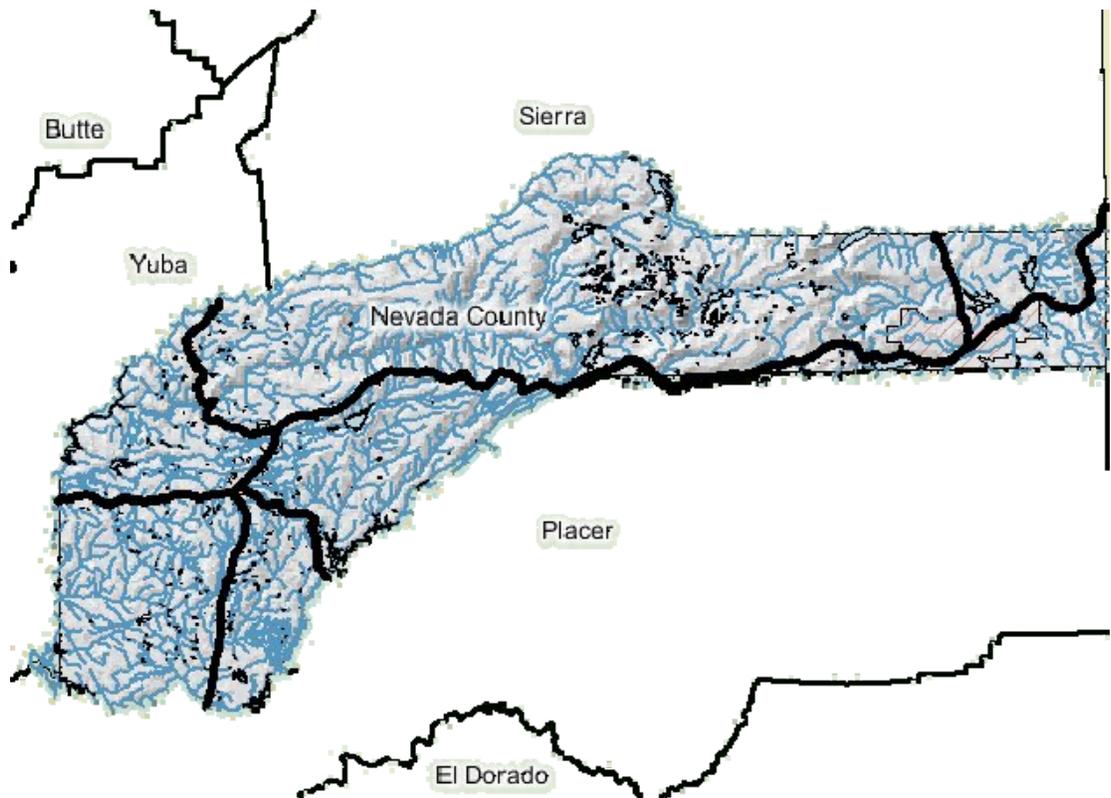


June 2006

# DMA 2000 Multi-Jurisdiction, Multi-Hazard Mitigation Plan For Nevada County



This plan incorporates the jurisdictions of Grass Valley, Nevada City, Truckee, California Department of Forestry, US Forest Service, and various special districts.

Prepared by Dennis Cassella for the  
Nevada County Office of Emergency Services

# **NEVADA COUNTY, CALIFORNIA**

## **MULTI-JURISDICTION, MULTI- HAZARD MITIGATION PLAN (Disaster Mitigation Act 2000)**

June 30, 2006

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# NEVADA COUNTY

## Multi-Jurisdiction, Multi-Hazard Mitigation Plan

### EXECUTIVE SUMMARY

The Nevada County Operational Area Emergency Services Council has prepared this Multi-Jurisdiction, Multi-Hazard Mitigation Plan on behalf of the County, its incorporated cities and towns and participating districts.

The purpose of hazard mitigation and this plan is to reduce or eliminate long-term risk to people and property from natural and human caused hazards and their effects. Our plan has been prepared to meet the requirements of the Disaster Mitigation Act of 2000 and to maintain the eligibility of Nevada County for FEMA Pre-Disaster Mitigation (PDM) and Hazard Mitigation Grant Programs (HMGP).

The plan preparation process followed a methodology recommended by FEMA. It began with the designation of a Hazard Mitigation Planning Committee, the Nevada County Operational Area Emergency Services Council, which is composed of key county and community stakeholder representatives. The planning process examined the recorded history of losses resulting from natural and selected human-caused hazards and analyzed the future risks to the county by these hazards. The planning effort undertaken for the Nevada County Fire Plan was an integral part of this hazard assessment and mitigation plan. The greatest risks and vulnerability to Nevada County are associated with wildland fire and flood. Of significant risk to the county from human-caused sources are hazardous materials incidents.

The Emergency Services Council adopted several mitigation goals and objectives that are based on the results of the risk assessment. The plan also contains specific recommendations, action items and projects that can mitigate future disaster losses.

The plan is based on a hazard identification and analysis coupled with a risk assessment of all the potential natural hazards and some selected human-caused hazards. This is not a static effort. Risks change over time. Some risks can be significantly impacted by mitigation

strategies; other new risks that have not been fully appreciated may arise. It is possible for some risks to become greater as a result of heightened human/environmental tension. The point being that this is a continuing, formal process that will have to be periodically re-visited in the future. Our chapter on plan maintenance describes a process for this effort.

Finally, a significant premise of the plan is that effective hazard mitigation is a cooperative process between the various stakeholders in Nevada County. Risks and vulnerabilities do not respect jurisdictional lines. Neither do the effective projects and actions that will be needed for mitigation. All jurisdictions will have to use existing partnerships and find new, deliberate methods of working together to ensure that the efforts of each compliment forward movement on our hazard mitigation. This is not a pie in the sky pronouncement. It means that leadership roles may have to be shared in new innovative ways to get the job done.

Nevada County jurisdictions seeking state and federal certification for eligible multi-hazard mitigations plans through this Multi-jurisdiction, Multi-Hazard Mitigation Plan pursuant to the Disaster Mitigation Act of 2000 are as follows:

- County of Nevada
- City of Nevada City
- City of Grass Valley
- Donner Summit Public Utility District/Fire Protection District
- Town of Truckee
- Nevada Irrigation District
- Nevada Cemetery District
- Truckee Cemetery District
- Tahoe National Forest
- CA. Department of Forestry and Fire Protection
- Sierra Nevada Memorial Hospital
- Nevada County Resource Conservation District (USDA)
- Sierra Community College District
- Tahoe Forest Hospital
- Truckee Donner Public Utility District
- Tahoe-Truckee Unified School District
- Truckee Sanitary District
- Truckee Recreation and Park District
- Nevada County Fire Safe Council
- Nevada County Consolidated Fire District
- Truckee Fire Protection District
- Penn Valley Fire Protection District

Higgins Fire Protection District  
Peardale-Chicago Park Fire Protection District  
North San Juan Fire Protection District  
Rough and Ready Fire Protection District  
Ophir Hill Fire Protection District  
Washington County Water District/Washington Volunteer Fire Department  
Western Gateway Recreation and Park District  
Bear River Recreation and Park District  
U. S. Bureau of Land Management

# **NEVADA COUNTY**

## **MULTI-JURISDICTION, MULTI-HAZARD MITIGATION PLAN**

### **1.0 INTRODUCTION**

The Disaster Mitigation Act of 2000 (DMA 2000), PL-106-390 requires that each State develop a hazard mitigation plan, in order to receive future disaster mitigation funding following a disaster. California completed its “State of California Multi-Jurisdiction, Multi-Hazard Mitigation Plan” in September 2004 (CA-MHMP-2004). The requirements also call for the development of local or county plans for that particular county to be eligible for post-disaster mitigation funding. The purpose of these requirements is to encourage State and local government to engage in systematic and nationally uniform planning efforts that will result in locally tailored programs and projects that help minimize loss of life, destruction of property, damage to the environment and the total cost of disasters before they occur. Nevada County specifically includes and adopts the State of California Multi-Jurisdiction, Multi-Hazard Mitigation Plan, September 2004 (CA-MHMP-2004) where it relates to issues pertaining to Nevada County.

In the interest of not duplicating State efforts, Nevada County in its plan will refer to the State Plan by section and page where the State has identified an issue or provided information that supports Nevada County’s plan. When Nevada County places its approved Multi-Jurisdiction, Multi-Hazard Mitigation Plan on the County website, it will include the September 2004 California State Multi-Jurisdiction, Multi-Hazard Mitigation Plan as an electronic file.

The Code of Federal Regulations (CFR) Section 201.6(c)(3) outlines the process for localities in developing their mitigation strategies. Specifically, the Local Hazard Mitigation Plan must “include a mitigation strategy that provides the jurisdiction’s blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.” These strategies should be built on an assessment of hazard risks and vulnerabilities.

The plans should include measures to mitigate hazard risks and demonstrate the benefits of these activities. They should also identify gaps in knowledge and data and a strategy to maintain and update the data, projects and information and the overall mitigation plan.

The principal administrator/architect of this plan was the recently retired Nevada County Director of General Services and Emergency Services, Dennis Cassella. Mr. Cassella was the Nevada County OES Director from 1989 until his retirement in 2002. He re-entered County service, part time, to manage the plan process. Mr. Richard Reader, the current Nevada County OES Director, oversaw plan preparation and submission for agency approval.

## **1.1 Purpose and Need**

Nevada County, California through its Operational Area has issued 17 disaster declarations and/or emergency declarations since 1950 of sufficient magnitude to warrant declarations of a State of Emergency by the Governor of California and some have progressed to a Presidential Disaster Declaration. Millions of dollars of losses have accrued to the residents of Nevada County. Some losses were covered by insurance, government assistance and non-government assistance. Some help arrived in the form of mutual aid or volunteer effort. Unfortunately, some expenses of a disaster are not recovered or re-imbursed.

Many natural disasters are predictable and often have the same or similar results. They are predictable due to our geology, elevations, hydrology, climate, prevailing wind conditions and wildland-urban interface. Fortunately, many of the damages of disaster events can be alleviated or eliminated by the application of mitigation measures and planning.

### **State or Federally Declared Disasters in Nevada County 1950-2005**

<b>Hazard Type</b>	<b>Year</b>	<b>State declared?</b>	<b>Federal Declared?</b>
Flood	1950	Yes	No
Flood	1955	Yes	DR-28
Flood	1958	Yes	82
Fire	1961	Yes	No
Severe storm, flood	1963	Yes	No
Flood	1963	Yes	145

Flood	1964	Yes	12/29/64
Severe storm, Freeze	1972	Yes	No
Drought	1976	Yes	No
Flood, Severe Storm	1982	Yes	DR-677
Severe Storm, Flood	1986	Yes	DR-758
Fire	1987	Yes	No
Fire	1988	Yes	DR-815
Severe Storm, snow/Ice	1990	Yes	No
Severe Storm, Flood	1995	Yes	DR-1044
Flood	1997	Yes	No
Flood	2005	Yes	DR-1628

Source: California Multi-Jurisdiction, Multi-Hazard Mitigation Plan 2004, Part 2 Document 2.0. 2005 is current event.

## **1.2 SCOPE**

This Multi-Jurisdiction, Multi-Hazard Mitigation Plan for Nevada County is a multi-jurisdictional plan that identifies the goals, objective and measures for hazard mitigation and risk reduction to make Nevada County's communities and special districts less vulnerable and more disaster resistant and sustainable. This plan covers the unincorporated area of the County of Nevada, the incorporated jurisdictions of Nevada City, City of Grass Valley and the Town of Truckee and various special districts whose boundaries may or may not coincide with the political boundaries of Nevada County.

Planning guidance was incorporated from the FEMA 4 Step guidelines published as "Organizing Your Resources", "Assess Hazards and Risks", "Develop a Mitigation Plan" and "Evaluate Your Work". Work product review guidance was published as "Local Hazard Mitigation Plan Review Crosswalk, FEMA Region IX".

This plan focuses primarily on natural hazards but includes only those human activity hazards as can be reasonably mitigated by county level policies and actions. Nevada County has been an active participant in the federal Department of Homeland Security, Office of Domestic Preparedness assessment information and data collection processes including the receipt of homeland security grants. By federal policy these assessments and data responses are the subject of security protocols controlled by the Office of Domestic Preparedness.

Response planning for terrorism related chemical, biological, radiological, nuclear and explosive events are governed by protocols and procedures of other federal and state agencies and are included only where those documents are in the public domain.

### **1.3 PLAN ORGANIZATION**

The Nevada County Multi-Jurisdiction, Multi-Hazard Mitigation Plan is formatted as follows:

Table of Contents

Executive Summary

1.0 Introduction

2.0 Nevada County Profile

3.0 The Planning Process

4.0 Risk Assessment

5.0 Mitigation Strategy and Action Plan

6.0 Plan Adoption

7.0 Plan Implementation and Maintenance

Maps, as indexed on page 27

Supporting Documents – Appendices

Referenced Documents

California Multi-Jurisdiction, Multi-Hazard Mitigation Plan 9/2004

# NEVADA COUNTY

## MULTI-JURISDICTION, MULTI-HAZARD MITIGATION PLAN

### 2.0 NEVADA COUNTY PROFILE

Nevada County is located in the north central foothills of the Sierra Nevada mountains approximately 60 miles northeast of California's capitol city of Sacramento. Nevada County shares common borders with Yuba County to the west, Placer County to the south, Sierra County to the north and the State of Nevada and Washoe County to the east. Major routes of access include Interstate 80 which nearly matches our southern border and traverses through Truckee to the Nevada state line and Reno; State Highway 49 which enters the County from Auburn at the Bear River and runs northerly through Grass Valley and Nevada City to Downieville in Sierra County; State Highway 174 which also enters the County at the Bear River from Colfax in Placer County and runs westerly to Grass Valley and State Highway 20 which enters the County at the Yuba River and runs easterly through Grass Valley and Nevada City to its junction with Interstate 80 near Immigrant Gap. Nevada County is 974.3 square miles in size and ranges in elevation from nearly 800 feet above sea level in the south and west to over 10,000 feet above sea level in the east.

The watershed of Nevada County is composed of the Bear River in the east and south, Yuba River in the west and Truckee River along the eastern border.

