject to inundation are essentially those lands shown on the map. The only part of the city where levees have been de certified is Lake Park and Edgewater.

The Napa River runs through the middle of the City and therefore affects primarily existing developed areas of town. Planned Development in the river floodplain is shown in the General Plan. It includes primarily mixed use redevelopment areas in the Downtown, in the Soscol Gateway and Tannery Bend. North and south of Downtown on the west side are developed residential and commercial areas that are also expected to experience revitalization as flood hazards are reduced. The Flood Project filled certain "Mixed Use" designated lands to a level above the floodplain in the southeastern part of the City - principally the Gasser Master Plan property. These sites received fill from the creation of the floodplain terraces. The Gasser Master Plan, adopted in 2007 specifies the types of development planned in this mixed use area. The City has about 70 properties that are on a repetitive loss list.

The Napa River Flood Protection Project will protect against river (and Napa Creek) flooding, but does not address drainage issues resulting from interior drainage flows. Studies of interior drainage have been done by the City of Napa and the Napa County Flood Control and Water Conservation District to analyze interior drainage problems and to identify ponding/interior flooding areas during a 100 year event. For example, hillside flows from the eastern hills will continue to drain to the Soscol area, and additional drainage improvements are needed

to route these flows to ponds and pumping station systems and ultimately the River.

The City adopted a Storm Drainage Master Plan in 2006 that identifies and prioritizes a communitywide list of storm drainage improvements. March 2005 costs were 22.6 million. The City continues to collect a citywide stormwater system service fee to help pay for needed capital improvements; these fees need to be increased substantially to fully fund all improvements.

Since the late 1990's, onsite or underground detention has been required in the Big Ranch Specific Plan area so as not to cause flooding of Salvador Creek. As a result of the Regional Water Quality Control Board Phase II Permit and the Napa River Flood Project, the city has extended such measures citywide and now requires that there be no increase in 2, 10, 25 or 100 year peak volume runoff from sites an acre or more in size, hillside development or any development close to waterways. The City's Phase II Permit requires site design measures, source control measures and stormwater treatment Best Management Practices to treat or remove pollutants in stormwater and/or reduce the amount or rate of stormwater.

Some areas of town, notably the Soscol Gateway primarily south of Third Street, have also been identified as needing additional interior drainage improvements to carry interior drainage for overland flows remaining after completion of the Flood Protection Project. Soscol Gateway Planning has identified a drainage concept to handle these residual flows; the 2007 Soscol Redevelopment Project Area was adopted to help fund needed areawide infrastructure improvements, with drainage improvements as the highest priority. Overland drainage improvements will also need to be addressed with development in the South Coombs area.

Local, State and federal agencies with responsibility for flood protection in Napa include:

- City of Napa Public Works Department: Local Floodplain Administrator which insures compliance with floodplain regulations; also in charge of the Flood Project bridge construction
- Napa County Flood Control and Water Conservation District: local project manager of the Napa River Flood Project and provides maintenance for Napa Creek and other waterways
- Army Corps of Engineers; federal management of the Flood Project and project certification
- Resource Conservation District: Completed modeling for Salvador Creek
- Napa County Office of Emergency Services; local emergency event response and coordination
- State Office of Emergency Services; state emergency

event response and coordination; distributes funds for local flood mitigation

- State Department of Water Resources: provides floodplain grant funds
- FEMA: Federal Emergency Management Agency in charge of the Flood Insurance Rate Program (FIRM); also distributes funding for the flood project. Local agency participation in the NFIP allows flood insurance discounts to policyholders

GOAL To reduce the risk to life and property
HS-3 from flooding.

POLICIES

- HS-3.1 The City shall continue to provide for floodplain management to protect its residents and property from the hazards of development in the floodplain of the Napa River and its tributaries.
- HS-3.2 The City shall continue to apply flood plain management regulations for development in the floodplain and floodway.
- HS-3.3 The City shall continue to participate in the Federal Emergency Management Agency's National Flood Insurance Program.
- HS-3.4 The City shall continue to utilize the Federal Emergency Management Agency's Flood Insurance Rate Map to define the flood hazard area, the floodway and the floodplain.
- HS-3.5 The City shall balance the housing needs of its residents against the risk from potential flood-related hazards.
- HS-3.6 The City shall support programs and methods to reduce the flooding of the Napa River and its tributaries.
- HS-3.7 The City shall continue to assist the Army Corps of Engineers, Napa County, other responsible agencies, and the public to maintain funding for the development of the Napa River Flood Management Project.
- HS-3.8 The City shall continue to cooperate with Napa County to maintain a reliable funding source for the local share of flood control costs.

DAM FAILURE

The City's dams are located at the Lake Hennessey, Milliken and Eastside Reservoirs; another dam is located at the State-owned Rector Reservoir. Failure of any one of these dams would subject the city of Napa to flood water inundation.

Conn Creek Dam - Lake Hennessey is the City's primary water supply storage. The lake's dam, Conn Creek Dam, is earth fill with a concrete spillway which empties into Conn Creek. The crest height is 125 feet and the reservoir stores 31,000 acre-feet of water.

If Conn Creek Dam were to fail, inundation waters would arrive at the north city limits in 4 ½ hours with a 16-foot maximum water depth at Trancas Street. According to an April 1986 Seismic Stability Evaluation of Conn Creek Dam by Harding Lawson Associates, the greatest potential for damage to the dam is from a seismic event on the Rogers Creek-Healdsburg Fault (15 miles to the west) or the Cedar Roughts Fault (8 miles to the east). However, the evaluation concluded that the dam "will perform adequately during a major earthquake" (i.e., magnitude 6.5 on the Cedar Roughts Fault) and dam failure is not anticipated.

Milliken Reservoir - The Milliken Reservoir dam is radial arch reinforced concrete and empties into Milliken Creek. The crest height is 110 feet and the reservoir stores 2,000 acre-feet of water at the crest height. In 2008, the Public Works Department Water Division implemented the Milliken Dam Seismic-Related Modifications Project to lower the nominal water height behind the dam to an elevation 16 feet below the dam crest. The project cored four 18-inch holes and one 24-inch hole at the lower elevation to maintain the reduced water level. In accordance with the California State Water Resources Division of Safety of Dams Milliken dam is deemed safe to withstand a maximum credible earthquake while storing water at the reduced elevation of the cored holes. The dam stores 1,390 A-Ft of water at the reduced elevation.

Prior to implementation of the Milliken Seismic-Related Modifications Project, if the Milliken Reservoir dam were to fail, inundation waters would reach the northeast city limits in one hour with a 16-foot maximum water depth at Trancas Street. A revision to the reduced affects of the inundation waters is not available at this time. However, the State Department of Water Resources Division of Safety of Dams performs annual inspections of the dam and requires maintenance and improvements as needed. The dam is routinely inspected to record settlement or

movement. No seismic or significant dam safety concerns have been identified and no significant improvements to the dam are planned for the near future.

Eastside Reservoir - The Eastside Reservoir is a 30-million-gallon treated water reservoir with an earth fill dam lined on the interior with concrete. At the request of the Division of Dam Safety, the City has begun a seismic evaluation of the facility; preliminary results indicate that some minor improvements may be needed. Although the reservoir currently is filled with water, it has been disconnected from the City's water system while the City studies improvement options such as replacement with a water storage tank, covering the reservoir, or abandoning the reservoir and site.

Rector Reservoir - Rector Reservoir's dam is earth fill and empties into Rector Creek. The crest height is 162 feet and the reservoir stores 4,400 acre feet of water. Because the reservoir is owned by the State, the City is not responsible for the dam's safety.