The Truckee River originates in the outflow from Lake Tahoe and winds 105 miles through parts of Placer, Nevada and Sierra counties as it flows directly through the Town of Truckee and then on to the City of Reno, Nevada where it is the source of municipal water. It ends its flow into Pyramid Lake on the Pyramid Lake Paiute Indian Reservation lands in Nevada.

The Bear River has its headwaters in Placer County and forms much of the southern boundary of Nevada County with Placer County. The river is the water source for Combie Lake, around which, is Lake of the Pines, a planned community in Nevada County, before it continues its course to Camp Far West in Yuba County and then ultimately joins the Feather River in Yuba County approximately 5 miles from the intersection of State Highway 99 South and State Highway 70 North.

The Yuba River has several forks in its watershed. The North Yuba has its headwaters at Yuba Pass and flows into New Bullards Bar Reservoir and Dam and thence into the Middle Yuba prior to Englebright Reservoir. The South Yuba has its headwaters at Donner Summit and Spalding Lake and also flows into Englebright Reservoir west of the entry of the North Yuba. The Middle Yuba has its headwaters at Jackson Meadows Reservoir and is the main channel of the Yuba River flowing southwesterly to Englebright Reservoir and thence through the cities of Marysville and Yuba City where it joins with the Feather River. This confluence of the Yuba and Feather Rivers in Marysville and Yuba City has been the scene of serious municipal flooding in 1955, 1964, 1986, 1995 and 1997.

## **2.1 BRIEF HISTORY**

In its early history, Nevada County was populated by the Nisenan and Maidu Native Americans, before gold was discovered at Coloma, Placer County in 1848. By 1849 the streams and creeks of Nevada County counted miners who were searching for “placer” gold. The gold rush cities of Nevada and Grass Valley were well established by the time Nevada County was formed out of Yuba County in September 1851 with Nevada (city) as the “seat of justice”. Nevada had to add the word “City” when (the state of) Nevada became the 36<sup>th</sup> State. Donner Summit entered into history in the winter of 1847-48 as the Donner Party met its cruel fate near the present day Town of Truckee. Come 1859, the end of available “placer gold” and the discovery of the Comstock Lode in Nevada nearly finished Nevada County’s flash in history. Astoundingly, in 1850 a ledge of hard rock gold was discovered in Grass Valley, which gave rise to an underground gold mining industry that endured into the 1950’s. In the mid-twentieth century the Empire and Northstar Mines closed their mining operations and one, the Empire became a famous California State Park. There was also, a less savory mining technique, hydraulic mining, which endured into 1884 until the Sawyer Decision. Large areas of alluvial sand and gravel deposits were washed away with hydraulic “monitors” while creating famous moonscapes at Malakoff Diggins State Park and Alpha/Omega diggings on the Yuba River. The muddy debris flowing into area rivers was finally outlawed by Judge Lorenzo Sawyer by federal decision in January 1884.

Truckee, the site of a major construction camp of the Central Pacific Transcontinental railroad in the 1860’s, continued strongly into the 20<sup>th</sup> century as a lumber, ice harvesting and snow skiing industry town. By the 1990’s Truckee had become an incorporated town and the fastest growing area in the County.

Agricultural pursuits have traditionally been horse and cattle ranching, wine grape production, fruit production primarily in the Chicago Park-Peardale area, and timber production. While most of these pursuits have endured into the 21<sup>st</sup> century, timber production has declined from its historic high level.

In terms of population, Nevada County remained a small rural county with barely 26,000 residents until the boom years of the middle 1970's.

## **2.2 POPULATION, INCOME AND GROWTH TRENDS**

While the US Census for 2000 (see Annex 3) reports a county population of 92,033, the California Department of Finance reports Nevada County's January 1, 2005 projected population as 98,955.

The unincorporated portion of Nevada County 2005 population is estimated at 67,202; Nevada City 3,047; Grass Valley 13,006; and Truckee 15,657.

The estimated 2025 county population by the CA Department of Finance and US Census Bureau is approximately 126,000 with nearly 150,000 by 2045.

The median household income reported by the California Franchise Tax Board for 2003 for Nevada County was \$32,682. The US Bureau of Economic Analysis pegged per capita income for 2003 for Nevada County at \$31,737.

Specific growth trends for unincorporated Nevada County can be found in Section 4.5.7.a; Nevada City in 4.5.7.b; Grass Valley in 4.5.7.c and the Town of Truckee in 4.5.7.d.

General County growth trends for housing and other economic indicators can be found in U.S. Bureau of the Census data in Annex 3 and the CA. Department of Transportation economic analysis located in Section 4.5.5.

# **NEVADA COUNTY**

## **MULTI-JURISDICTION, MULTI-HAZARD MITIGATION PLAN**

### **3.0 PLANNING PROCESS**

The Nevada County Office of Emergency Services (NCOES) in conjunction with the Nevada County Operational Area Emergency Services Council decided after discussion with the Council and State OES to serve as the coordinating agency for development of a multi-agency Hazard Mitigation Plan. It should be noted that the Nevada County Operational Area was in the midst of responding to surveys for the US Department of Homeland Security, Office of Domestic Preparedness concerning county hazard analysis and was also working on development and implementation of a Nevada County Operational Area Fire Plan which also had as its focus hazard analysis and mitigation measures especially as those relate to wildland fire.

#### **3.1 Local Government and Community Participation**

Disaster Mitigation Act planning requirements and guidance incorporates the need for each local government seeking state and federal recognition and approval of their individual mitigation plan to:

Participate in the planning process

Identify those local government areas where risk differs from the overall operational area

Identify specific local projects for funding

Formally adopt the plan by local government action

While each local government agency participating in the planning process has representation on the Nevada County Operational Area Emergency Services Council, we

called for the process to require adoption by the Council as well as the governing boards of the constituent local governments and the County Board of Supervisors.

The Nevada County Emergency Services Council with the addition of invited members constituted the Hazard Mitigation Planning Council, which is responsible for coordination of the Multi-Jurisdiction, Multi-Hazard Mitigation Plan and will retain the responsibility for monitoring future implementation and updates.

The Nevada County Operational Area Emergency Services Council was established by Nevada County Resolution 96-446 with a permanent membership of:

- The Chairman of the Board of Supervisors
- Director of Emergency Services
- City of Nevada City designee
- City of Grass Valley designee
- Town of Truckee designee
- Nevada Irrigation District designee
- Grass Valley Commander of the California Highway Patrol
- Nevada County Fire Chief's Association designee
- Nevada County Sheriff
- American Red Cross
- Tahoe National Forest designee
- Ca. Department of Forestry and Fire Protection designee
- Sierra Nevada Memorial Hospital designee
- Pacific Gas and Electric designee
- Nevada County Public Health Administrator
- Such others as the Council requests are in attendance.

Others requested to provide information and support were:

- Nevada County Resource Conservation District (USDA)
- Nevada County Agricultural Commissioner
- Sierra Community College District
- Tahoe Forest Hospital
- Truckee Donner Public Utility District
- Truckee Superintendent of Schools
- Nevada County Fire Safe Council
- Nevada County Consolidated Fire District
- Nevada City Fire Department
- Grass Valley Fire Department

Tahoe Truckee Unified School District  
Truckee Fire Protection District  
Donner Summit Public Utility District  
Penn Valley Fire Protection District  
Higgins Fire Protection District  
Peardale-Chicago Park Fire Protection District  
North San Juan Fire Protection District  
Rough and Ready Fire Protection District  
Ophir Hill Fire Protection District  
Washington Fire District  
Nevada County Assessor  
Nevada County Geographic Information Department  
Nevada County Treasurer-Tax Collector  
Nevada Cemetery District  
Truckee Cemetery District

Other non-traditional, non-governmental agencies were  
KNCO Radio  
The Grass Valley Union newspaper  
Nevada City Chamber of Commerce  
Grass Valley Downtown Merchants Association  
Truckee Chamber of Commerce

Although the Nevada County Superintendent of Schools, and through him, the western Nevada County School Districts were invited to participate, they respectfully declined for the purposes of this plan submission in 2006. They will be again invited for the next plan update. The Tahoe Truckee Unified School District in eastern Nevada County did choose to participate in this 2006 plan.

### **3.2 Plan for Public Involvement**

Public involvement was encouraged throughout the planning process through the use of public meetings, radio interviews, posting to the county web page and solicitation of public comments.

The Nevada County Fire Plan, which includes mitigation measures for our identified greatest threat category, was also being developed during the planning process for the Hazard

Mitigation Plan. An extensive public participation process was utilized during the preparation of the Fire Plan, which included 37 public meetings, and the development of a draft and final Environmental Impact Initial Study.

The Nevada County Fire Plan (see attached PDF File Nevada County Fire Plan) planning commenced on September 23, 2003 with the appointment by the Nevada County Board of Supervisors of the Nevada County Fire Plan committee composed of:

Tony Clarabut, Chair, CDF Unit Chief/Nevada County Fire Marshal  
Tim Fike, Fire Chief, Nevada County Consolidated Fire District  
Gary Fildes, Division Chief, United States Forest Service  
Rich Reader, Nevada County Office of Emergency Services  
Jeff Dunning, Nevada County Fire Safe Council

The Planning Committee was assisted by:

William F. Maxfield, Chief Consultant, 911 Consulting Group, Inc.  
Jim McFadden, Senior Consultant, 911 Consulting Group, Inc

Also assisting from start to finish were:

Barbara Bashall, Nevada County Contractor's Association,  
Nate Beason, Property Owner  
Keith and Ellyn Cook, Property Owners  
Judy Dadigan, CDF Administrative Secretary  
Rich Johansen, Agricultural Advisory Commission  
Fire Captain Sean Griffis, CDF Pre-Fire Engineer  
Charly Price, USFS Graphic Artist  
Barbara and Don Rivenes, Sierra Nevada Forest Protection Group  
Battalion Chief Chuck Thomas, Truckee Fire Protection District  
Margaret Urke, CA. Assn. Of Business, Property and Resource Owners  
Marcel Verdooner, Property Owner  
Division Chief, Kelley Keenan, CDF Unit Forester & Pre-Fire Program Mgr.

Public meetings in preparation of the Nevada County Fire Plan were held following a public notice required under the California Brown Act. A sign-in sheet was maintained for each

meeting. Meetings generally were attended by between 5 and 10 members of the public. A list of the meetings and their purpose follows:

### Meetings Held in Preparation of the Nevada County Fire Mitigation Plan

Date	Purpose
October 2, 2003	Fire Plan Committee Meeting
November 14, 2003	Fire Plan Committee Meeting
November 21, 2003	Fire Plan Committee Meeting
December 5, 2003	Fire Plan Committee Meeting
December 19, 2003	Fire Plan Committee Meeting
January 14, 2004	Fire Plan Committee Meeting
February 12, 2004	Public hearing in Grass Valley
February 13, 2004	Public Hearing in North San Juan
February 20, 2004	Public hearing in Town of Truckee
March 5, 2004	Fire Plan Committee Meeting
April 2, 2004	Fire Plan Committee Meeting
April 16, 2004	Fire Plan Committee Meeting
April 30, 2004	Fire Plan Committee Meeting
May 14, 2004	Fire Plan Committee Meeting
May 27, 2004	Fire Plan Committee Meeting
May 28, 2004	Fire Plan Committee Meeting
June 10, 2004	Fire Plan Committee Meeting
July 22, 2004	Fire Plan Committee Meeting
July 26, 2004	Fire Plan Committee Meeting
July 28, 2004	Fire Plan Committee Meeting
August 17, 2004	Board of Supervisors acceptance of plan
February 11, 2005	Fire Plan Committee Meeting
April 26, 2005	Supervisors consider changes to plan
May 24, 2005	Supervisors acceptance of plan changes

The Nevada County Operational Area Hazard Mitigation Plan was commenced in August 2004 with an initial meeting of the Nevada County Operational Area Emergency Services Council. In September 2004, staff met with the Nevada County Fire Chiefs' Association to explain the process to compiling the Asset Survey and staff met with incorporated cities, towns, district and county staff to discuss the agency Asset Survey.

Planning staff also met with the Emergency Services Council and Nevada County Homeland Security Approval Authority to review and confirm to threat categories and assessments that were determined in response to the “State Homeland Security Assessment and Strategy Program” in August of 2003. In September 2004 a meeting was held with participation from the public agencies involved to review the threat categories, threat maps and to develop a hazard mitigation goal and vision statement.

The Nevada County Operational Area hazard mitigation goal was approved as follows:

“ To make Nevada County, its watershed, cities, town and unincorporated areas and its businesses, special districts and local, state and federal agencies less vulnerable to the effects of natural and man-made hazards through responsible application of hazard mitigation grants programs, hazard risks assessments, flood plan management and coordinated mitigation policies.”

The approved vision statement provides for:

“Coordinated hazard mitigation planning efforts among county, regional, state and federal agencies that result in a safe and sustainable Nevada County”

Between the Nevada County Fire Plan with its mitigation planning and measures and the Multi-Jurisdiction, Multi-Hazard Mitigation Plan which was on going at nearly the same time, more than 60 meeting were held with the public, public agencies, Grass Valley, Nevada City Truckee and the County itself. On April 27, 2005 a public meeting was held in the Chambers of the Nevada County Board of Supervisors to review with citizens the proposed Goal Statement, Vision Statement, Hazard Assessment and Hazard Maps. A similar meeting was held on May 5, 2005 in the Chambers of the Truckee Town Council for the eastern portion of Nevada County. Unfortunately attendance was very light and is thought to be a product of the recently ongoing Fire Plan meetings. A second set of public meetings are planned for early May 2006 and then final public hearing before the Board of Supervisors in late May 2006

### **Meetings Held in preparation of the Multi-Jurisdiction, Multi-Hazard Mitigation Plan**

<b>Date</b>	<b>Purpose</b>
April 19, 2004	Mtg w/ Chris Adams OES Hazard Mitigation Section on Plan
May 27, 2004	Hazard Mitigation Application to ESC*

August 19, 2004	Meeting w/ GIS to review needed maps
August 26, 2004	Hazard Mitigation update to ESC
November 17, 2004	Hazard Mitigation Update to ESC
December 20, 2004	Meeting w/Public agencies on Physical Assets survey
December 23, 2004	Meeting with Truckee staff on Haz Mit plan
February 1, 2005	Meeting with NC Sheriff on hazards
February 14, 2005	Meeting w/ GV Fire Chief on hazards
February 24, 2005	Hazard Mitigation update to ESC
April 20, 2005	Meeting w/ Public Agencies on Haz Mit
April 27, 2005	Public meeting in Rood Center on Haz Mit
May 4, 2005	Public meeting in Truckee on Haz Mit
May 11, 2005	Truckee River Haz Mit Plan exercise
May 17, 2005	KNCO Radio program on Haz Mit
May 11, 2005	Meeting with Nevada City on Haz Mit
May 12, 2005	Meeting w/Nevada City Mgr on Haz Mit
May 25, 2005	Meeting w/ Truckee staff on Haz Mit
Jun 28, 2005	Hazard Mitigation update for ESC
September 20, 2005	Meeting with GV Fire Chief on projects
September 29, 2005	Hazard mitigation update for ESC
October 28, 2005	Meeting with Grass Valley on hazards
November 28, 2005	Meeting with Truckee on Plan Input
November 15, 2005	Risk Management mtg w/ Nevada City
November 17, 2005	Meeting with Truckee on Plan and Projects
November 18, 2005	Meeting with Nevada City on Hazards
November 18, 2005	Meeting w/GIS on additional maps
November 21, 2005	Meeting with GV CDA on hazard mitigation
November 23, 2005	Meeting w/ Nevada City Manager on projects
November 30, 2005	Meeting with County staff on projects
December 1, 2005	Meeting w/cemetery dist on project
December 6, 2005	Meeting with County Fire Chiefs on Projects
December 14, 2005	Meeting with Nevada City on Hazards
December 15, 2005	Meeting with Nevada City on Projects
February 2, 2006	Meeting with Resource Conservation Dist.
February 2, 2006	Meeting with NID to discuss NID Input
March 8, 2006	Meeting to discuss Truckee Input to plan
March 29, 2006	Mtg w/Grass Valley Dept Heads on Added projects
May 17,2006	Adoption by Emergency Services Council
June 7, 2006	Review of Plan for Truckee special districts

June 13, 2006	Approval by Board of Supervisors resolution
June and July 2006	Ratification and approval by district resolutions

\* Nevada County Operational Area Emergency Services Council (ESC)

Maps developed by resources available through the Nevada County Geographic Information Department and presented at the public agency and public meetings were: (See Appendix B for all maps)

- a) "Mean (1971-200) Annual Precipitation, Nevada County, California"
- b) "Nevada County Communities and Facilities"
- c) "Nevada County Communities and Facilities-Eastern Nevada County"
- d) "Public Land Ownership-Western Nevada County"
- e) "Public Land Ownership-Eastern Nevada County"
- f) "Wildland Fire Risk-Western Nevada County"
- g) "Wildland Fire Risk-Eastern Nevada County"
- h) "Northern California Ground Motion Map, USGS"
- i) "Dams and Creeks, Western Nevada County"
- j) "Dams and Creeks, Eastern Nevada County"
- k) "Watershed Hydrology, Western Nevada County"
- l) "Watershed Hydrology, Eastern Nevada County"
- m) "Dams and Inundation Areas-Western Nevada County"
- n) "Dams and Inundation Areas-Eastern Nevada County"
- o) "Dams-Western Nevada County"
- p) "Dams-Eastern Nevada County"
- q) "Nevada City Flood Hazards"
- r) "Grass Valley Flood Hazards"
- s) "Truckee Flood Hazards"
- t) "Potential Urban and Rural Growth-Western Nevada County"
- u) "Potential Urban and Rural Growth-Eastern Nevada County"
- v) "Business and Commercial Areas-Nevada City"
- w) "Business and Commercial Areas-Grass Valley"
- x) "Business and Commercial Areas-Truckee"
- y) "Nevada County Watershed Map"
- z) "Volcanic Activity and Plume Map-Eastern California"
- aa) "Nevada County Fire History 1900-2001"
- bb) "Wetlands located in Western Nevada County"
- cc) "Special Status Species-Nevada County"
- dd) "Grass Valley Figure 7.1 Mine Tailing Heaps"
- ee) "Grass Valley Figure 7.2 Mining Claim Boundaries"
- ff) "Grass Valley Figure 7.3 FEMA Flood Plain"

**3.2.1 Technical Review:** This plan was submitted for technical review to:

Tim Fike, Chief, Nevada County Consolidated Fire District  
Spike Newby, Battalion Chief, Nevada County Consolidated Fire District  
Kathleen Edwards, Nevada County Fire Planner  
Neal Albee, Sierra College, Dean, Nevada County Campus  
Lawrence Lee, Sierra College, Risk Manager  
Lesla Osterholm, Nevada County Resource Conservation District  
Ann Westling, U.S. Forest Service, Nevada City District Office  
Ron Nelson, Nevada Irrigation District  
Gene Haroldsen, Grass Valley City Administrator  
Mark Miller, Nevada City Manager  
Bill Falconi, Nevada City Engineer  
Tony Lashbrook, Truckee Town Manager  
Steve Monaghan, Director, Nevada County Information and General Services  
Department  
OES Placer County.  
OES Yuba County  
OES Sierra County  
Richard Reader, OES Nevada County  
Chuck Thomas, Battalion Chief, Truckee Fire Protection District  
Tamara Blanton, Truckee Department of Public Works

### **3.3 Nevada County Human-Caused Hazard Summary**

The Nevada County Operational Area concluded that it does not have sufficient information to conduct a thorough assessment of all potential human-caused hazards and subsequent appropriate mitigation measures. Nonetheless, we are including hazards due to arson and commercial fires, airborne hazards and hazardous materials incidents in our plan. In adopting the Nevada County Emergency Response Plan in December 2003, the county identified human caused (technological) hazards (in order of diminishing likelihood)

- a) Hazardous Materials Incidents,
- b) Security/critical facility/essential equipment losses or failures,
- c) Arson or accidental commercial fire related losses,
- d) Infrastructure losses or failures (roadways, power, telephone, sewer and water systems, fuel pipelines, rail lines, schools and hospital facilities),

- e) Cyber-terrorism,
- f) Civil disorders and riots,
- g) Small (uninspected) Dam failures,
- h) Large (inspected) Dam failure,
- i) Terrorism,
- j) Bio-terrorism,
- k) Weapons of Mass Destruction,
- l) Nuclear attack.

Nevada County has prepared, or is in receipt of, response plans for Hazardous Materials, Terrorism, Bio-terrorism, continuity of government and small and large dam failures by PG&E, Nevada Irrigation District and the Army Corps of Engineers. A mapping and registration system has been developed by the Nevada County Environmental Health Division for hazardous materials storage and generation sites. This system is coordinated with the County GIS system for use in emergencies.

# NEVADA COUNTY

## Multi-Jurisdiction, Multi-Hazard Mitigation Plan

### 4.0 Risk Assessment

***44 CFR 201.6(c)(2)(ii): “The risk assessment shall include...a description of the jurisdiction’s vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community”.***

Risks from natural hazards are a combination of hazard, vulnerability and exposure. The risk assessment process measures the potential loss to a community, including loss of life, personal injury, property damage and economic injury resulting from a hazard event. The risk assessment process allows a community to better understand its potential risk and associated vulnerability to natural hazards. This information provides the framework for a community to develop and prioritize mitigation strategies and plans to help reduce both the risk and vulnerability from future hazard events.

Risks from human caused hazard events are very similar to natural hazards except for the issue of human intent or error, in the case of terrorist events, or human caused accidents respectively. Intent, capacity and technological sophistication limit most terrorist events whereas, human caused accidents normally can be predicted in concert with the level and type of human activity.

This risk assessment for Nevada County followed the methodology described in the FEMA publication 386-2 “Understanding Your Risks-Identifying Hazards and Estimating Losses” and was based on the four step process:

- 1) Identify Hazards
- 2) Profile Hazard events
- 3) Inventory Assets
- 4) Estimate losses

Existing and planned mitigation measures such as building codes, fire codes, land use regulations, fire management plan and floodplain management regulations were analyzed in conjunction with county and city general plans.

The risk assessment for this plan, which includes the unincorporated county and its incorporated cities and town, cover the entire geographical extent of Nevada County.

All other districts participating in the plan and listed on page 11 of this plan are geographical subsets of Nevada County. Therefore the risk assessment for the County applies to and covers these districts as well.

## **4.1 Hazard Identification**

The Nevada County Operational Area Emergency Services Council has previously conducted and approved a Hazard Identification survey as part of the Office Of Domestic Preparedness State Homeland Security Assessment and Strategy Program (August 2003) and the Nevada County Emergency Operations Plan (December 2003). The Nevada County Board of Supervisors adopted the Emergency Operations Plan, Hazardous Materials Area Response Plan, Continuity of Government, and WMD/Bio Terrorism Plan on December 16, 2003. This Hazard Identification survey was again reviewed with participating agencies in March 2005 and was part of the public presentations conducted in April and May 2005.

Historical Data was retrieved from the California Department of Forestry and Fire Protection; California Office of Emergency Services; Climate Source, Inc; Federal Emergency Management Agency; California Seismic Safety Commission; United States Geological Survey; United States Weather Service; California Geological Survey; Natural Resources Conservation Service; US Census Bureau; California Department of Finance; California Department of Transportation; California Academy of Science and the Nevada County Office of Emergency Services.

The Natural Hazards identified and investigated for the Nevada County Multi-jurisdictional Multi-hazard plan include:

- ❖ Urban and wildland fire
- ❖ Floods

- ❖ Dam failure
- ❖ Landslides
- ❖ Avalanches
- ❖ Earthquakes
- ❖ Volcanoes
- ❖ Agricultural hazards
- ❖ Natural Health Hazards such as West Nile Virus
- ❖ Earth Subsidence (due to mining activities)
- ❖ Severe weather
  - Heavy rain/thunderstorm/wind/lightening/lhailstorm
  - Snow and ice
  - Drought

Human Caused hazards identified include:

- ❖ Hazardous materials incidents
- ❖ Arson or commercial fire
- ❖ Airborne Hazards

The following natural hazards were not selected for analysis and consideration because due to Nevada County's elevation, seismic activity, no large size lakes and geography. They either rarely/do not occur at all or when they do occur, they are limited in magnitude-no or very limited damages are expected to occur:

- ❖ Hurricanes/Costal Storm
- ❖ Tornadoes
- ❖ Fog
- ❖ Seiches (water wave movement on lakes due to earthquakes)
- ❖ Coastal Erosion
- ❖ Tsunami

## **4.2 DISASTER DECLARATION HISTORY**

Nevada County has had 17 disaster or emergency events declared as gubernatorial or Presidential disasters in the period 1950 through 2005. To achieve such a declaration the severity and impact of the disaster much exceed the capacity of local government to effectively respond and recover from the disaster conditions. Disaster events surpassing local response and recovery resources in the period 1950 through 2005 have been:

❖ Wildfire	3
❖ Drought	1
❖ Severe Weather/storm	3
❖ Flood	10

The U.S. Department of Agriculture and/or the Small Business Administration may also issue a disaster declaration. The quantity and types of damage are the determining factors. In addition, surrounding counties of a disaster-affected county may also receive a disaster designation. In fact, recent SBA declarations have included several declarations for Nevada County making small non-farm businesses eligible for Economic Injury Disaster Loans as a result of damages associated with extreme weather events usually drought or freezing. In 1993 the Town of Truckee and Nevada County received a small business disaster designation when a commercial building had a natural gas explosion that severely damaged the downtown commercial district and resulted in one death. Historical information on these USDA and SBA disaster designations was not readily available (See CMHP 2004 Map 6.1).

## **4.3 NATURAL HAZARDS (Maps are in Appendix B)**

### **4.3.1 URBAN INTERFACE WILDLAND FIRE**

#### **4.3.1.a Past Occurrences**

We have county and state map sources of wildland fire history for Nevada County.

Maps 5.2B rev and 5.3.2A from the State Multi-Jurisdiction, Multi-Hazard Mitigation Plan – 2004 depict “Fires by County 1950-2004” and “Fire Related Risks to Ecosystem Health as Measured by Condition Class”. A County level map generated by the California Department of Forestry and Fire Protection depicts Nevada County wildland fire history since 1900.

County PDF Map “NevadaCo Hist-05” depicts fires since 1950 that have been 300 acres or larger. Notably all three urban population centers (Grass Valley, Nevada City and Truckee) have been spared from direct wildland fire damage since 1900. That said, all three cities/towns had significant fire history in their early history prior to 1880.

Significant fire history since 1900 has been in three geographic areas of the county. The first is the northwestern corner bordering on Placer and Yuba Counties where there have been 15 fire events since 1900. The next is in the area of Dog Bar Road (39°15' north; 121°west) to Jackson Creek (39°23' north; 120°30' west) where there have been 91 fires greater than 300 acres since 1900. Sixteen of these sites have burned two or three times. The third area is on the eastern edge of Nevada County with its border with the State of Nevada from 39°23' north;120°15' west. This area has had 74 fires greater than 300 acres, of which 17 sites have burned twice, four sites 3 times and one site 4 times. This totals to 170 fires of greater than 300 acres since 1900.

According to the California Department of Forestry and Fire Protection, within the last 10 years Nevada County has averaged 120 fire ignitions per year. The significant, recent fires include the Martis Fire (area 3 above, June 2001) 14,500 acres/4 structures; the Trauner Fire (area 2 above, August 1994) 500 acres/12 homes and the 49er Fire (area 1 above, September 1988) 33,500 acres/312 homes and structures. These three fires alone resulted in 33 million dollars damage and more than 27 million dollars in suppression costs.

The Nevada County Fire Plan describes the issues in this way:

“The project area (Nevada County) encompasses approximately 978 square miles of diverse and rugged rural lands in the Sierra Nevada foothills of Nevada County, California. Nevada County includes Grass Valley, Nevada City, Lake Wildwood, Alta Sierra, Penn Valley, Rough & Ready, North San Juan, Truckee, Cedar Ridge, Lake of the Pines, and rural areas of the Sierra Nevada foothills. This high fire threat zone is characterized as a classic interface area with significant history of large and damaging wildfires.