In the case of the failure of any of the three dams located outside the city, inundation waters would affect the same areas within the city (approximately 25 percent of the City's residences would be affected). The main areas that would be inundated are (see Figure 8-7, Flood Water Inundation from Dam Failure Map):

- South of Trancas Street, between Main Street and Silverado Trail
- South of Lincoln Avenue between Jefferson Street and Silverado Trail
- South of First Street between SR 29 and Silverado Trail-Soscol Avenue

The above is a worst-case scenario. Except for Rector Reservoir Dam which is owned by the State, the City can reduce the risk of dam failure substantially by continuing its practices of dam safety review and cooperating with the Division of Dam Safety in addressing any needed maintenance or structural improvements.

GOAL To protect life and property in the City of Napa from the hazard of inundation by flood waters resulting from the failure of water supply reservoir dams.

HS-4

POLICIES

HS-4.1 The City shall maintain a program of

reservoir dam safety review and continue to cooperate with the Division of Dam Safety in addressing any needed dam maintenance or structural improvements.

HS-4.2 The City shall request the State minimize the risk to the city of damage from inundation resulting from failure of Rector reservoir dam by maintaining the dam in a safe condition.

FIRE HAZARDS

Napa is characterized by a narrow valley floor surrounded and intermingled with steep, hilly terrain that contains areas that are very susceptible to wildland fires. This in turn exposes areas of development within the city to an increased risk of fire. The most vulnerable structures are the homes in or adjacent to wildland urban interface areas.

Wind is an important factor in the spread of fire, by carrying burning embers to adjacent areas. Napa has a characteristic southerly wind that originates from the San Francisco Bay. During the dry season, the city experiences an occasional north wind of significant velocity that can be a contributing factor in the spread of wildland fires.

The major wildland fire hazard risks for residential development are in the city's hilly areas characterized by steep slopes, poor fire apparatus access, inadequate water pressure, and highly flammable vegetation. Recognizing that these areas differ from the typical urban fire to be served by city fire departments, there has been a move statewide to include built-in fire protection measures for development in and adjacent to these wildland urban interface areas.

The cornerstone of wildland fire protection is the provision of defensible space around residential development in hazardous areas to protect residents and enable firefighting equipment and personnel to safely operate.

The City's basic firefighting regulations are the adopted *California Fire Code (CFC)*. The CFC regulations that are required for protection of life and property from wildland fires in wildland urban interface areas in the City. They address:

- Access roads (including number, length, design, grades, turnaround areas) to establish and maintain emergency vehicle access;
- Fire protection systems (hydrants, supply mains, fire sprinkler systems) to ensure available emergency water reserves;
- Roadway signage and building street address identification to ensure easy identification for quick response;
- Ignition resistant building materials and methods.
- Defensible space/clear areas to reduce combustible vegetation.

The *Urban Interface area Standard* also requires the preparation of a fire hazard reduction plan for all new developments in wildland fire hazard areas.

In addition, several existing areas of unincorporated development within the RUL must comply with State Fire Safety regulations adopted by Napa County. Although fire suppression in these unincorporated lands is chiefly the responsibility of CAL FIRE/Napa County Fire, fire suppression services are also provided by the City under a mutual aid/auto aid agreement with CAL FIRE/Napa County Fire.. Ultimately, these areas are anticipated to be annexed to the City of Napa.

Note: See also Chapter 4, *Community Services*, for policies regarding the City's fire protection and prevention services.

GOAL

HS-5 To reduce the risk to life and property from wildland fires.

POLICIES

- HS-5.1 The City shall require that development in wildland urban interface areas provides adequate access roads, onsite fire protection systems, signage, ignition resistant building materials, and defensible space.
- HS-5.2 The City shall continue to implement the California *Fire Code* as the City's basic regulations for fire prevention and suppression.
- HS-5.3 The City shall implement the requirements of Chapter 7A (Materials and Construction

Methods For Exterior Wildfire Exposure) if the California Building Code in or adjacent to Wildland/Urban Interface areas.

IMPLEMENTATION PROGRAMS

HS-5.A The City shall complete surveys to more precisely identify those properties shown as "fire hazard areas" on the Wildland-Urban Interface Fire Hazard Areas Map (Figure 8-8) in order to implement the City's regulations for development in or adjacent to wildland fire hazard areas.

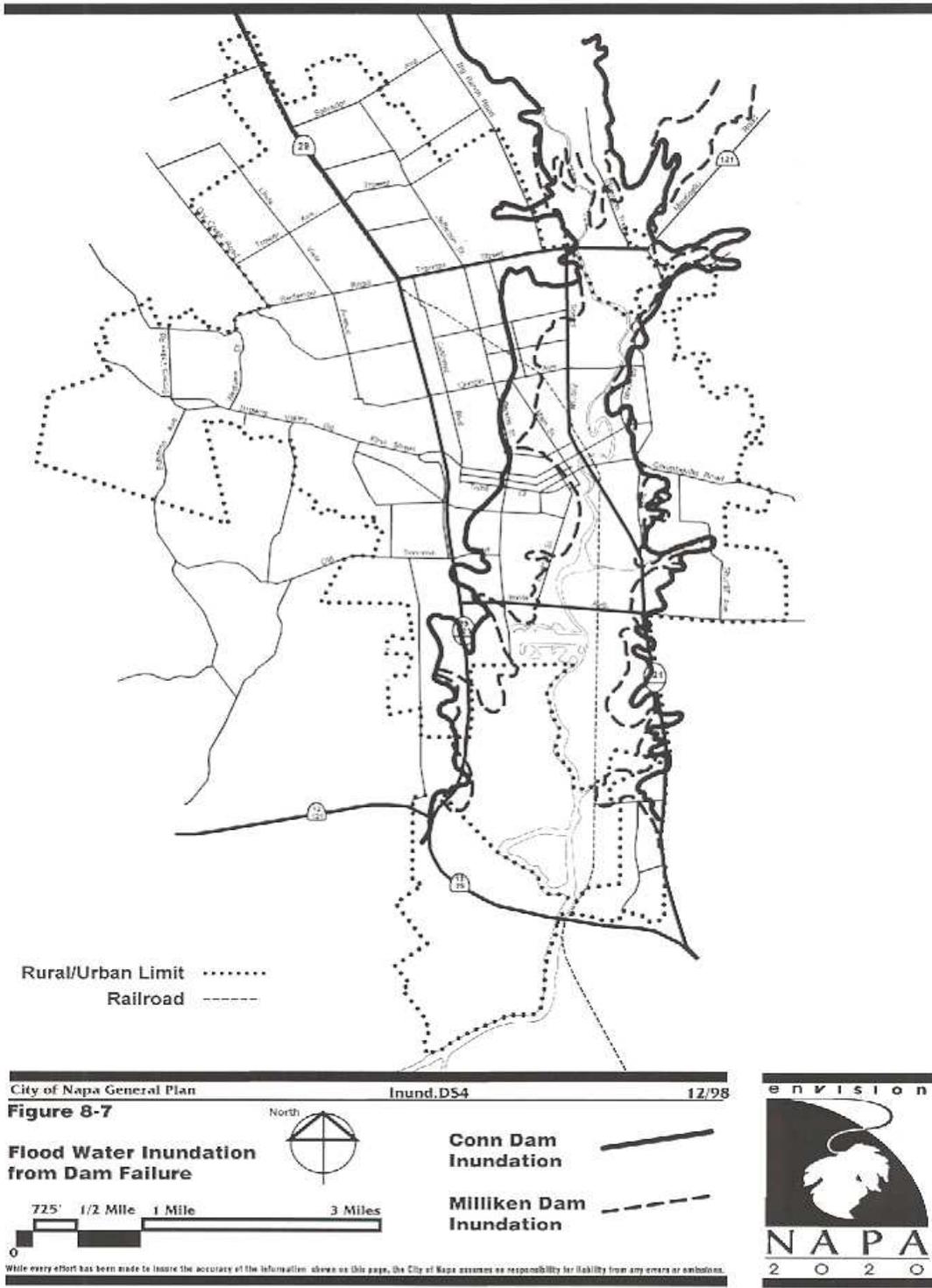
Responsibility: Fire Department;
Planning Department