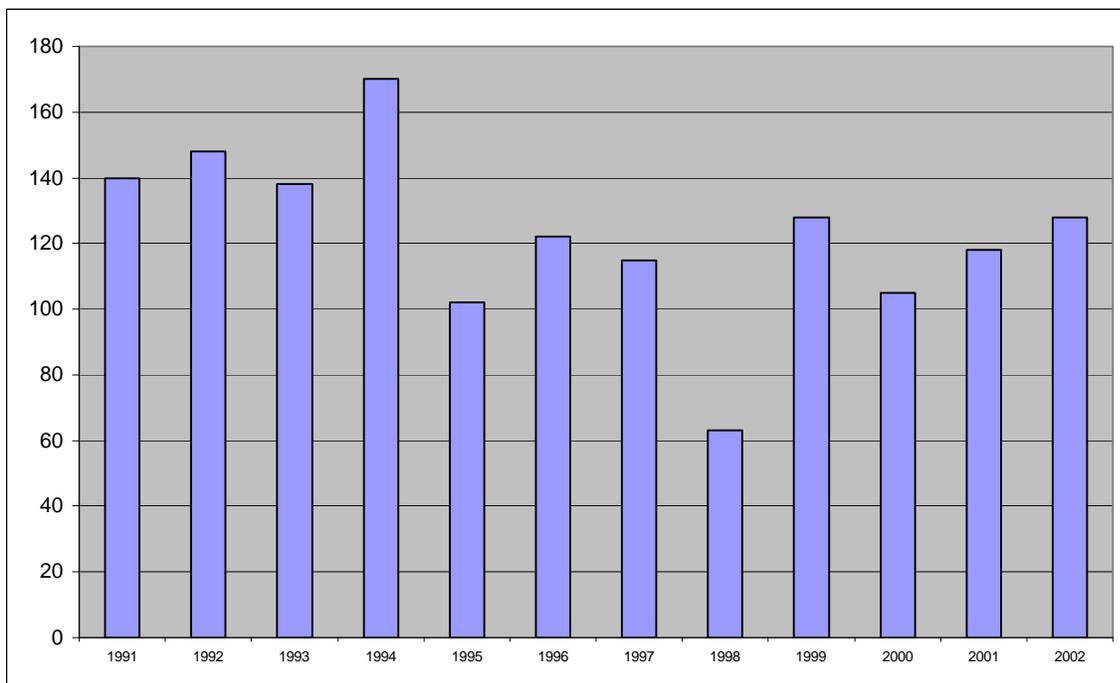
Nevada County has a diverse bio-system. The western border, located in the Sacramento Valley, contains grass-covered foothills with oak trees. Traveling eastward the landscape changes to a mix of deciduous and conifer forests with a mix of heavy brush. The forests turn to conifer with a brush under-story as the elevation goes high into the Sierra Nevada Range, approaching 8000 feet in elevation. Continuing further east and down the Eastern slope of the Sierras one finds conifers with a brush under-story mix with heavy brush fields, ending at the California/Nevada border with conifer forests and sagebrush.

The area consists of both public and private lands and contains a mix of land uses with a population of approximately 90,000 people and 45,000 housing structures in a wildland-urban intermix setting commonly referred to as the I-Zone. (the urban/wildland interface).

On the private lands within the county, over a recent 12 year period, the county experienced just over 120 wildland fires per year. Lightning caused fires

actually account for very few fire starts on private lands as evidenced by the year 2002 in which the county experienced 133 wildland fires with only one being caused by lightning. 2003 had nine lightning caused fire starts. History shows that most fires in the county are caused by the accidental, careless or intentional acts of the people who live in or visit Nevada County. Clearly, with the fuels, weather, topography and an increasing population, Nevada County is at significant risk from wildland fire.

### Nevada County Wildfire Ignitions by Year



Source CA Dept. Forestry and Fire Protection, "Nevada County Fire Plan 2004"

#### **4.3.1.b Public lands include:**

- 177,113 acres in the Tahoe National Forest
- 2,475 acres in the Toiyabe National Forest
- 10,485 acres of other Federal Lands, which include the Bureau of Land

Management (BLM), Department of Fish & Wildlife (DF&W), and the Army Corps of Engineers. In addition, the Nevada Irrigation District controls 8,636 acres, Pacific Gas & Electric 10,882 acres and the State 11,394 acres, which may include, but not be limited to California State Parks, California Department of Forestry & Fire Protection (CDF), California Department of Fish and Game.

#### **4.3.1.c “THE WILDLAND FIRE PROBLEM”**

Quoted from the Nevada County Fire Plan:

“The fire problem in Nevada County is directly related to the amount of hazardous fuels that have accumulated since the disruption of the natural fire cycles that normally occurred prior to land use changes that began at about the turn of the 20<sup>th</sup> century. It was at this time that the effects of non-native American settlement of the region caused the land use to change and move away from being compatible with the natural fire regimes.

Fire history studies conducted in the Sierra Nevada, southern Cascades, and Klamath mountains point toward pre-European settlement fires (prior to 1849) burning, with mostly low to moderate severities within most of the vegetation types found in the County. Barbour and Majors (1977) and the Sierra Nevada Ecosystem Project (1996) indicate that the grassland areas had an average period between fires of 2-8 years; oak woodlands, 2-8 years; mixed conifer, 5-16 years; east-side pine, 5-16 years; various brush types; 5 to 30 years; and Red Fir, 16-26 years. These vegetation types evolved over time to adapt to these fire cycles. California’s Mediterranean climate, dominated by wet winters and hot dry summers with lightning from frequent summer thunderstorms and Native American burning worked in harmony with our fire adapted ecosystems. The effect on fuels due to these frequent fires was a periodic consumption of relatively light amounts of vegetation and dead material. As a result, these conditions produced fires with mostly low to moderate severities and intensities that generated short flame lengths. Most of the larger trees survived these low to moderate intensity fires. The short flame lengths kept the fire on the ground. Studies and historical observations indicate that very few of the fires before the 1900’s, except in small patches, burned into the crowns of the larger Conifers.

Based on written accounts from the late 1800’s and the very early 1900’s, in areas covered by the mixed conifer vegetation type, approximately 1-10 percent of the larger conifers perished during each fire event. Most of these low intensity fires burned in fuels that were not continuous from the ground into the upper layers of the forest. The periodic fires kept a natural separation from the ground fuels to the upper forest layers.

This natural cycle of periodic fire no longer occurs. Current land uses, i.e. the presence of people and their houses, dictate that wildland fires be suppressed due to risks to life, property, and the environment. A century of virtual elimination of natural and cultural fire has led to a buildup of fuels to today's current unnaturally high levels and has resulted in significantly higher intensity fires that are difficult to suppress. Today, many of our vegetation types have a continuous layer of live growing fuels from the forest floor to the upper tree layers that act as fuel for a wildfire. This, unfortunately, results in larger fires with more damaging effects to life, property, and the environment.

Today, people in Nevada County are attracted to live and build their homes in remote areas, on hillsides, and in and among the native woodlands. There is a misconception held by many of us that today's grasslands, oak woodlands, and forests are "natural" and as such, think if we just keep suppressing fires, these vegetation types will remain the same. This is a grave error. All of our fire-adapted ecosystems are complex entities. They are not like a photograph and nonchanging over time; they are constantly changing. There is a tremendous amount of growth and in-growth every year. As a result, without periodic fire or treatment, these vegetation types have ever-increasing unnaturally high fuel loads that, over time, have created hazardous fire conditions.

We now understand that the extreme fire behavior we are witnessing is a result of the long-term interruption of the natural fire cycle. The combination of our topography, climate, and present day fuel conditions produces large, high severity and intense wildland fires; e.g., the Forty-niner fire in September 1988, (33,500 ac/185 homes); the Martis fire, June 2001, (14,500 ac/4structures); the Trauner fire, August 1994 (500 ac/12 homes); and the Cottonwood, fire, August 1994, (46,800 ac). The Forty-niner fire, the Martis fire and the Trauner fire resulted in over 33 million dollars damage and more than 27 million dollars in suppression cost. The Cottonwood fire cost 12.5 million dollars to suppress.

We can never go back to the natural fire cycles as land use has changed dramatically since the mid-1800's and we now have life and property intermixed within the wildland environment. However, we can, with vegetation management, reduce fuels to those pre-settlement "natural" levels in target areas in and around our communities..."

## 2005 STATEWIDE FIRE CAUSE SUMMARY TABLE

(Source: California Department of Forestry and Fire Protection,  
[http://www.fire.ca.gov/php/about\\_factsheets/php](http://www.fire.ca.gov/php/about_factsheets/php))

CAUSE	CAUSE CODE	PERCENT	TOTAL ACRES
Lightning	1	1.4%	1,058
Equipment Use	2	32.4%	24,502
Smoking	3	2.6%	1,966
Campfire	4	1.4%	1,059
Debris	5	7.5%	5,672
Arson	7	10.9%	8,243
Misc & pwf	9	13.2%	9,982
Vehicle	10	11.8%	8,923
Power line&RR	11	2.0%	1,512
Unk./Un-ident.	14	16.8%	12,705
<b>TOTAL FIRES</b>		<b>6,903</b>	<b>75,622</b>

### 4.3.1.d LIKELIHOOD OF FUTURE OCCURRENCES:

Accepting Nevada County's terrain, climate, rainfall and forest land/urban mix, it is a certainty that significant wildland fires are going to continue as a threat. Contributing to the threat over the last 75 years have been the fire suppression techniques and policies that have allowed a large fuel load to accumulate.

Generally, the fire season extends from early spring to late fall. Fire conditions arise from a combination of hot weather, an accumulation of vegetation, and low moisture content in the air. These conditions, when combined with high winds and years of drought, increase the potential for wildfire to occur. The wildfire risk is predominantly associated with Wildland-Urban Interface (WUI) areas. WUI is a general term that applies to development interspersed or adjacent to landscapes that support wildland fire. WUI areas have been a major focus of California Department of Forestry and Fire Protection's (CDF) fire management strategy since at least 1972. A fire along this wildland/urban interface can result in major losses of property and structures. Potential losses from wildfire include: human life, structures and other improvements; natural and cultural resources; the quality and quantity of the water supply; other assets such as timber, range and crop land, and

recreational opportunities; and economic losses. In addition, catastrophic wildfire can lead to secondary impacts or losses such as future flooding landslides during the rainy season. Generally, there are three major factors that sustain wildfires and predict a given area's potential to burn. These factors are fuel, topography, and weather.

- **Fuel** – Fuel is the material that feeds a fire and is a key factor in wildfire behavior. Fuel is generally classified by type and by volume. Fuel sources are diverse and include everything from dead tree needles and leaves, twigs, and branches to dead standing trees, live trees, brush, and cured grasses. Also to be considered as a fuel source, are man-made structures, such as homes, and other associated combustibles. The type of prevalent fuel directly influences the behavior of wildfire. Light fuels such as grasses burn quickly and serve as a catalyst for fire spread. In addition, “ladder fuels” can spread a ground fire up through brush and into trees, leading to a devastating crown fire. The volume of available fuel is described in terms of Fuel Loading. Certain areas in and surrounding Nevada County are extremely vulnerable to fires as a result of dense grassy vegetation combined with a growing number of structures being built near and within rural lands. The presence of fine fuels, 1000hr fuels and needle cast combined with the cumulative effects of previous drought years, heavy vegetation mortality, tree mortality and lowdown of timber across Nevada County has added to the fuel loading in the area. Fuel is the only factor that is under human control.

- **Topography** - An area's terrain and land slopes affect its susceptibility to wildfire spread. Fire intensities and rates of spread increase as slope increases due to the tendency of heat from a fire to rise via convection. The natural arrangement of vegetation throughout a hillside can also contribute to increased fire activity on slopes.

- **Weather** - Weather components such as temperature, relative humidity, wind, and lightning also affect the potential for wildfire. High temperatures and low relative humidity dry out the fuels that feed the wildfire creating a situation where fuel will more readily ignite and burn more intensely. Wind is the most treacherous weather factor. The greater a wind, the faster a fire will spread, and the more intense it will be. Winds can be significant at times in Nevada County. North winds in Nevada County are especially conducive to hot, dry conditions, which can lead to “red flag” days indicating extreme fire danger. Winds coming from the southeast have also been noted as a concern in the western third of the County. In addition to wind speed, wind shifts can occur suddenly due to temperature changes or the interaction of wind with topographical features such as slopes or steep hillsides. Lightning also ignites wildfires, often in difficult-to reach terrain for firefighters. Related to weather is the issue of recent drought conditions contributing to concerns about wildfire vulnerability. During periods of drought, the threat of wildfire increases.

Other factors contributing to the wildfire problem in Nevada County include:

- Overstocked forests, severely overgrown vegetation, and lack of defensible space around structures;
- Excessive vegetation along roadsides and hanging over roads, fire engine access, and evacuation routes;
- Conditions such as drought and overstocked forests contribute to increased beetle kill in weakened and stressed trees;
- Narrow and often one lane and/or dead end roads complicating evacuation and emergency response as well as subdivisions that have only one means of ingress/egress;
- Inadequate or missing street signs on private roads and house address signs;
- Nature and frequency of lightning ignitions; and
- Increasing population density leading to more ignitions.

#### **Current Mitigation Activities for Wildland Fire threats:**

Since the 49er Fire in September 1998, Nevada County has been funding 2-4 fire prevention officers that are supervised by the California Department of Forestry and Fire Protection to conduct fire safety and clearance inspections throughout the County. Approximately 21,000 inspections have been conducted to date.

Also very active have been three other organizations. The Fire Safe Council of Nevada County has been active in providing free public information and education for county residents as well as a free wood debris-chipping program on site for property owners. The Nevada County Resource Council and Soil Conservation Service have been sponsoring shaded fire breaks in conjunction with Tahoe National Forest in the area around Scotts Flat Lake. Tahoe National Forest has been working on strategically placed fire control points using thinning processes. Additional projects are proposed in this plan's mitigation measures.