Time Frame: Ongoing

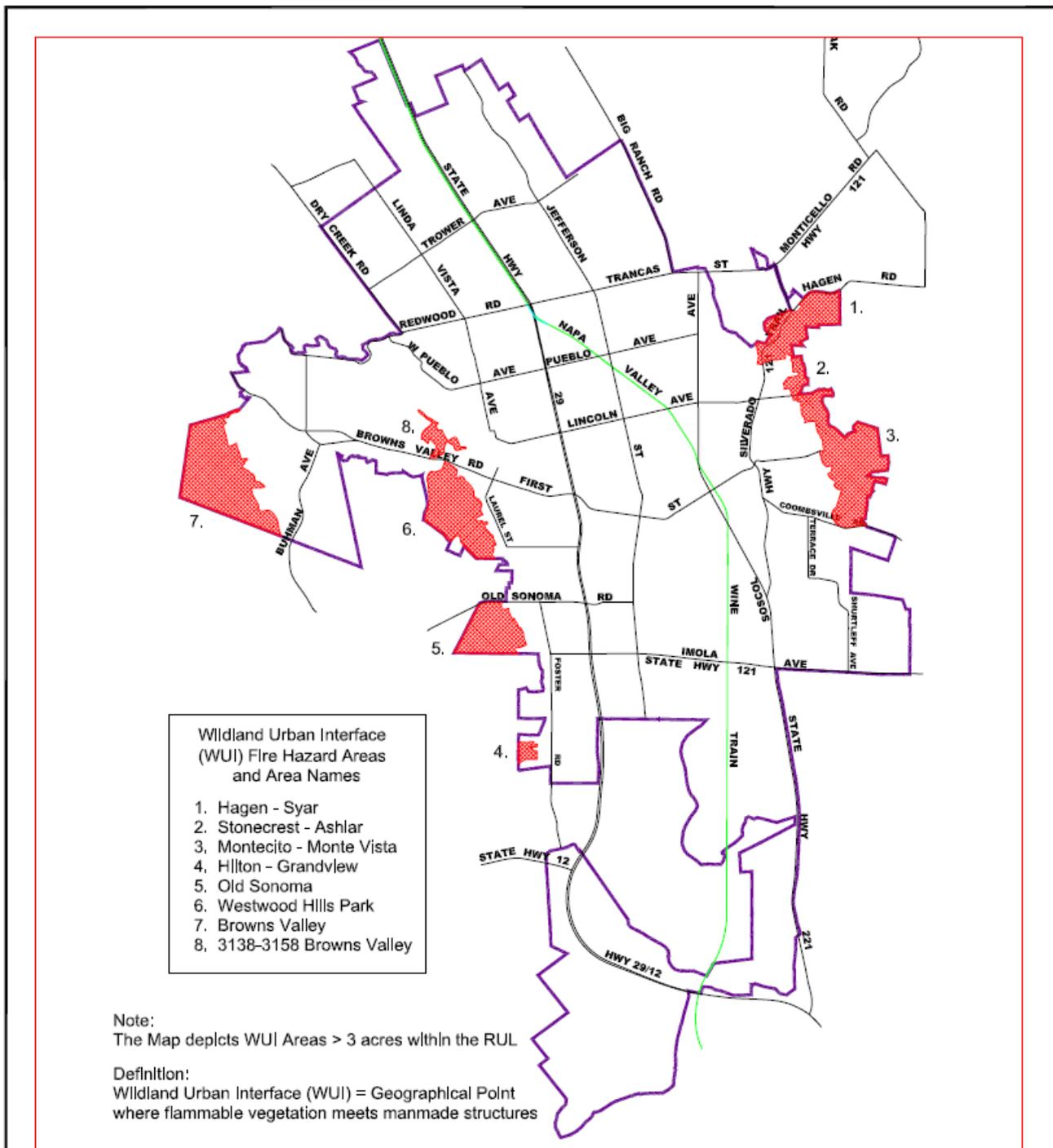
HS-5.B The City shall continue to participate in the Mutual Aid Agreement with the CAL FIRE/NAPA COUNTY FIRE, and other related agencies.

Responsibility: Fire Department

Time Frame: Ongoing



8-15



City of Napa General Plan

Updated 11/09

Figure 8-8

Wildland Urban Interface (WUI) Fire Hazard Areas



Fire Hazard Area
RUL Boundary



While every effort has been made to insure the accuracy of the information shown on this page, the City of Napa assumes no responsibility for liability from any errors or omissions

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AIRCRAFT HAZARDS

The State Aeronautics Act requires that a county that has a public-use airport (Napa County has two such airports) must establish an airport land use commission (ALUC) whose function is to:

. . . protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses.

The chief responsibility of the ALUC is to adopt an Airport Land Use Compatibility Plan that addresses the items described above. The Napa County Airport Land Use Compatibility Plan (ALUCP) was adopted in 1991 and revised in 1999. It establishes land use compatibility policies and guidelines for local jurisdictions affected by airport activities.

The Napa County Airport Land Use Commission (ALUC) has the authority to review the general plans, specific plans and implementing ordinances of each affected local jurisdiction to determine consistency with the ALUCP. If a local plan is determined to be inconsistent with the ALUCP, the affected local agency must either amend its general plan (and any applicable specific plan and implementing ordinance) or take specific steps to override the ALUC. Until either of these steps is resolved, all actions, regulations or permits within an affected area must be referred to the ALUC for a consistency determination. Once consistency with the ALUCP is achieved, only actions such as general plan or specific plan amendments must be referred to the ALUC for a consistency determination.

A local jurisdiction may overrule the ALUC's determination if it:

- Holds a public hearing to reconsider the proposed action; and
- Makes findings that the proposed action is consistent with the purpose of the Airport Land Use Commission statutes; and
- Approves the action by a two-thirds vote.

Land Use Compatibility

One of the county's two airports, the Napa County Airport lies just south of the RUL between the Napa River and Highway 29. The airport's planning boundary provides the basis for evaluating future land use compatibility on the lands surrounding the airport. The four principal land use impacts and compatibility considerations associated with the airport's activities are:

Noise - Usually perceived as the most significant adverse impact of airport activity because of its routine, everyday occurrence. Airport noise is measured using a composite noise level descriptor, the Community Noise Equivalent Level (CNEL). Because noise is considered more intrusive at night, a weighting or penalty is included in CNEL values for evening and night operations. The ALUCP concludes that existing land use designations, noise compatibility criteria and projected noise contours indicate that noise exposure levels will not present a significant problem with respect to land use compatibility in the airport's environs (Airport Impact Areas, Figure 8-9).

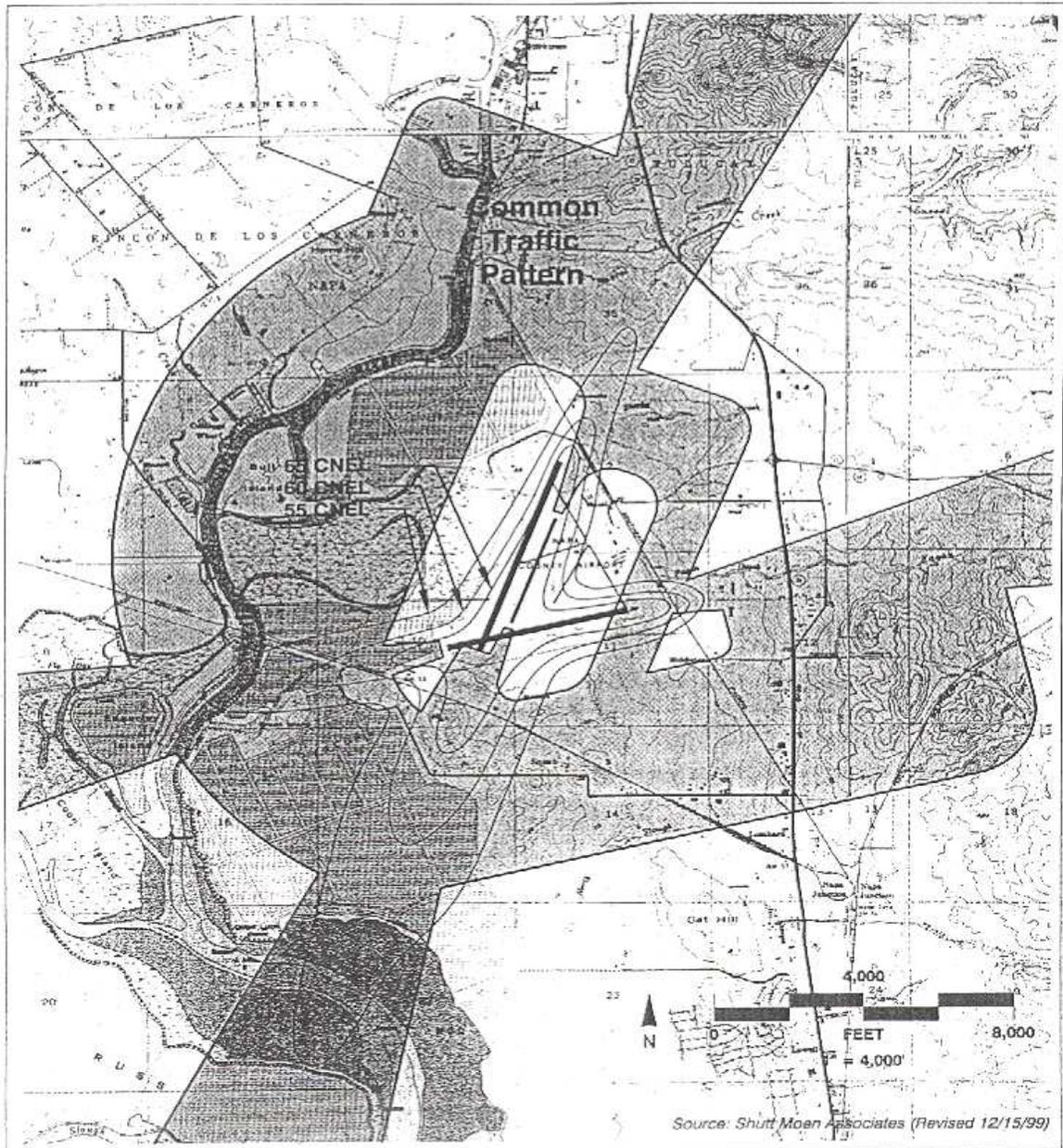
Hazards to Flight - Requiring the protection of navigable airspace by preventing physical obstructions and other land use characteristics that could affect flight safety. The ALUCP states that heights within airport approach departure A, B and C zones are the most critical areas for height limitations (Napa County Airport Land Use Compatibility Plan, Figure 8-10).

Safety on the Ground - Limiting people's exposure to risks of injury or damage to property in the event of an aircraft accident. Generally, such risks are difficult to address because of their low probabilities of occurrence. Safety is a significant consideration at the Napa Airport because of the emphasis on flight training and the use of jet aircraft which are more difficult to control in emergencies than light single-engine planes.

Overflights - Evidenced by the annoyance expressed by people who live near airports but who are outside of the typically defined noise and safety zones. This is a subjectively experienced impact.

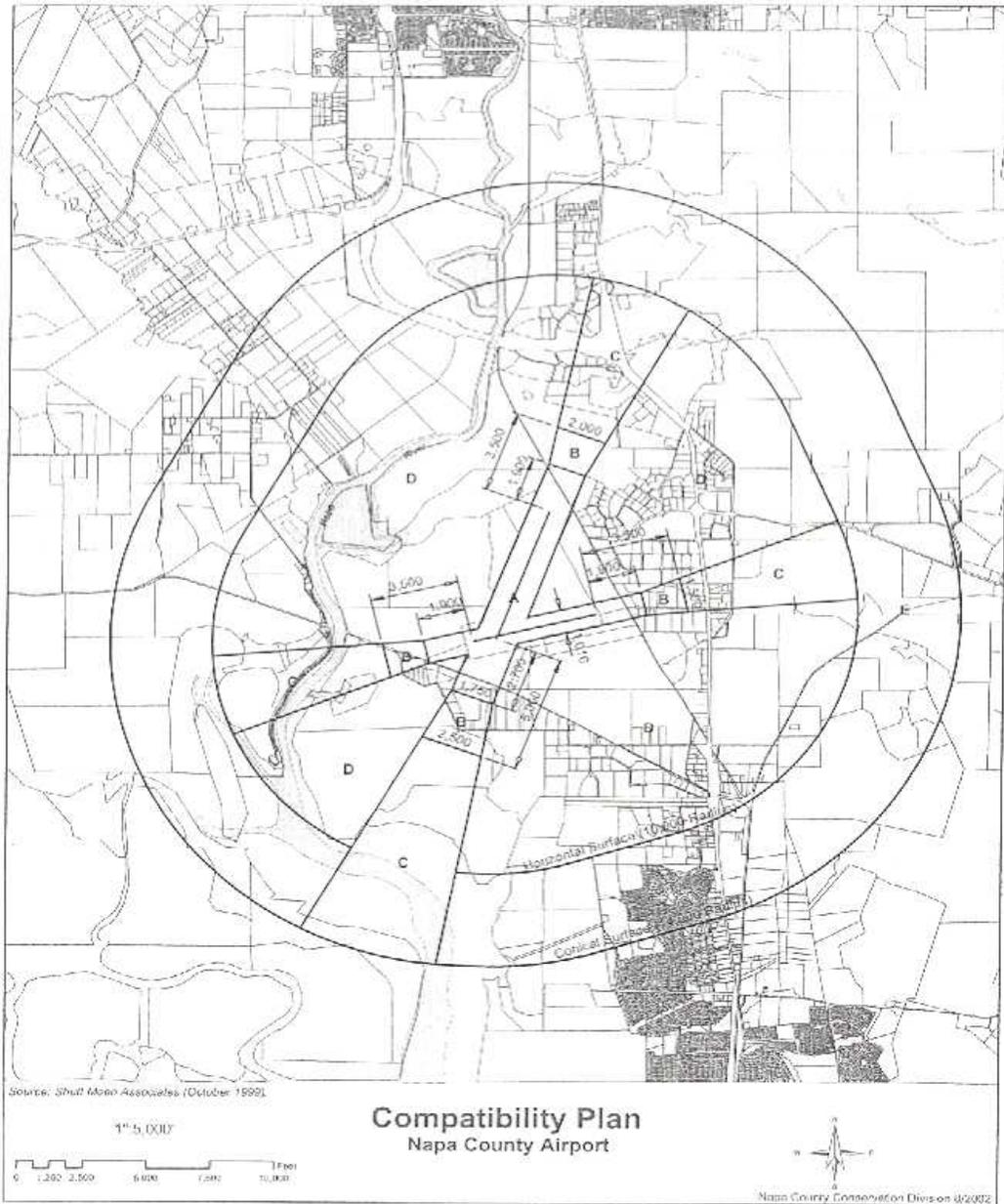
General traffic patterns at the airport are larger than usual for a general aviation facility primarily due to the airline training program (Japan Airlines) and the wide range of multi-engine and jet aircraft. Thus, surrounding land use compatibility is of particular concern.