### **4.3.2 FLOODING**

#### **4.3.2 a Past Occurrences:**

As reported earlier, Nevada County has experienced 10 flooding events since 1950 the most recent being winter 2005/2006. The CA-MHMP-2004 provides maps 6.1A "California Proclaimed States of Emergency by County 1950-2004; 6.4A "National Flood Insurance Program (NFIP) Repetitive Claims through June 2004". Fortunately these events have not resulted in loss of life or catastrophic property damage in Nevada County. Primarily due to the significant east to west elevation change in the western part of the county, most of the heavy storm rainfall moves quickly out of the watershed. In the eastern part of the county, higher elevation causes most precipitation to fall as snow during the first 4 months of the winter season. Flooding affecting Nevada County normally occurs when heavy rainfall combines with unseasonably warm temperatures that begin a pre-mature melt of the snow pack. This phenomenon is most dramatically seen on the Yuba River with its steep canyon walls and the Truckee River with its smaller river channel. The Bear River because of its lower elevations and shallow riverbed tends to be impacted more by heavy rain over an extended period. County PDF generated maps "Nevada City Flood Hazard"; "Truckee Flood Hazard" and "Grass Valley Flood Hazard"; "Nevada County Hydrology-West" and "Nevada County Hydrology-East" depict the 100 and 500 year flood plain information

In the early history (prior to 1885) of the county it was not uncommon for bridges and structures to be damaged or destroyed on the Yuba and its tributaries. On the morning of June 18, 1883, the English Dam on the Middle Fork of the Yuba River broke and released 650 million cubic feet of water. Water stored in the reservoir behind the dam served 80 miles of ditches to hydraulic mine operations in the area. Eight or nine men were drowned.

By the end of the 20<sup>th</sup> century, the floodplains of the Yuba, Truckee and Bear were better understood and flooding was much less common. What flooding that occurs now is related to the smaller streams and creeks of the watershed where these channels are dry or nearly dry much of the year and to clogged channels of the larger creeks. Unusually heavy rainfall for several days can cause some of these smaller sources to overflow their normal channels with the effects being localized to particular parcels or areas.

As identified in the Nevada County General Plan (1996);" Areas within Nevada County subject to 100-year and 500-year flooding are as follows: Deer Creek west from Scott's Flat Reservoir through Nevada City towards Lake Wildwood; two tributaries bordering Alta Sierra and Highway 49 to the east and west; along Bear River to Rollins Reservoir; Little Greenhorn Creek; Greenhorn Creek; Steep Hollow Creek; the South Yuba River; the entire extent of the Truckee River through eastern Nevada County; and tributaries that run south into Prosser Creek Reservoir, Boca Reservoir, and Martis Creek Reservoir. Shorter stretches are located south of Nevada City; along Highway 20 near Penn Valley; and in the

northwest area of the county. The flood hazard areas are generally confined to the areas adjacent to the County's local rivers and streams.”

Grass Valley identified the following flood hazards in its 2020 General Plan Update as follows: “As indicated by Federal Emergency Management Agency Flood Insurance Rate Maps (FIRM), the City of Grass Valley and the General Plan Planning Area are relatively well drained. The 100-year flood designations are generally confined to narrow bands along local drainages. Few transportation corridors are susceptible to flooding in a 100-year flood event. Idaho-Maryland Road east of SR 49/20 and South Auburn Street south of Whiting Street will be flooded during a 100-year flood.” Some backyard flooding has occurred along Mill Street as it abuts Wolf Creek. “To the extent culverts and storm drains are not maintained, other localized flooding could occur. Structures located in the flood hazard areas would be subject to flooding in a 100-year flood event unless special mitigation is employed.”

The current FEMA flood map for Grass Valley and vicinity is shown in Grass Valley Figure 7-3. Future development will inevitably result in increased runoff, thus increasing the potential for flooding in natural and man-made drainage ways.

Flooding as a result of dam failure can occur as a result of manmade or natural causes. Such causes include improper siting, structural design flaws, erosion of the face or foundation, earthquakes, massive landslides, and rapidly rising flood waters. Inundation as a result of dam failure would most likely be the result of an earthquake. However, the area of Nevada County in which these dams exist is not located within an historical seismic zone. In fact, the western half of Nevada County is within the lowest earthquake intensity zone in California.

Nevada City has requested flooding mapping through the Federal Emergency Management Agency but has not yet been mapped. We do have current historical information from the 1986, 1995 and 1997 floods that provides indications of likely flood damages. Deer Creek and Little Deer creek converge at the foot of the commercial district on Broad Street. The below grade level of a commercial building at the south- west corner of Broad Street has historically had approximately 3 feet of foot water intrusion during severe flood events. In 1995 and again in 2004 an underground culvert that connects Deer Creek and Little Deer Creek in a parking lot at the intersection of Sacramento Street and Broad Street has failed resulting in failure of the parking lot surface. In 1995 and 2005, Little Deer Creek overflowed its banks in Pioneer Park, a city owned park, with resulting damage to the tennis courts, baseball diamond and horse shoe pits.

Truckee in the eastern portion of Nevada County experienced flooding along West River Street during the flood of 1997. Of more concern in terms of mitigation however, has been the recurrent flooding (1995, 1997, 2005) along Gregory Creek, Trout Creek, along Donner Lake Road and South Shore Road.

Gregory Creek travels south through Negro Canyon, under Interstate 80 and into the west end of Donner Lake. After the creek crosses under Interstate 80 the banks of the creek become less defined and intermittently clogged with debris. When the creek jumps its banks, the water course fans out and multiple homes and businesses are flooded.

Trout Creek originates near the crest of the Sierra Nevada and flows southeast for approximately 5.5 miles to its confluence with the Truckee River. A 6,600' stretch of Trout Creek has been severely diverted and hardened to support logging and railroad development over the past 140 years, such that, the current alignment experiences flooding and has damaged the floodplain and riparian habitat.

During heavy rain or rain on snow events, drainage ditches along South Shore Drive become plugged with debris and cause water to overtop South Shore Drive and cause flooding to adjacent and downstream homes (24) with erosion from this runoff going directly into Donner Lake. Multiple utility lines, including high-pressure gas lines, have been exposed due to uncontrolled drainage.

Drainage crosses Interstate 80 and under Donner Lake Road in under-defined drainage channels. During high water discharge events drainage exceeds the channel capacity and causes flooding to approximately 20 homes up to 18 inches in depth and then floods across Donner Pass Road.

We are proposing several projects to mitigate these flooding issues.

#### **4.3.2.b Likelihood of Future Occurrences:**

High snowfall periodically combined with warmer rainfall are a fact of life in the Truckee Basin. Without application of some mitigation measures, these flooding events are likely to continue. The Town of Truckee has proposed several mitigation projects as part of this plan.

### **4.3.3 DAM FAILURES**

#### **4.3.3.a Past Occurrences:**

None, in past 120 years. In 1883 the “English Dam” on the Middle Fork of the Yuba River broke and unleashed 650 million cubic feet of water. A wave 60 feet high went downstream at 10 miles per hour. Eight or nine men are thought to have been killed.

#### **4.3.3.b Likelihood of Future Occurrences:**

Dam failure is another form of flood hazard. Failure can occur as a result of manmade or natural causes. Such causes include improper siting, structural design flaws, erosion of the face or foundation, earthquakes, massive landslides and rapidly rising flood waters. Nevada County has developed maps (County PDF Maps: “Dams of Nevada County-Eastern”; “Dams of Nevada County-Western”; “Inundation Map-Western Dams”; “Inundation Map-Eastern Dams” that depict the locations of 21 regulated and non-regulated privately owned dams in Western Nevada County and 25 such dams in eastern Nevada County. Twelve of the 46 dams are regulated and owned by organizations such as the Nevada Irrigation District, Pacific Gas and Electric, the Army Corps of Engineers or other organizations. Regulated Dams have filed dam inundation plans with the State of California, the cognizant federal agency and the County. There are populated areas within the inundation zone of several of these dams; others have public property (such as roads) located down creek. Specifics of this information are considered confidential by the Federal Energy Regulatory Commission as are the specific dam safety plans. Such plans and information are maintained by the County in the County Emergency Operations Center.

Within the eastern portion of Nevada County, classified in a higher earthquake intensity zone, are three major dams: Prosser Creek Reservoir Dam, Stampede Reservoir Dam (located with Sierra County) and Boca Reservoir Dam. One of the two major faults believed to be potential seismic sources appears to be relatively active and of special significance due to its close proximity to the three dams noted above. However, the Truckee earthquake of 1966 had a magnitude of 5.4 but only relatively slight damage occurred to both Prosser and Boca earth fill dams (source: Nevada County General Plan, Chapter 10-Safety Element).

In the western portion of the County, flooding in the event of failure of the Upper and Lower Scotts Flat Dams would inundate a wide area from east of Nevada City, through Nevada

City and west to Lake Wildwood. The failure of such a dam would most likely be the result of an significant earthquake (source: "Emergency Action Plan" Scotts Flat Dam, Nevada Irrigation District, issued August 2004).

Also in western Nevada County is the Rollins Reservoir on the Bear River, which flows into Combie Lake. The Nevada Irrigation District owns both. Inundation plane are in place for both bodies of water. It is predicted that a collapse of the Rollins Reservoir may impact Camp Far West reservoir in Yuba County. Three dams are owned by PG&E in the Spaulding Lake complex. Collapse of the three dams would cause significant flooding at the 2700 foot level in the Town of Washington.

However, the area of Nevada County where these dams exist is not located within a historically seismically active zone. In fact, the western half of the County resides within the lowest earthquake intensity zone in California. (source: Nevada County General Plan, Chapter 10-Safety Element; CMHP2004 Map 4.3A "Levels of Earthquake Hazards in California"; CMHP2004 Table 4.3A "Vulnerable California Populations").

Notwithstanding the above observations, the Town of Washington is directly on the Yuba River, in a steep canyon, without regular law enforcement presence and with a 30 minute warning time for problems with the Spaulding Lake Dam complex. Prudence would suggest that a community-warning siren that could be activated both for flooding or wildland fire would be a reasonable mitigation measure. The Washington Volunteer Fire Department will have a community siren installed by the summer of 2006.

#### **4.3.4 EARTHQUAKE**

According to the U.S. Geological Service, Nevada County falls within three earthquake ground movement intensity zones. The western half of the County is in the low intensity zone (11-20 % gravity), the middle quarter is in the moderate zone (21-30% gravity) and the eastern quarter, is in the 31-40% gravity zone. The CHMP 2004 Table 4.3A identifies 0% of Nevada County's population in an earthquake probability of gt 40% or more. See County PDF Map "Northern California Geologic Hazards".

##### **4.3.4.a Past Occurrences**

Since 1887, the Nevada County area has had experience with 36 earthquakes. The latest earthquake to affect Nevada County was the Boca (also called the Truckee) earthquake of 1966, which had a Richter Scale magnitude of 5.4. Twenty-one after shocks at a magnitude of four or greater were felt in the area, with the Russell Valley generally believed to be the

location of the earthquake epicenter. Although damage was extensive in the area, it was minor in scale, occurring almost entirely in unconsolidated natural fill. Relatively slight damage occurred to bridges along Interstate Highway 80 and both Prosser and Boca earth fill dams. The 1975 Oroville Earthquake (5.7) and the Loma Prieta earthquake of 1989 were felt in Nevada County but resulted in no reported damage. (Source: Nevada County General Plan, Chapter 10 Safety Element)

#### **4.3.4.b Likelihood of Future Occurrences:**

The western 50% of Nevada County is in the lowest Earthquake Shaking Potential for California (10-20% peak ground acceleration-light green) based upon Spring 2003 maps produced by the USGS. The middle 40% of Nevada County is located in the 20-30% peak ground acceleration yellow zone and the easternmost 10% of Nevada County is noted as being in the 30-40% light orange zone. (Source: CMHP2004 Map 4.3A “Levels of Earthquake Hazards in California”; CMHP2004 Table 4.3A “Vulnerable California Populations”)

A more thorough discussion of Earthquake Shaking Potential can be found in the California Multi-Jurisdiction, Multi-Hazard Mitigation Plan (CMHP-2004) in Section 4.1.

Lake of the Pines is the primary community developed in the 10-20% peak ground acceleration zone of Nevada County. Developed primarily since the 1960's, Lake of the Pines would not be expected to suffer significant damage during a normal earthquake event for this area.

Grass Valley, Nevada City, Penn Valley, Cedar Ridge and Lake Wildwood, Rough and Ready and North San Juan are the communities primarily in the 20-30% peak ground acceleration zone. Of these communities, Grass Valley, North San Juan, Rough and Ready and Nevada City are those, which have structures of un-reinforced masonry buildings in their older neighborhoods and commercial districts. While possible, it is not expected that normal seismic activity in this area would result in significant damage.

Truckee is the major community of Nevada County located in the 30-40% peak ground acceleration zone. Truckee is similar to Nevada City and Grass Valley in terms of the location of un-reinforced masonry buildings being located in the historic portions of town and the commercial district. Previous local earthquake history has not shown these structures to be at significant risk during normal events.

During our next plan update we will endeavor to obtain an accurate count of un-reinforced masonry structures/buildings as well as those, which have been remodeled but are not at current seismic standards in Nevada City, Grass Valley and Truckee and their proximate relationships to other structures.

## **4.3.5 AVALANCHE**

### **4.3.5.a Past Occurrences:**

Avalanche hazard areas are generally located on high, mountainous slopes and terrain at elevations above 7,000 feet. The most important factor necessary to release an avalanche is heavy snowfall. A rapidly increasing snow layer is unable to stabilize or bond with the older layer of snow or the ground below it, so that after a certain amount of time the new snow layer will simply slide off as an avalanche. Four avalanche hazard zones are defined, ranging from no hazard (most of Nevada County) to high hazard. High hazard are those where avalanches that could damage standard wood frame structures and/or bury automobiles are expected to occur with a probability of one chance in twenty per year. Identified high hazard areas within Nevada County include portions of Donner Lake, Tahoe-Donner and the Soda Springs areas. (source: Nevada County General Plan, Chapter 10 Safety Element)

### **4.3.5.b Likelihood of Future Occurrences:**

Given the elevation, topography and annual snowfall in the eastern portion of Nevada County, avalanches will continue to occur. Loss of life is normally due to individuals recreating outside of defined areas at the wrong time. Avalanche warnings are posted after winter storms and there is an organized ski patrol to reduce the risk of being caught in one.

Nevada County and the Town of Truckee have established mitigation measures in their general plans to identify avalanche hazard areas and to control new development in identified avalanche areas. (Source: Nevada County General Plan and Truckee General Plan 2020).