Figure 8-9
Airport Impact Areas, Napa County Airport
(Figure 5C in Airport Land Use Compatibility Plan, Napa County Airport Land Use Commission, 1999)



Envision Napa 2020, Policy Document
Incorporates 8/12/03 Aircraft Hazards Amendments

Figure 8-10
Compatibility Plan, Napa County Airport
(Figure 3A in Airport Land Use Compatibility Plan, Napa County Airport Land Use Commission, 1999 remapped on parcel base 8/2002, Napa County)



Two general areas within the RUL (the Stanly Ranch; and the Napa Valley Corporate Park, adjacent Kaiser Road industrial area, cemetery and southernmost tip of Kennedy Park) are within the planning area boundary of the ALUCP (Figure 8-10, Napa County Airport Land Use Compatibility Plan).

The Stanly Ranch property is within Zones D and E, and the ALUCP identifies the Ranch as an area of concern based on the expectation that it could potentially develop with residential land uses. However, a 2003 General Plan Amendment redesignated the Stanly Ranch as a "Resource Area" for agricultural uses. Zone D is routinely overflown by aircraft operating to and from the airport with frequent single-event noise intrusion. Overflights in these areas can range from near the traffic pattern altitude (about 1,000 feet above the ground) to as low as 300 feet above the ground. Accident risk varies from low to moderate. Areas where aircraft are near pattern altitude (e.g., downwind leg) have the lowest risk. In areas where aircraft are at lower altitudes (especially on circle-to-land instrument approaches) a moderate level of risk exists.

The southernmost tip of Kennedy Park, the Tulocay Cemetery and Kaiser Road industrial area are within ALUCP Zone E. The northern half of the Napa Valley Corporate Park is also within Zone E. Eight parcels, and portions of four others in the southwestern portion of the Corporate Park lie within Zone D. Two parcels and portions of four others in the southeastern part of the Corporate Park lie within Zone C. Most properties along Kaiser Road and in the Corporate Park have been developed or have development approvals.

- For **Zone E**, the ALUCP states most uses are normally acceptable, however, all uses and structures must be designed to prevent hazard to flight that could occur as a result of smoke, glare, distracting lights, electronic interference or very tall structures. Additionally, overflight easement or deed notices should be required. The ALUCP states that any residential uses permitted by local General Plan and zoning designations must consider flight patterns, frequency of overflight, terrain conditions and type of aircraft in the project design to determine acceptable locations for residential uses. Overflights in these approach areas are generally above 1,000 feet with limited risk of accident potential. Overflight annoyance is the primary impact in these areas.

- For **Zone D**, the ALUCP prohibits landfills and residential uses (except residential associated with agricultural uses) It identifies other uses, termed "Not Normally Acceptable" that raise concerns related to size, density of use, mobility, noise sensitivity or propensity to attract birds--such as schools and libraries, hospitals, major medical facilities, day care centers, large shopping centers, amphitheaters and ponds. "Not Normally Acceptable" uses must meet specified criteria regarding density of use, clustering, and noise reduction to be considered for approval. . All uses and structures must be also designed to prevent hazard to flight that could occur as a result of smoke, glare, distracting lights, electronic interference or very tall structures, and overflight easements or deed notices are required.
- **Zone C** is the approach zone and is more restrictive. Certain uses including residential uses, schools and libraries, hospitals and major medical facilities and day care centers are prohibited. Other uses, termed "Not Normally Acceptable" raise concerns related to their size, density of use, user mobility, noise sensitivity or propensity to attract birds. Such uses include but are not limited to hotels and motels, health clubs, multi story buildings, theaters, and ponds, and must meet defined criteria regarding density of use, clustering/location and noise reduction to be considered for approval. In addition, all uses and structures must be designed to prevent hazard to flight that could occur as a result of smoke, glare, distracting lights, electronic interference or very tall structures. Overflight easements or deed restrictions are also required.

HS-6 To protect development from hazards and associated impacts due to aircraft and prevent incompatible land uses in the vicinity of the airport.

POLICIES

- HS-6.1 The City shall coordinate with the ALUC the review of development proposals on lands within the RUL to determine consistency with the Napa County Airport Land Use Compatibility Plan.

- HS-6.2 The City shall limit building heights for airspace protection in accordance with Federal Aviation Regulations Part 77.
- HS-6.3 The City shall restrict land uses within ALUCP Zones C, D and E (see Figure 8-10) that would create increased hazard risks (e.g., low mobility, highly sensitive to noise) in accordance with the use, density and design criteria provided in the ALUCP.
- HS-6.4 The City shall give consideration to the proximity of flight patterns, frequency of overflight, terrain conditions and type of aircraft in determining the acceptable locations for residential uses in Zone E.
- HS-6.5 The City shall require airport aircraft approach surfaces in ALUCP Zone C to be shown on all new development plans in Zone C and in Zone D within 100 feet of Zone C.
- HS-6.6 The City should cluster development, to the extent feasible, to preserve open land for safety purposes in Zones C and D of the ALUCP (see Figure 8-10).
- HS-6.7 The City shall require the dedication of overflight easements and/or deed notices when subdivisions or new construction are proposed on property within the jurisdiction of the ALUC.
- HS-6.8 The City shall refer helipad proposals anywhere within the City's Planning Area to the ALUCP for a consistency determination.

- HS-6.B The City shall amend the Zoning Ordinance to provide implementation regulations consistent with criteria in the ALUCP, and shall apply such regulations to properties within the planning area boundary of the ALUCP.

Responsibility: Planning Department
Time Frame: 2002-3

(R2003 188, 8/12/03)

IMPLEMENTATION PROGRAMS

- HS-6.A The City shall refer all General Plan, specific plan and implementing ordinance amendments for lands within the City's RUL that are also within the ACLUP's planning area to the County ALUC for a determination of consistency with the ACLUP.

Responsibility: Planning Department
Time Frame: Ongoing

HAZARDOUS MATERIALS

California's economic well-being and quality of life depend in many ways on the production and use of manufactured goods. However, manufacturing and processing goods often require large volumes of chemicals and generate hazardous waste. Hazardous wastes range from family substances such as solvents and waste oil to sophisticated compounds such as polychlorinated biphenyls and dioxins. More than ten million tons of hazardous waste are generated in California each year.

The City of Napa Fire is part of the Napa Interagency Hazard Incident Team. The purpose of the team is to mitigate the release of hazardous materials beyond that of Fire Department First Responders. The Fire Department is responsible for enforcing the City's Hazardous Materials Storage requirements, conducting inspections of facilities containing toxic and/or hazardous materials and educating local businesses on proper storage and handling of hazardous materials. The response team responds to uncontrolled releases, identifies the category of chemicals involved, contains the spill if possible, oversees cleanup activities and makes sure that the site is safe to be occupied again.

The City adopted a *Source Reduction and Recycling Element (SRRE)* in 1991 pursuant to the requirements of the California Integrated Waste Management Act. The SRRE includes a separate *Household Hazardous Waste Element (HHWE)* which establishes short- and medium-term goals to reduce the amount of household hazardous wastes stored within the home for future disposal.

Napa County adopted a Countywide *Integrated Solid Waste Management Plan Summary Plan (July, 1997)* that incorporates the City's 1994 SRRE and HHWE. Also, the county was approved as the Certified Unified Program Agency (CUPA) for all of the County's jurisdictions in January, 1997. In 2009 the California Integrated Waste Management Board approved the Solid Waste Local Task Force's second 5 year Review Report, which is essentially a review of the County's Integrated Waste Management Plan and a statement that the plan is still an appropriate planning tool to achieve waste diversion goals.

Currently, the County Department of Environmental Management (DEM) coordinates with the County Agricultural Commissioner Office (ACO) to implement the following hazardous materials programs:

- Hazardous Waste Generator Program (HWG).
- Above Ground Tank Spill Prevention Control and Countermeasure Program (SPCC).

- Hazardous Materials Business Plans (HMBP).
- Risk Management and Prevention Plan (RMPP).
- Underground Storage Tank Program (UST).

Household hazardous wastes (HHW) include flammables, pesticides, corrosives, oxidizers, and miscellaneous items such as car batteries. The City's goal is to divert from landfills and/or properly dispose of 100 percent of HHW

In 2009, a permanent Household Hazardous Waste Collection Facility is available through the Napa-Vallejo Waste Management Authority in South Napa County adjacent to the Devlin Road Transfer Station. This facility is open to the general public and small quantity business generators 2 days a week (every Friday and Saturday from 9 am to 4 pm) and has largely replaced periodic collection events.

Since October 2005, a curbside used motor oil and oil filter program is available to City single family residents through the City's solid waste collection service provider. Similar programs are available in other south County areas. In addition to the curbside recycling programs, more than a dozen used motor oil collection drop-off and recycling locations are available to the general public in the City and County.

Free and unlimited collection and recycling of electronic waste ("e-waste") is available every day at the City's Materials Diversion Facility on Levitin Way in south Napa County. In addition, the City and County work with Napa Valley College and our contracted service providers to offer an annual 2-day event each June to collect and recycle "anything with a cord."

Finally, an aggressive public education campaign is ongoing by the City and County to educate the public on ways to 1) reduce overall HHW generation and 2) identify proper local disposal/recycling options for HHW through garbage bill inserts, recycling guides in phone books and online, phone contact numbers, and ongoing in person at special events.

GOAL To reduce the risks to health and safety from hazardous wastes.

HS-7

POLICIES

HS-7.1 The City shall continue to monitor, modify if

necessary, and implement goals of the *Household Hazardous Wastes Element*.

- HS-7.2 The City shall support the Countywide *Integrated Solid Waste Management Plan*.
- HS-7.3 The City shall support the County's role as the Certified Unified Program Agency for all County jurisdictions.
- HS-7.4 The City shall seek to further develop and support policies such as green chemistry and Extended Producer Responsibility (EPR) that will reduce the overall generation of hazardous wastes and/or provide more sustainable funding and collection opportunities for the local residents and businesses.

See also the next section on Emergency Response concerning issues related to hazardous materials incidents response.

EMERGENCY PREPAREDNESS AND RESPONSE

An emergency is an incident threatening life, property, or the environment, particularly one which occurs suddenly or unexpectedly. The purpose of emergency preparedness is to minimize threats to public safety and to insure rapid recovery from disaster damage by preparing the City to respond adequately. Prevention is the most economic, cost-effective, and least stressful way to save lives and preserve property and the environment.

Emergencies that affect a wide geographic area, several different public agencies, or a large number of people present the most complicated response problems. The more demand emergencies place on vital facilities (hospitals, police and fire departments, emergency response centers, and communications centers), the more difficult a coordinated and orderly response becomes. Assurance of a rational response requires thorough preparation so that all people understand what to expect in emergency situations. Identification, planning, coordination, and preventive actions are key components of emergency preparedness.

Disaster Response

The City's current disaster plan, based on the Incident Command System (ICS) has been used in the past to guide public safety and other personnel in responding to emergency events - The ICS system of disaster response is effective for on-scene management of an emergency but does not provide a means for effective coordination

with multiple agencies in the event of a disaster. The Governor's Office of Emergency Services has initiated a Standardized Emergency Management System/Natural Incident Management System (SEMS/NIMS) to improve the coordination of State and local emergency response in California. The SEMS/NIMS regulations (*Government Code Section 8607*) took effect in September of 1994 and require that local jurisdictions include SEMS/NIMS procedures and training in their emergency plans in order to more effectively apply resources to local and area wide disasters. The City's disaster plan must be updated to incorporate SEMS/NIMS in order to qualify for state and federal disaster monies.

GOAL A community that is informed and educated about natural hazards and safety procedures, and which participates in County emergency response efforts.
HS-8

POLICIES

- HS-8.1 The City shall promote public awareness and understanding of natural hazards.
- HS-8.2 The City shall support the addition of a mandatory hazards education program to the state-required SEMS curricula.
- HS-8.3 The City shall continue to support the education and awareness programs developed and distributed by public service organizations such as the Red Cross.
- HS-8.4 The City shall require all sensitive facilities (facilities housing large numbers of people who have restricted mobility, i.e., hospitals, nursing homes, day care facilities, assisted care facilities, jails, etc.) to maintain and regularly update emergency response plans identifying safety procedures and evacuation routes.
- HS-8.5 The City shall identify evacuation routes and procedures for all sensitive facilities and implement programs to practice evacuation and safety maneuvers.
- HS-8.6 The City shall review and revise its evacuation routes periodically and make provisions for early removal of debris deposited by flood and inundation events in prioritized areas near critical and essential facilities.
- HS-8.7 The City shall coordinate with County

efforts to ensure efficient and integrated emergency response efforts.

- HS-8.8 The City shall investigate alternative communications networks to avoid reliance on the commercial telephone system. In particular, the Fire and Police Departments shall develop a plan in conjunction with the County for the use of existing and planned radio systems to coordinate mutual aid.
- HS-8.9 The City shall work with the telephone company to enable the City to declare a Telephone Communication Alert to prevent overload of the telephone system in the event of an emergency.
- HS-8.10 The City shall review City resources and efforts to maintain a state of readiness in the event of an emergency.
- HS-8.11 The City shall maintain lists of City staff and volunteers who are fluent in non-English languages to assist with public information services during emergency events.
- HS-8.12 The City shall coordinate the revision of the City of Napa *Emergency Management Plan* to address local needs and to satisfy all state and federal emergency management system requirements.
- HS-8.13 The City shall enlist the support of all City departments as well as the CAL EMA, CAL FIRE and the Federal Emergency Management Agency (FEMA) for assistance in the preparation of a plan consistent with Standardized Emergency Management/National Incident Management System (SEMS/NIMS) procedures.
- HS-8.14 The City shall coordinate regular citywide training exercises that rehearse the procedures established by the *Emergency Operations Plan* in order to maintain optimum readiness for disasters.
- HS-8.15 The City shall maintain and equip an Emergency Operation Center (EOC) for immediate availability in the event of a disaster
- HS-8.16 The City shall develop mechanisms in advance of a major emergency to cope with the subsequent rebuilding and recovery

phases.

- HS-8.17 The City shall identify its communication, coordination, rebuilding, and recovery role vis-a-vis the County Disaster Services, the Federal Emergency Management Agency, and the State and County Offices of Emergency Services.
- HS-8.18 The City shall prepare ordinances and regulations to expedite post-disaster restoration and rebuilding, including, but not limited to, interim zoning ordinances adopted pursuant to of *Government Code* Section 65858. Such ordinances and regulations could be activated in the post-disaster phase.
- HS-8.19 The City shall notify the public during a disaster that public parks and trails that may be affected by the disaster are closed to the public until further notice.

IMPLEMENTATION PROGRAMS

- HS-8.A The City shall establish a Rebuilding and Recovery Organization composed of members of various City departments to develop contingency plans and programs for post-disaster rebuilding and recovery and expedite rebuilding and recovery activities.

 Responsibility: Fire Department
 Public Works Department
 Finance Department

 Time Frame: FY 05-07
- HS-8.B The City shall revise the City of Napa *Emergency Operations Plan* to satisfy all State and Federal emergency management system requirements.

 Responsibility: Fire Department

 Time Frame: Ongoing
- HS-8.C The City shall coordinate and conduct City wide training exercises that rehearse procedures established by the *Disaster Management Plan*.

 Responsibility: Fire Department
 All other departments

 Time Frame: Ongoing

NOISE

Noise is basically unwanted sound; thus, a person's reaction to noise is subjective. Generally, people find that the most annoying sounds are those that are loud, high-pitched or irregular. Generally, there is less objection to the constant low-level background noise typical in a residential neighborhood.