## **4.3.6 LANDSLIDES**

### **4.3.6.a Past Occurrences:**

A landslide can be defined as an event in which surface masses of slope-forming earth move outward and downward from their underlying and stable floors in response to the force of gravity. Unstable or potentially unstable slopes are those areas susceptible to slides, falls, creeps, or flows. Topography, climate, geology, and hydrology are factors contributing to slope instability. The degree of severity of these factors and their interactions is what determines potential hazard. Although slope movements can occur in any type of rock material, certain bedrock formations exhibit a high susceptibility to such movement. This type is found in the central portion of the County. However, most of the County's soils are underlain with dense bedrock formations and lack the characteristics contributing to landslide susceptibility. (source: Nevada County General Plan, Chapter 10 Safety Element)

There are other factors such as steep topography, past hydraulic mining, and large amounts of precipitation (as in 1997, 2004 and 2005) that create the potential for landslide activity. According to the Soil Conservation Service, any area adjacent to a hydraulically mined area is subject to landslide activity. The mining removes the toe of the slope resulting in slope instability uphill or upstream. Triggering devices such as an earthquake or heavy rainfall would set a slide in motion. Within Nevada County are many hydraulic mining sites, one of which, located east of Nevada City is an area of over 20,000 acres containing the majority of these sites. (source: Nevada County General Plan, Chapter 10 Safety Element).

The Spring (March and April) of 2006 has seen limited landslides and damage to roadways (Allison Ranch Road, Pleasant Valley Road and I-80/SR49) caused by ground saturation from unusually heavy and prolonged rainfall. Ground slippage has also occurred in the Cascade Shores area. The extent of the damage will not be clear until the ground is stabilized.

In the heavy rain season of the winter of 2004-2005, Cascade Shores a community northeast of Nevada City was the site of a landslide of the nature described above. A hillside above the community's sewer treatment plant, owned by Nevada County Sanitation District #1, slid to within a couple of feet of the treatment plant facilities rendering the plant unusable for a period of one week. Directly destroyed was an above ground sewer collection main. 178,000 gallons of partially treated sewage were released into Gas Canyon Creek which is a minor tributary of the Bear River and Rollins Lake. 6 private residences are located nearby. The landslide site is approximately 400 feet long and 300 feet high. The

total hillside runs for about a mile but does not endanger any other facilities. The mitigation measures installed after this event consisted of a debris wall and wire screen contour on the face of the slide material. There is some engineering disagreement as to whether these mitigation measures are sufficient to preclude future damages.

The estimate to relocate the plant is \$1.5 million with another \$1.5 million to accomplish plant upgrades.

Of significant concern to Nevada County sewer treatment facilities is the potential for enforcement fines occasioned by damage to their facilities. These fines can total in the hundreds of thousands of dollars. Some are in the range of \$10,000 per day. It is in the nature of sewer treatment facilities to be located near or on waterways, therefore the potential for fines is large and must be considered in the cost benefits analysis of sewer treatment plant protection.

#### **4.3.6.b Likelihood of Future Occurrences:**

Accepted that western Nevada County was the site of hydraulic mining in the mid-19<sup>th</sup> century that has resulted in some large acreage of potentially unstable soil conditions, we can expect that landslides will continue to occur. Mitigating in favor of the County is the generally poor soil stability and condition in these hydraulic mining areas, which precludes their future use and development.

### **4.3.7 SEVERE WEATHER (Wind, Lightning, Snow, Freezing, Heavy Rain)**

#### **4.3.7.a Past Occurrences:**

Records show that there have been 69 severe weather incidents affecting Nevada County in the period 1960 to 2000. 28 were incidents related to high wind, freeze or extreme cold accounted for 8 incidents, lightning was the issue in 5 incidents, 21 incidents were reported as heavy rain and 24 were incidents related to winter storm or snow. Some incidents included more than one cited cause. (source: NOAA, Sacramento Office, National Weather Service. 11/2005).

The Sierra Nevada foothills and mountains traverse Nevada County for weather purposes. Between latitude 120°, 43' west, and longitude 121°, rainfall is between 55 inches and greater than 75 inches annually.

The National Oceanic and Atmospheric Administration-Western Regional Office provided the following statistics in October 2005. Grass Valley data was available from 1965, Nevada City from 1914 and Truckee from 1948. Specific year-by-year data is available from the Nevada County Office of Emergency Services and the Sacramento Office of the National Weather Service.

**NEVADA COUNTY RAINFALL AND SNOW FALL STATISTICS AS OF 2005**

Location	Precipitation/Inches			Snowfall/Inches		
	Mean	High	Low	Mean	High	Low
Grass Valley	52.98	94.77	16.52	9.08	27.10	0.00
Nevada City	54.76	101.97	27.30	22.0	104.80	0.00
Truckee	31.31	54.62	16.04	210.91	444.30	91.30
Source: National Weather Service, Sacramento Office 11/2005						

**4.3.7.b Likelihood of Future Occurrences:**

Rain, snow, lightning and high winds are likely to continue as one of the natural threats to Nevada County. Not specifically mentioned above were blizzards, which are the combination of wind and blowing snow. Closure of roads and highways due to blowing snow is a common and annual event above 5,000 feet in the Sierra Nevada. The Town of Truckee and CALTRANS annually hold a pre-winter season community meeting in Truckee to review winter blizzard plans. The exact and full extent of global warming may become more evident over the next few decades, which will conceivably have an effect on county weather related incidents.

## **4.3.8 VOLCANO**

### **4.3.8.a Past Occurrences:**

Of approximately 20 volcanoes in the State of California, only a few are active and pose a threat. Of these, the Long Valley Caldera and Mt. Lassen are the closest to Nevada County. Mt. Lassen most recently erupted in 1914 and some ash-fall was reported in Truckee. Research of the records of the Board of Supervisors for that time shows no declaration of emergency or any other official notice taken.

### **4.3.8.b Likelihood of Future Occurrences:**

Nevada County could be susceptible to ash fall from either the Long Valley Caldera or Mt. Lassen but it would most likely be less than 5 centimeters in thickness by interpretation of the USGS Volcanic Hazards Ash Dispersion Map. (CA-MHMP-2004 Maps 7.1K "California Volcanoes and Calderas" and 7.3D "Volcanic Hazards in California". Nevada County is not likely to be significantly impacted by lava or debris material flows.

## **4.3.9 LAND SUBSIDENCE**

### **4.3.9.a Subsidence**

Subsidence consists of surface land sinking into below-surface holes or fissures. Subsidence may be caused by a variety of natural conditions, some in combination with human activity. The primary cause of actual and potential subsidence in the Grass Valley and Nevada City areas is previous underground withdrawal of material from mining. Less hazardous and generally better controlled is improper burial of organic materials during land development.

Subsidence hazards in Grass Valley, Nevada City and vicinity are principally man-made, rather than natural geologic phenomena, and are addressed under Mine-Related Hazards.

### **Mine Related Hazards:**

Despite its colorful contribution to local history, mining had, and continues to have, a serious "downside" in terms of safety. Unfortunately, the magnitude of potential mine-related problems in the Sierra foothills is just starting to be recognized. That recognition includes an admission by State Mining and Geology experts that little is known about the locations of mine-related hazards, a factor inhibiting comprehensive solutions.

Mine-related hazards include the presence of open holes at ground surface; inadequately covered/shored up shafts and tunnels below ground level; tailings, and other abandoned mining features. Safety and hazard concerns resulting from old mine operations include the risk of falling into open shafts, surface collapse/subsidence into old shafts, and the presence of residual toxic materials generated in mining processes.

A substantial portion of the Grass Valley and Nevada City area is underlain by a deep, extensive labyrinth of abandoned mine tunnels. The Empire Mine tunnels alone extend some 365 miles beneath the City of Grass Valley. Literally dozens of mining claims were "worked" in the Grass Valley and Nevada City area during the heyday of gold mining. Some were large, mechanized operations. Most were small and more labor-intensive.

Hard- rock mining, as historically practiced in western Nevada County, was also characterized by 1) one or more angular shafts from surface to underground tunnels for transporting miners, equipment, and ore and 2) vertical air shafts from tunnels up to the surface, whose functions were to admit fresh air to the otherwise depleted atmosphere below. Tailings piles (ore storage) and tailings ponds (used in ore processing) were also typical surface features of deep mines. Grass Valley figure 7.1 depicts locations of mine tailings piles in the Planning Area (U.S. Geological Survey data). Grass Valley Figure 7.2 depicts old mining claims in the Grass Valley area. These maps are potential indicators of mine-related hazards, but are by no means definitive guides to where surface hazards do or do not exist.

Mines and mining, always dangerous while in operation, posed new dangers when abandoned. Airshafts were left exposed or covered by a few boards. They are typically holes of 4 to 10 feet in diameter on the surface, extending hundreds of feet down to the mine tunnels below. Access shafts were often covered hurriedly by closing off the mine mouth (entrance) with logs, then backfilling with rock and earth. In time, the forgotten-but-"reclaimed" site sprouted vegetation, hiding a large hole lurking perhaps as little as 8 to 10 feet below the surface.

The susceptibility of mine shafts to subsidence or cave-ins depends on a number of factors, particularly water content of the soil above and the depth and physical condition of the shaft. The Division of Mines and Geology believes that septic systems contribute to subsidence by keeping otherwise dry soil overburden wet and heavy, thus triggering collapses that might otherwise not occur.

The greatest problem regarding mine-related surface hazards is the absence of information about the locations and physical characteristics of abandoned tunnel entrances and shafts. Some are known, cataloged and marked while others are not. Most are on privately owned property. Without current, comprehensive information, it is difficult to assess the magnitude of the problem or to devise remedial programs.

(Material source for this Section: Grass Valley 2020 General Plan, Chapter 7 Safety Element).

#### **4.3.9.b Past Occurrences:**

In 1986 there was a subsidence ground collapse on County owned property immediately adjacent to Wet Hill Road. This collapse was due to an air vent that had been capped over in prior decades but which had eroded away due to wet soil conditions. This hole was filled with more than 60 yards of rock and soil and not been the source of further issues.

The collapse of the Old Brunswick shaft of the Idaho-Maryland Mine Complex near Grass Valley during the 1998 storm season dramatized the danger to persons and property presented by abandoned mines. In that May 1998, incident, the sudden subsidence of land above a long-hidden mine entrance claimed property and undercut the foundation of a new home near Grass Valley.

#### **4.3.9.c Likelihood of Future Occurrences:**

Soil subsidence due to mining activity has historically been seen as an outcome of the extensive mining activity that was the mainstay of the early economy of western Nevada County. While there have been anecdotal stories of mineshaft cave-ins, we do not have solid information of the location and condition of the various shafts and vents that do exist. In conjunction with the CA. Division of Mines and Geology, a project and methodology needs to be developed that can provide this information. Certainly, as development projects are proposed, attention needs to be placed on identifying and cataloging the existence of shafts and vents within development project boundaries.

## **4.3.10 NATURALLY OCCURRING ASBESTOS**

### **4.3.10.a Discussion of Issue:**

The foothills of the Sierra Nevada have formations of naturally occurring asbestos some of which have been mapped and some which have not.

Asbestos is a term used for several types of naturally occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in the state. Serpentine rock, which has a grayish-green to bluish-black color and an often shiny appearance, often contains chrysotile asbestos and is abundant in the Sierra foothills.

Asbestos is not found in all serpentine rock, but when it does occur, it is typically present in amounts ranging from less than 1% up to about 25% or more. Asbestos is released from serpentine rock when it is broken or crushed. This can happen when cars drive over unpaved roads or driveways surfaced with serpentine rock, when land is graded for building purposes, or at quarrying operations. It is also released naturally through weathering and erosion. Once released from the rock, asbestos can become airborne and may stay in the air for long periods of time.

All types of asbestos are hazardous and may cause lung disease and cancer. The longer a person is exposed to asbestos and the greater the intensity of exposure, the greater the chances for a health problem. The Air Resources Board (ARB) adopted a statewide control measure, which prohibits use of serpentine rock for surfacing applications if it has more than 5% asbestos, and requires testing of serpentine material that is sold.

Recent activities and concerns of the federal Environmental Protection Agency with regard to asbestos in the Sierra Nevada foothills will place this issue on the forefront of future mitigation activities.

### **4.3.10.b Past Occurrences:**

There have not been significant enforcement activities concerning naturally occurring asbestos in Nevada County by the Environmental Protection Agency.

#### **4.3.10.c Likelihood of Future Occurrences:**

The are mapped instances of naturally occurring asbestos in Nevada County. It is likely that there are also additional areas that have not been identified as yet.

A future mitigation project could include the exploration, content testing and mapping of asbestos sites. Appropriate mitigation measures could flow from this information.

### **4.3.11 AGRICULTURAL HAZARD**

#### **4.3.11.a Discussion:**

Prior to the 1970's, Nevada County was primarily a timber producing, mining, light agriculture, tourism and snow activities county. Timber production is still the highest value agricultural crop. Wine grape production has increased in value with nearly 700 acres in production. Organic and boutique agricultural growers have increased their presence. Historic agricultural pursuits have taken place primarily in the Chicago Park-Peardale area and in the south and western portion of the County. Cattle ranching and horse breeding have maintained their historic place in Nevada County agriculture.

Nevada County is the 54<sup>th</sup> of California 58 counties in terms of agricultural production. Located on the western slope of the Sierra Nevada between 1,000 and 6,000 feet in elevation, the agricultural lands of Nevada County have historically been affected by weather related events such as heavy rain, freezing temperatures and drought.

Nevada County agriculture has a minimal use of pesticides. As result there are few pesticide threat hazards.

Sudden Oak Death syndrome is a concern to Nevada County. Sudden Oak Death has been intercepted by the Agricultural Commissioner by inspecting shipments into the County.

#### **4.3.11.b Past Occurrences:**

The state declared drought of 1976 also impacted Nevada County although we were unable to locate specific records of the financial loss to Nevada County from these events in 1976. Agricultural interests in Nevada County have also been periodically impacted by severe weather usually in the form of freezing (1972, 1990, 1998, 2005) and late heavy rainfall (1958, 1963, 1972, 1982, 1986, 1990, 1995, 1997, 2003 and 2005). Losses are normally smaller than adjacent counties with larger agricultural operations. These losses however, are to small businesses that cannot readily absorb such economic impacts.