When noise becomes objectionable it can interfere with safety and communication, cause undue stress, affect the economic value of property and generally reduce the quality of life. Although noise can be considered a health problem, it should be viewed not so much in terms of actual physiological damage (e.g., hearing impairment), but rather in terms of reducing one's feeling of well-being and contributing to stress. The chief causes of noise-related health problems and stress are interference with activities such as sleep, speech, recreation and tasks requiring concentration or coordination.

Stationary noise sources (air conditioners, pool filters, compressors and industrial machinery) can be noisy distractions to people living near them. Although intermittent, such noises may occur at any time of the day or night. Regulatory noise thresholds can prevent these situations by establishing measurable development criteria to guide the site planning process and in choosing building materials. For example, fixed equipment located on any residential property can be limited to a maximum loudness of 60 db. Enforcement of such thresholds is integral to the environmental review process (CEQA) and the City's own development review and/or building permit processes.

The prevailing environmental noise in Napa is generated by motor vehicles. Autos, trucks, busses and motorcycles most likely will continue to be the major sources of noise through the year 2020. The level of noise generated by motor vehicles can be estimated only because of technological changes being driven by federal and state policies related to energy conservation and improved air quality. The noise environment is likely to be an incidental beneficiary of such changes.

Vehicle noise depends on two factors: 1) the type of vehicle being operated (such as a motorcycle); and 2) the number of vehicles being operated (high traffic levels on highways). Motor vehicle noise standards that address these factors are established by State and federal legislation and cannot be made more restrictive by local jurisdictions.

The most significant noise sources in Napa are highways (29, 121 and 221) and arterial streets (Jefferson and Trancas Streets, Soscol and Lincoln Avenues, Redwood Road, and the traffic corridor between First and Fourth Streets from Highway 29 to the downtown area.

For residential areas in the city, the upper limit of "normally acceptable" on-site exterior noise should be 60 db. Federal requirements limit residential interior levels to 45 db in sleeping areas and 50 db in non-sleeping areas. A normally acceptable noise level does not require any special noise insulation requirements and conventional construction methods can be used.

A noise level above 70 db is considered to be "normally unacceptable" (new development is discouraged and requires a detailed analysis of noise reduction requirements and provision of noise insulation design features). Between 60 db and 70 db, conventional construction can be used, but with closed windows and fresh air supply systems or air conditioning.

The reader should refer to the prior Aircraft Hazards section of the Health and Safety Element for a discussion of noise related to the Napa Airport and related land use compatibility criteria.

GOAL To protect Napa's residents, workers and visitors from the deleterious effects of noise.
HS-9

POLICIES

- HS-9.1 The City shall require new development to meet the exterior noise level standards set out in Table 8-1. For residential areas, these exterior noise guidelines apply to backyards; exceptions may be allowed for front yards where overriding design concerns are identified.
- HS-9.2 The City shall use CEQA and the development review processes to ensure that new development does not exceed City standards.
- HS-9.3 The City shall use traffic management techniques to reduce the level of noise in residential neighborhoods to "normally acceptable," as shown in Table 8-1.
- HS-9.4 The City shall support state and federal legislation regulating noise produced by

motor vehicles.

- HS-9.5 The City shall continue to enforce state muffler and exhaust laws.
- HS-9.6 The City shall use the development and building permit review processes to site new construction in ways that reduce noise levels.
- HS-9.7 The City shall encourage the clustering, where appropriate, of residential development in order to provide open space that can be used to distance residences from noise sources.
- HS-9.8 The City shall respond to noise complaints by suggesting noise mitigation measures, and using code enforcement procedures when necessary.
- HS-9.9 When feasible and appropriate, the City shall limit construction activities to that portion of the day when the number of persons occupying a potential noise impact area is lowest.
- HS-9.10 The City shall encourage new development to maintain the ambient sound environment as much as possible. The City shall require new transportation-related noise sources that cause the ambient sound levels to exceed the compatibility standards in Table 8-1 to incorporate conditions or design modifications to reduce the potential increase in the noise environment.
- HS-9.11 The City shall regulate construction in a manner that allows for efficient construction mobilization and activities, while also protecting noise sensitive land uses.
- HS-9.12 The City shall evaluate and modify as necessary the City's designated truck routes to minimize noise impacts for sensitive land uses.
- HS-9.13 The City shall require new residential projects to provide for an interior CNEL of 45 db or less due to exterior noise sources. To accomplish this, the City shall review all residential and other noise sensitive land uses within the 60 dB contours defined in the Table 8-2 and Figure 8-11 to ensure that adequate noise attenuation has been incorporated into the design of the project,

or that other measures are implemented to protect future sensitive receptors.

- HS-9.14 The City shall encourage new development to identify alternatives to the use of sound walls to attenuate noise impacts. Appropriate techniques include site planning such as incorporating setbacks, revisions to the architectural layout such as changing building orientation to provide noise attenuation for portions of outdoor yards, and construction modifications. In the event that sound walls are the only practicable alternative, such walls should be designed to be as visually pleasing as possible, incorporating landscaping, variations in color and patterns, and/or changes in texture or building materials.

IMPLEMENTATION PROGRAMS

- HS-9.A The City shall require an acoustical analysis prior to approval of proposed development of new residential or other noise-sensitive land uses in a noise impacted area (greater than 60 dB CNEL), or a new use that could generate noise levels in excess of the normally acceptable range for adjacent noise-sensitive land uses. The acoustical analysis should be performed during the environmental review process so that noise mitigation may be an integral part of the project design. The acoustical analysis shall:
 - a. Be the responsibility of the applicant.
 - b. Be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics.
 - c. Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.
 - d. Include estimated noise levels in terms of Ldn for existing and projected future (20 years hence) conditions, with a comparison made to the adopted policies of the Safety Element.
 - e. Include recommendations for appropriate mitigation to achieve compliance with the adopted policies

and standards of the Safety Element. Where the noise source in question consists of intermittent single events, the report must address the effects of maximum noise levels in sleeping rooms in terms of possible sleep disturbance.

- f. Include estimates of noise exposure after the prescribed mitigation measures have been implemented. If compliance with the adopted standards and policies of the Noise section of this chapter will not be achieved, acoustical information to support a statement of overriding considerations for the project must be provided.

Responsibility: Planning Department
Time Frame: Ongoing

HS-9.B

The City shall continue to enforce Title 24 of the *California Administrative Code* noise insulation requirements for new or significantly remodeled structures.

Responsibility: Public Works Department
(Building Division)
Time Frame: Ongoing

Table 8-1

LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS

LAND USE CATEGORY	COMMUNITY NOISE EXPOSURE Ldn or CNEL, db						INTERPRETATION
	55	60	65	70	75	80	
RESIDENTIAL - LOW DENSITY SINGLE FAMILY, DUPLEX, MOBILE HOMES							<p> NORMALLY ACCEPTABLE Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.</p> <p> 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 features included in the design.</p> <p> 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.</p> <p> CLEARLY UNACCEPTABLE New construction or development should generally not be undertaken.</p>
RESIDENTIAL - MULT. FAMILY							
TRANSIENT LODGING MOTELS AND HOTELS							
SCHOOLS, LIBRARIES, CHURCHES, HOSPITALS AND NURSING HOMES							
AUDITORIUMS, CONCERT HALLS, AMPHITHEATRES							
SPORTS ARENA, OUTDOOR SPECTATOR SPORTS							
PLAYGROUNDS AND NEIGHBORHOOD PARKS							
GOLF COURSES, RIDING STABLES, WATER RECREATION AND CEMETERIES							
OFFICE BUILDINGS, BUSINESS COMMERCIAL AND PROFESSIONAL							
INDUSTRIAL, MANUFACTURING UTILITIES AND AGRICULTURE							