#### **4.3.11.c Likelihood of Future Occurrences:**

Agricultural disaster events are likely to continue in Nevada County due to its' geographic location on the west slope of the Sierra Nevada. The potential effects of global warming will be a mixed bag for Nevada County. While freeze events may be expected to mitigate, effects from late heavy rainfall may increase. There does not, at this time, appear to be any effective mitigation measure that could be applied to random freeze conditions or heavy late season rainfall.

The Agricultural Commissioner supports shaded fuel breaks and other similar efforts to reduce the fire threat. These techniques can help protect vineyard and timber production assets.

### **4.3.12 HUMAN HEALTH HAZARDS**

#### **4.3.12.a Discussion:**

The impact to human health that wildlife, and more notably, insects, can have upon an area is substantial. The feared avian flu pandemic potentially emerging in 2006 or later would be expected to have serious consequences to health and economics worldwide. Nevada County due to its relatively dispersed population may be impacted differently than the states' major urban areas and their compacted human population.

#### **4.3.12.b West Nile Virus:**

A recent natural hazard to affect California is the West Nile Virus (WNV). Mosquitoes transmit this potentially deadly disease to livestock and humans alike. WNV first struck the northern hemisphere in Queens, N.Y., in 1999 and killed four people. In 2003, all 50 states warned of an outbreak from any of the 30 mosquito species known to carry it. From 62 severe cases in 1999, confirmed human cases of the virus spread to 39 states in 2002, and killed 284 people. Less than 1% of those infected develop severe illness. People over 50 years of age appear to be at high risk for the severe aspects of the disease.

Nevada County recognizes the potential for WNV to occur within the County and has initiated a public outreach campaign and a limited control program. The Nevada West Nile Virus task force prepared for the probable arrival of WNV in 2005 through focused efforts on reducing the mosquito population and educating the public.

#### **4.3.12.c Past Occurrences:**

WNV was detected on a very limited basis in horses and humans in California in 2003. San Diego County reported 1 veterinary case; Imperial County and Riverside County each reported 1 human case.

By July of 2005, WNV had arrived in Nevada County. In 2005 Nevada County reported 29 cases of infected dead birds, 3 infected dead squirrels, 5 equine cases; 3 died and 4 human cases with no deaths. (Source:[http://westnilemaps.usgs.gov/ca\\_human.html](http://westnilemaps.usgs.gov/ca_human.html))

#### **4.3.12.d Likelihood of Future Occurrences:**

The state will continue their surveillance for the disease in 2006. Based on nationwide trends, the second year is often more severe than the first year. Nevada County will begin its proactive treatment program in the Spring of 2006

#### **4.3.12.e Avian Flu:**

The emergence of avian flu in the human population propagated by human-to-human contact has not been confirmed at the time of this plan. National response and appropriate prophylaxis are still being debated at the worldwide level. Nevada County through its Public Health Department will be monitoring and preparing response plans as this scenario unfolds.

As appropriate mitigation measures are developed for national implementation, Nevada County would apply approved public health and public safety measures and seek such national funding as might be appropriate.

**4.3.12.f Likelihood of Future Occurrences:**

Nevada County has approximately 625 chickens within 25 small poultry producers. There are 2 sentinel flocks in Nevada County. There are also active 4H and Future Farmers of America programs that will be actively monitoring the presence of suspicious fowl.

## **4.4 HUMAN CAUSED HAZARDS (Maps are in Appendix B)**

### **4.4.1 HAZARDOUS MATERIALS**

#### **4.4.1.a The potential for a hazardous materials incident:**

Hazardous materials incidents may occur anywhere and at any time in Nevada County. The potential for a hazardous materials incident in Nevada County depends on the volume, distribution, and/or use of chemicals and other hazardous substances in a particular area. An assessment of the known hazardous material threats within Nevada County has been developed. In general, the likelihood of a hazardous materials incident is greatest in the following areas:

#### **1. Transportation Routes**

Highways, railways, and commercial and military aviation routes constitute a major threat because of the multitude of chemicals and hazardous substances transported along them. Interstate 80 and State Routes 20, 49, 89, 174, and 267 are areas of concern, as are the Union Pacific railroad tracks, which roughly parallel I-80. In addition, the underground pipelines which provide natural gas to various parts of Nevada County and the Underground Hydrocarbon pipeline, which runs adjacent to the Union Pacific railway tracks.

#### **2 Business and Industry**

The manufacturing and light industrial firms located in the un-incorporated portions of the county and businesses in each of the incorporated cities (Grass Valley, Nevada City, and the Town of Truckee) offer the potential for hazardous materials incidents.

#### **3. Agriculture**

Accidental releases of pesticides, fertilizers, and other agricultural chemicals may be harmful to human health and the environment. The majority of the agricultural industry in Nevada County consists of ranching and orchard operations in the western portion of the county.

#### **4. Illegitimate Business**

Illegitimate businesses, such as clandestine drug laboratories, are a significant threat to human health, property, and the environment. In many instances, the residue is discharged into a public sewer or private sewage disposal system, or is dumped in remote areas of the county or along the side of the road, posing a serious health threat to the unsuspecting person who stumbles across it.

#### **5. Previous Military Ordnance Uses**

Beale AFB located in Yuba County on our western border, was previously a military ordnance and test firing range. There have been some instances of exploded and unexploded materials being found in Nevada County as part of the firing range. Since 2000 Beale AFB has been engaged in a comprehensive identification and cleanup of the firing range but there are still instances of materials still being found in Nevada County.

### **4.4.2 ARSON AND COMMERCIAL FIRES:**

#### **4.4.2.a Discussion:**

Ten percent of all fires in Nevada County are believed to be arson related fires, either wildland interface or commercial. While both types of fire related incidents are of extreme concern to Nevada County, the commercial fire has a potential for great destruction and economic loss. A commercial fire within the business districts of Nevada City, Grass Valley, Truckee, Penn Valley, Lake of the Pines, or Lake Wildwood would result in serious losses of sales inventory, sales tax, property tax reduction, and loss of employment or loss of life. Secondary effects could be felt in the transient occupancy tax and on the vibrancy of related businesses. In a worst case scenario, multiple businesses could be involved as well as the loss of housing stocks that are sometimes found as “over the store” units.

The commercial districts of smaller foothills cities are normally found within one or two well-defined areas in each city. These areas are usually only a few blocks wide and a few blocks long but encompass much of the employment opportunities and commercial activity of the city.

<u>City/Town</u>	<u>Commercial Area</u>
Nevada City	historic Downtown
Nevada City	Old Seven Hills
Nevada City	Gold Flat/New Mohawk Industrial area
Grass Valley	historic Downtown
Grass Valley	Glenbrook
Grass Valley	Pine Creek
Grass Valley	Whispering Pines
Grass Valley	Loma Rica Industrial Park
Lake of the Pines	Combie Center
Lake Wildwood	Wildwood Center
Truckee	historic downtown/Brickletown
Truckee	Gateway Center
Truckee	Albertson's Center
Truckee	Airport industrial complex
Truckee	The Factory Outlet Mall
Truckee	Gateway Center, East and West
Truckee	Pioneer Industrial/Commercial Park
Penn Valley	Penn Valley Center

#### **4.4.2.b Past Occurrences:**

In 2001 a commercial fire started in the kitchen of Friar Tucks, a highly successful and well-known restaurant in downtown historic Nevada City. By its conclusion, the restaurant, offices of the County Probation Department, an off Broad Street live theatre and The Herb Shop had been completely destroyed. Other businesses such as The Earth Store, Java Johns and near by businesses suffered lesser damages.

In November 1993, a restaurant in downtown historic Truckee exploded due to a natural gas leak, which resulted in one death, serious life threatening injury to a small child and the complete destruction of the restaurant, businesses on both sides and damage to the Old Truckee Hotel.

Neither of these events happened at the height of the business day. Both were in the center of the commercial district. Both sites threatened the economic vitality of the city, business activity of the region and the historic assets of the county. Had anything gone wrong in the suppression of the resulting fires the losses would have been staggering.

#### **4.4.2.c Likelihood of Future Occurrences:**

Arson and or a commercial fire will continue to remain as serious threats to the commercial and business vitality of the county's town and cities and developed commercial areas. Enforcement of the county and municipal building, hazardous materials and fire codes will greatly mitigate against future losses of this type. The City of Grass Valley has included in this mitigation plan a proposed project for fire protection of its downtown district.

### **4.4.3 AIRBORNE HAZARDS**

#### **4.4.3.a Past Occurrences and Discussion:**

The 2004 Annual Report "Executive Summary" of the Northern Sierra Air Quality Management District reports: "Overall air quality in most areas of the Northern

Sierra Air Quality Management District (NSAQMD or District) during 2004 was good. Nevada County is a component county of the Northern Sierra Air Quality Management District.

Ozone levels in the Broader Sacramento Area (BSA) were quite high at times and unfavorable winds blew those high ozone levels toward the Grass Valley area for numerous exceedance days. Air pollution transport impacts were, as is typical in the western foothill region of the Sierra Nevada, still significant. The NSAQMD is classified as being impacted by overwhelming transport from upwind areas. The primary source of the District's ozone pollution is from the BSA, and to a small degree the San Francisco Bay area. However, due to unusually favorable dispersion characteristics in California's summertime weather, Grass Valley experienced one of its cleanest years on record.

In Grass Valley, there were only 14 days that exceeded the National 8-hour standard for ozone. Typically, we would expect to see 22 such days in Grass Valley. On the few hot, stagnant days that did occur during 2004, the BSA was the major and primary contributor to the high ozone levels in Grass Valley. This ozone was transported into the District on the predominant southwest winds. There were only 14 days with exceedances of the 8-Hour National Ambient Air Quality Standards (NAAQS). Additionally, there were only 34 hours on 11 separate days exceeding the California Ambient Air Quality Standard (CAAQS) for ozone. The lowest since 1997.

Carbon Monoxide (CO) was monitored within the District during the early months of 2004. Specifically, in response to the concerns of some citizens in Loyalton, the District did some short term CO monitoring. Ambient CO in Loyalton was found to be insignificant. This does not preclude the possibility of future CO monitoring studies both there and elsewhere within the District.

PM10 (particulate matter with an aerodynamic diameter of 10 microns or less), once the primary particulate of concern within the District, has been supplanted by PM2.5 (particulate matter with an aerodynamic diameter of 2.5 microns or less) as the pollutant of concern. The District operated 4 sites with PM2.5 samplers and 5 sites with PM10 samplers. Major contributors to both the PM10 and PM2.5 levels are woodstoves, forestry management burns, residential open burning, vehicle traffic and windblown dust. These problems can be relieved or exacerbated by meteorology, e.g. winds dispersing or temperature inversions concentrating air pollutants.

The Truckee basin (aka the Martis Valley), Portola, and especially Quincy (located within the American Valley), are subject to strong inversions and stagnant conditions in the wintertime. Those conditions, coupled with intensive residential wood burning, can result in very high episode PM2.5 levels.

2004 saw the activation of two new Beta Attenuation Mass (BAM) Monitors in Grass Valley and Quincy. These BAMs replaced the old Tapered Element Oscillating Microbalances (TEOMs) that were disabled during a thunderstorm in August of 2003. Additionally, new meteorological equipment was installed at both sites. PM10 levels in Quincy were near their all-time low reached in 2003. In Quincy, county ordinance requires that when a residence is sold, any non-EPA-certified wood fired appliance must be either removed or rendered inoperable. It is up to the new owner to choose whatever source of heat he/she wants, as long as it is Environmental Protection Agency (EPA) certified and a Building Department approved device. District staff conducts close-of-escrow Certificate of Compliance inspections.

Additionally, residential open burning in the downtown area is completely banned, while burning is greatly curtailed within the outlying areas of the American Valley. The result of such controls has been marked, steady air quality improvement – a real air quality success story. Grass Valley effective in 2006 has also banned outdoor burning and burn barrel use within city limits.

The Town of Truckee has recently enacted similar controls on woodstoves. The District has seen an increasing drop in particulate levels starting in 2000; unfortunately, those levels flattened out in 2003 and started to rise sharply in 2004. Possible explanations are the weather and increased growth offsetting the gains of increased controls. The increased PM10 levels are very likely due in part to a more accurate reflection of actual PM10 levels as recorded by the new BAM. Additionally, the longstanding Wedding Hi-Volume sampler was replaced with an Andersen 1200 Hi-Volume sampler. Both the BAM and the Andersen show a dramatic increase in PM10 levels. However, PM2.5 levels continued to drop. A possible explanation for a reduction in fine particles versus an increase in coarse particles could be the reduction in combustion particles versus wind blown dust.

Nevertheless, the PM10 levels are still much lower than those levels measured during the previous decade. No exceedances of the NAAQS for PM2.5 have been observed, other than one wildfire related exceedance back in 2001. EPA has plans to abandon the existing PM10 standard in favor of the relatively new PM2.5 standard.

Smog an oxidant that can irritate eyes, nose, throat and lungs and in relatively low concentrations can cause damage to vegetation. Ozone concentrations are typically quite low in the winter months but increase dramatically during the summer season.

Ozone is classified as a secondary pollutant. This means that ozone is not directly emitted into the atmosphere by cars or factories but is produced by photochemical reactions between nitrogen oxides (NOX) and reactive organic gases (ROG), referred to as "precursor pollutants". Ozone levels are influenced by many factors, such as local precursor pollutant levels, ozone transport from metropolitan areas, solar radiation duration and intensity, inversion heights and strengths, vertical mixing, and wind patterns. Obviously, weather plays an important role in ozone formation. Although weather typically doesn't *create* pollution, it certainly can *exacerbate* an existing pollution problem.

In summation there are four key points relevant to the NSAQMD's existing air quality: 1. The District's state and federal non-attainment status for ozone is due to overwhelming air pollution transport from upwind urban areas, i.e. the Sacramento and Bay areas. 2. Improvements in air quality, with respect to ozone, will depend largely on the success of air quality programs in upwind areas. 3. Anticipated growth in local population will add to locally generated pollution levels. Therefore, local mitigations are needed to prevent further long-term air quality degradations. Otherwise, the local contribution may increase to the point where the transport excuse will become less viable and more emphasis will then be placed on mandated local controls. 4. State and Federal Land Managers anticipate a marked increase in prescribed burning within the next 5 years. This may have a tremendous impact on local PM10 & PM2.5 levels, unless appropriate mitigations are employed."