Table 8 - 2
City of Napa Projected 2020 Roadway Noise Contours

Roadway Segment	ADT	Average Vehicle Speed	SPL at 50 feet	Perpendicular Distance from Roadway Centerline to Contour in feet (hard/soft) ^(*)			
				75 CNEL	70 CNEL	65 CNEL	60 CNEL
State of California Highways/Freeways							
SR 29							
Southern city limits to Trower	46500	60	79.6	144/101	456/218	1442/470	4560/1013
Trancas to Trower	49200	60	79.9	154/106	488/228	1545/492	4886/1060
Trower - northern city limits	38000	55	77.7	93/75	294/163	931/351	2944/756
SR 12 w/o SR 29	24000	55	75.4	54/53	173/114	548/246	1733/531
SR 121							
Silverado Trail s/o First Street	12800	35	67.9	-	-	97/78	308/168
Silverado Trail - First to Lincoln	16700	35	69.2	-	-	131/95	415/205
Silverado Trail n/o Lincoln	14200	35	68.4	-	-	109/84	345/181
SR 221 s/o Imola	35900	50	76.4	69/61	218/133	690/287	2182/619
Major Arterials							
Jefferson Street - Fifth to Trower Ave.	17100	35	69.3	-	-	134/96	425/208
Soscol Ave. - Silverado Trail to Trancas St.	32000	35	72.5	-	88/73	281/158	889/340
Redwood Road - Dry Creek Rd. to SR 29	10800	35	67.1	-	-	81/69	256/148
Trancas St. - SR 29 to eastern city limits	27800	35	71.8	-	75/65	239/142	756/305
Lincoln Ave. - SR 29 to Silverado Trail	7500	35	65.3	-	-	53/52	169/112
First Street - Browns Valley Rd. to California Blvd.	21000	35	70.3	-	53/52	169/112	535/243
Imola Ave. - SR 29 to Soscol Ave.	26500	35	71.5	-	70/62	223/135	706/292
Minor Arterials							
Dry Creek Rd. - Redwood Rd. to Trower Ave.	5500	30	63.3	-	-	-	106/82
Jefferson St. - Trower Ave. to Salvador Ave.	4700	30	62.6	-	-	-	90/74
Jefferson St. - Fifth St. to southern terminus	19100	30	69.2	-	-	131/95	415/205
Big Ranch Road - Trancas St. to northern city limits	6800	30	64.2	-	-	-	131/95
Browns Valley Rd. - Redwood Rd. to First St.	10200	30	66.1	-	-	64/59	203/127
Main Street - Fifth Street to Pearl St.	6700	30	64.2	-	-	-	131/95
Salvador Ave. - Linda Vista Ave. to Big Ranch Rd.	2800	30	60.3	-	-	-	53/52
Trower Ave. - Dry Creek Rd. to Sierra Ave.	6900	30	64.3	-	-	-	134/96
Redwood Rd. - western city limits to Dry Creek Rd.	6100	30	63.8	-	-	-	119/89
First Street - Silverado Trail to California Blvd.	14800	30	68.0	-	-	99/79	315/170
Second St. - California Blvd. to Main St.	11000	30	66.5	-	-	70/62	223/135
Third St. - Silverado Trail to California Blvd.	12500	30	67.1	-	-	81/69	256/148
Coombsville Rd. - Silverado Trail to eastern city limits	7100	30	64.4	-	-	-	137/98
Fourth St. - Third Street to Coombs St.	1200	30	57.0	-	-	-	-

Table 8 – 2 (cont.)
City of Napa Projected 2020 Roadway Noise Contours

Roadway Segment	ADT	Average Vehicle Speed	SPL at 50 feet	Perpendicular Distance from Roadway Centerline to Contour in feet (hard/soft) ^(*)			
				75 CNEL	70 CNEL	65 CNEL	60 CNEL
Minor Arterials (continued)							
Old Sonoma Rd. - western city limits to Jefferson St.	5700	30	63.4	-	-	-	109/84
Imola Ave. - Foster Rd. to SR 29	11800	30	66.8	-	-	75/65	239/142
Imola Ave. - SR 221 to eastern city limits	6500	30	64.0	-	-	-	125/92
Collectors							
Austin Way / Pinewood Drive	900	25	54.6	-	-	-	-
Beard Rd.	*	*					
Brown St. - Vallejo St. to Coombs St.	*	*					
Browns Valley Rd. - Buhman Ave. to Redwood Rd.	2600	25	58.7	-	-	-	-
Buhman Ave.	5200	25	61.7	-	-	-	73/64
Byway East	300	25	51.4	-	-	-	-
California Blvd. / Ornduff St.	6800	25	62.9	-	-	-	97/78
Calistoga St.	5600	25	62.0	-	-	-	79/67
Clark St.	2400	25	58.3	-	-	-	-
Coombs St. - Brown St. to Imola Ave.	9300	25	64.4	-	-	-	137/98
East Ave.	2100	25	57.8	-	-	-	-
Dry Creek Rd. - RUL Line to Trower Ave.	1800	25	57.2	-	-	-	-
El Centro Ave.	1700	25	57.0	-	-	-	-
Fifth St. - Coombs St. to Main St.	*	*					
Foothill Blvd.	1100	25	55.3	-	-	-	-
Foster Rd.	2200	25	58.0	-	-	-	-
Franklin St.	*	*					
Golden Gate Dr.	300	25	51.4	-	-	-	-
Kansas Ave.	5400	25	61.8	-	-	-	75/65
Laurel St.	1500	25	56.5	-	-	-	-
Linda Vista Ave.	2700	25	58.8	-	-	-	-
Main St. - Pueblo Ave. to Pearl St.	4600	25	61.1	-	-	-	64/59
Montecito Blvd.	*	*					
Orchard Ave.	2300	25	58.2	-	-	-	-
Partrick Rd.	*	*					
Pearl St.	5600	25	62.0	-	-	-	79/67
Pueblo Ave.	7500	25	63.4	-	-	-	109/84
Randolph St. - Pearl St. to Fourth St.	*	*					
Robinson Ln.	5000	25	61.5	-	-	-	70/62
Seminary St. - Calistoga St. to Third St.	*	*					
Sierra Ave.	3800	25	60.3	-	-	-	53/52
Shetler Ave.	*	*					
Shurtleff Ave.	1600	25	56.7	-	-	-	-
Solano Ave.	3700	25	60.2	-	-	-	52/51
Sousa Ln.	1700	25	57.0	-	-	-	-
Spruce St.	*	*					
Stanley Ln.	*	*					

Table 8 – 2 (cont.)
City of Napa Projected 2020 Roadway Noise Contours

Roadway Segment	ADT	Average Vehicle Speed	SPL at 50 feet	Perpendicular Distance from Roadway Centerline to Contour in feet (hard/soft) ^(†)			
				75 CNEL	70 CNEL	65 CNEL	60 CNEL
Collectors (continued)							
Terrace Dr.	400	25	52.1	-	-	-	-
Terra Verde Dr.	*	*					
Thompson Ave.	1700	25	57.0	-	-	-	-
Vallejo St.	*	*					
Walnut St.	*	*					
West Pueblo Ave.	4000	25	60.5	-	-	-	56/53
West Salvador Dr. (now Wine Country Dr.)	2200	25	58.0	-	-	-	-
Westview Dr.	3200	25	59.6	-	-	-	-
Yajome St.	*	*					

All Sound Pressure Levels (SPL's) given in A-weighted decibels or dBA. Contour lines given to nearest foot.
 Calculated using an assumed vehicle mix of 96% Cars, 2% Med. Trucks, 2% Heavy Trucks. Free flow vehicle speeds utilized.

(†): Assumed to be line-of-sight distance. Upper values indicate hard-site propagation distance, lower values indicate soft-site propagation distance.

(*): Traffic data not available.

(-): Noise contour is coincident with traffic right-of-way taken as 50 feet from centerline.

Traffic Data Source: Dowling Associates, Inc., 1996.