#### **4.4.3.b Likelihood of Future Occurrences:**

In as much of the Airborne pollution present in Nevada County is caused from upwind migration from the Greater Sacramento and to a lesser degree the San Francisco Bay areas. There are few mitigation methods available with current applications. Certainly burn restrictions and cleaner burning wood stoves will provide most of the currently available technology. Rigorous enforcement on dust control procedures on construction projects will lessen the impact of dust particulates.

# **NEVADA COUNTY**

## **Multi-Jurisdiction, Multi-Hazard Mitigation Plan**

### **4.5. VULNERABILITY ASSESSMENT**

The Nevada County Emergency Services Council conducted a Vulnerability Assessment as part of the Risk Assessment process. This assessment included the unincorporated county of Nevada, the City of Nevada City, the City of Grass Valley and the Town of Truckee. All other districts are a subset of these incorporated areas. This vulnerability Assessment includes an identification of assets at risk and an estimate of associated potential losses.

Also within the Nevada County Watershed area, are facilities owned or controlled by the federal government and the State of California or assets owned by other public or non-profit agencies such as public utilities.

### **Year 2005 est. Nevada County Areas, and Population**

<b>Jurisdiction</b>	<b>Population</b>	<b>Square Miles</b>
City of Nevada City	3,050	1.1
City of Grass Valley	13,006	4.6
Town of Truckee	15,657	32.0
Unincorporated county	67,242	936.6
<b>TOTALS</b>	<b>98,955</b>	<b>974.3</b>

## Year 2020 Nevada County Areas and Estimated Population

<b>Jurisdiction</b>	<b>Population</b>	<b>Square Miles</b>
City of Nevada City	3,200	1.1
City of Grass Valley	23,395	11.35
Town of Truckee	22,980	32.0
Unincorporated county	78,832	929.85
<b>TOTALS</b>	<b>126,912</b>	<b>974.3</b>

### **4.5.1 ASSESSOR DATA**

The following data was obtained from the Assessor of Nevada County based upon the 2005 estimated Certified Values for secured property. The use of this data is subject to some limitations. The most significant limitation was created by California Proposition 13. Rather than adjusting real property valuations annually, property valuations are adjusted when property is transferred. This method of valuation results in property values that may be substantially below the true market value.

The Nevada County Assessor believes that approximately 30% of real property changes ownership in each valuation year. This helps to mitigate toward a more correct valuation. Affecting the roll valuation further is the extremely strong real estate market of 2003-2005, which resulted in more frequent property turnover.

Complicating the true value however, was the inflated prices that buyers were willing to pay in an aggressive market. Over time, value increases (or decreases) will stabilize closer to the real value. We are already noting a slow down of the real estate market.

Market value is then organized into the land value and the value of the improvements. In a disaster, generally, the land is not a loss. This would have to be examined in light of toxic substances that might be left on the land and thus reduce its value.

Improved value is the value of the infrastructure, which may or may not be lost, and the physical improvements situated on the land, which also may or may not be a total loss. Obviously, the permutations that can be made of the data are significant.

In consequence, we must confine ourselves to the most reasonable loss threat within each hazard category and the worst-case scenario in the determination of the value of possible losses. There could even be room for disagreement about the extent of the worst-case loss scenario and that is where the affected jurisdiction and the Emergency Services Council reached agreement for planning mitigation measures.

### **Nevada County Assessor-Secured Property Total Values 06/07 (est. 11/05)**

	<b>Western County</b>	<b>Eastern County</b>	<b>All County</b>
<b>Parcels</b>	65,108	16,337	81,445
<b>Land</b>	\$3,396,495,219	\$1,307,731,968	\$ 4,704,227,187
<b>Improvements</b>	\$6,004,665,378	\$2,847,857,032	\$ 8,852,522,410
<b>Personal Property</b>	\$ 50,403,278	\$ 7,151,159	\$ 75,554,437
<b>Fixtures</b>	\$ 4,762,172	\$ 390,088	\$ 5,152,260
<b>All Exempt</b>	\$ 346,273,265	\$ 54,187,385	\$ 400,460,650
<b>Homeowners Exem</b>	\$ 147,240,577	\$ 21,613,463	\$ 168,854,040
<b>Total</b>	\$9,257,293,359	\$4,130,556,325	\$13,387,849,684

### **4.5.2 CRITICAL FACILITY INVENTORY**

The Nevada County Emergency Services Council commissioned a separate facility asset study for each of the incorporated cities/towns and several of the districts. This study, completed by each of the participating entities, requested information in the following categories:

Name/Description of the Asset
Location/street address of the asset/ property

Size in square feet Replacement value in \$
Contents value in \$ Source of information
Function or use value in \$ Displacement cost \$ per day
# occupancy or capacity In flood plain Y/N
On or near earthquake fault line Y/N Critical Facility Y/N
Economic impact if damaged Y/N Special historic, or other considerations Y/N
Serves low income, elderly or vulnerable population Y/N
In past 100 years has suffered or been potentially threatened by damage from: Y/N
Wildfire Flooding Storm Drought Landslide Avalanche Dam Failure Earthquake Windstorm Volcano Subsidence Airborne Hazard Hazmat Incident Arson or commercial fire

These surveys are very large and complex file documents. They are available for review by the Governor's Office of Emergency Services or FEMA plan reviewers as necessary.

Using a classification scheme employed by Placer County, one of our nearest county neighbors, we have designated three categories of critical facilities.

Class 1 facilities include those facilities that contribute to command, control, communications and computer capabilities associated with managing an incident from initial response through recovery.

**Class1 facilities include:**

Primary and alternate Emergency Operating Centers (EOC)

- All Dispatch Centers
  - Sheriff
  - Grass Valley Police
  - Truckee Police
  - CDF/TNF Interagency Communications Center
  - CHP Truckee
  
- Emergency Communications Infrastructure
- Telephone communications facilities, radio towers
- Cell phone Towers
- Regional MEDNET
- Sierra Nevada Memorial Hospital Communications
- Primary and Alternate Computer Information Infrastructure
- Major transportation corridors
- Electric power generation/transmission facilities

**Class 2 Facilities include:** those facilities that house emergency services capabilities.

- All Police Stations
  - Grass Valley Police
  - Nevada City Police
  - Truckee Police
  
- All Fire Stations
- All CHP Stations

- Grass Valley
- Truckee
- All Hospitals
- Airports
  - Truckee
  - Nevada County
- Ambulance Staging Stations
- Grass Valley Fire Suppression Attack Base (CDF-Nevada County Airport)

**Class 3 facilities include:** those facilities that enable key utilities and can be used as evacuation centers/shelters/mass prophylaxis sites, remains burial, etc.

- All schools
- Nevada County Fairgrounds
- Water Treatment Plants
- Emergency power generation facilities
- Fuel pipelines
- Fiber-optic lines
- Sewage infrastructure
- Memorial Halls (Veterans, Church, Grange Halls)
- Park Facilities
- Solid Waste Landfill and Transfer stations
- Sierra College
- Large community churches
- Recreation District facilities
- Cemeteries
- Water storage facilities

### **4.5.3 CULTURAL AND NATURAL RESOURCE INVENTORY**

Nevada County is the site of numerous historic and cultural resources. Some are included in the National Register of Historic Places; others are included as California State Historical Landmarks; all of downtown Nevada City is a historic district and there are four California State Parks in Nevada County. Still other sites have been identified by the Nevada County Landmarks

Commission. This report includes a few others that have been locally identified. Finally, two national forests administered by the U.S. Forest Service, Tahoe and Toiyabe are located in Nevada County.

In evaluating the vulnerability of a given area to disaster, it is important to inventory the cultural and natural resources specific to that area. Cultural and Natural Resources are important to identify pre-disaster for four reasons:

- First, the community may decide that these sites are worthy of a greater degree of protection than currently exists, due to their unique and irreplaceable nature;
- Second, should these resources be impacted by a disaster, knowing of their location ahead of time allows for more prudent care in the immediate aftermath, when the potential for additional impacts are greater;
- Third the requirements and costs for repair, reconstruction, restoration, rehabilitation and /or replacement usually differ from the norm; and
- Fourth, Natural Resources, such as wetlands, and riparian habitat, can have beneficial functions that contribute to the reduction of flood levels and damage.

### **Sites Identified on the National Register of Historic Places (11/05)**

<b>Resource Name</b>	<b>Address</b>	<b>Location</b>	<b>List Number</b>	<b>Additional</b>
Boca Dam	S. end of Boca Reservoir	Truckee	81000712	
Bridgeport Covered Bridge	SW of French Corral over S. Yuba River	French Corral	71000168	State Park
Donner Camp	2.6 mi W of Truckee	Truckee	66000218	
Emmanuel Episcopal Ch.	245 S. Church Street	Grass Valley	82004984	
Empire Mine	338 Empire Street	Grass Valley	77000318	State Park
Foote's Crossing Road	Tahoe National Forest	North Columbia	81000180	
Grass Valley Public Library	207 Mill Street	Grass Valley	92000267	Carnegie Lib.
Kidd and Knox Building	228-236 Broad Street	Nevada City	80004628	
Kruger House	10292 Donner Pass Road	Truckee	82002220	C.B. White Bldg
Malakoff Diggins-North Bloomfield	Graniteville Star Route	North Bloomfield	73000418	State Park
M.L. Marsh House	254 Boulder Street	Nevada City	73000415	
Meadow Lake Petroglyphs	Address restricted	French Lake	71000169	
Mt St. Mary's Academy And Convent	Church and Chapel Streets	Grass Valley	74000543	
National Exchange Hotel	211 Broad Street	Nevada City	73000416	aka Bicknell's block

Nevada Brewery	107 Sacramento Street	Nevada City	85002303	
Nevada City Firehouse #2	420 Broad Street	Nevada City	74000544	
Nevada City Downtown Historic District	Bounded by Spring, Bridge Commercial, York, Washington, Coyote and Main Sts.	Nevada City	85002520	
Nevada City Free Public Library	211 N. Pine Street	Nevada City	90001809	Carnegie Lib.
Nevada Theatre	Broad and Bridge Sts.	Nevada City	73000417	aka The Cedar Theatre
Ott's Assay Office	130 Main Street	Nevada City	75000447	aka So.Yuba Canal Office
Red Dog Townsite	Address restricted	Nevada City	01000968	aka Brooklyn
A.A. Sargent House	449 Broad Street	Nevada City	80000825	Aka Sargent-Freeman House

### **Sites Identified as a California Historical Landmarks**

<b>State Landmark Number</b>	<b>Resource Name</b>	<b>Address</b>	<b>Location</b>
134	Donner (Pioneer) Monument	East end Donner Lake	Truckee
247	World's First LD Telephone Line	Pleasant Valley Road	French Corral
292	Home of Lola Montez	248 Mill Street	Grass Valley
293	Home of Lotta Crabtree	238 Mill Street	Grass Valley
294	Town of Rough and Ready	5mi west of Grass Valley, R & R Highway	Rough and Ready
297	Discovery of Quartz Gold	Jenkins Street	Grass Valley
298	Empire Mine	1.25 mi east of Hwy 49	Grass Valley (State Park)
390	Bridgeport Covered Bridge	Pleasant Valley Road w. of Hwy 49	County (State Park)
628 & 629	Alpha/Omega Hydraulic Diggins	State Hwy 20, 10 mi west of I-80	County
914	Holbrooke Hotel	212 W. Main Street	Grass Valley
780	First Transcontinental Railroad	Truckee Depot	Truckee
799	Overland Emigrant Trail	Hwy 49 & Wolf Creek	County
832	South Yuba Canal Office	143 Main Street	Nevada City
843	North Star Mine Powerhouse	Mill St at Allison Ranch Road	Grass Valley

852	North Bloomfield Mining and Gravel Co.	Malakoff Diggins State Park	County (State Park)
855	Mt St. Mary's Convent and Academy	S. Church Street	Grass Valley
863	Nevada Theatre	401 Broad Street	Nevada City
899	National Hotel	211 Broad Street	Nevada City

## **HISTORICAL LANDMARKS AND DEDICATED SITES IN NEVADA COUNTY, CALIFORNIA 2004**

This listing was prepared from the *Catalog of Historical Landmarks and Dedicated Sites in Nevada County California*, published by the Nevada County Historical Landmarks Commission. This listing was then updated to 2004 using the Commission's publication "Exploring Nevada County" 2004. Commission publications, which contain site descriptions, lists organized by registering organization, and other information may be purchased from the Commission. Write the Commission at P.O. Box 1014, Nevada City CA 95959 for information.

### **ORGANIZATION / REGISTRATION ABBREVIATIONS:**

CHL California Historical Landmarks  
 ECM E Clampus Vitus  
 ECT E Clampus Vitus  
 NEV Nevada County Historical Points of Interest  
 NGW Native Daughters & Sons of the Golden West  
 NHL National Historic Landmarks  
 NHS Historical Society Dedications  
 VET Veterans' Memorials  
 MISC Miscellaneous Plaques and Memorials

#### **Alder Creek Valley:**

**Donner Party Camp (MISC 96)**  
**Emigrant Trail at Alder Creek (NIIL 61)**  
**Tamsen and Elizabeth Donner (ECT 96)**

**545 Main Street, Nevada City (NEV 02-01)**  
**Alexander, Dow (NGW 91)**  
**Allan's Machine Shop (NEV 20)**  
**Allen Chapman House (NEV 92-01)**  
**Alpha Hydraulic Diggings (CHL 628)**

Auburn Road Bridge (NEV 95-06)  
American Hill Diggings (NEV 17)  
Balancing Rock (Rocking Stone) (ECT 3/14)  
Baruh Home (NEV 24)  
Bear River Bridge (NEV 92-02)  
Bell Hill School (NGW 51)  
Bevilacqua, Anthony I. (VET 21)  
Beyer, Robert H. (VET 21)  
Binkelman Brewery (ECM 90A)  
Binkelman, David (ECM 90A)  
Boca Brewery (ECT 15)  
Boca Dam (NHL 8 1-72)  
Boca Ice Harvest Site (NEV 32)  
Boot, James A. (MISC 6(C))  
Brasher, Lawrence A. (VET 21)  
Brewery, Nevada (NHL 85-2303)  
Bridgeport Covered Bridge (CHL 390)  
Brimskill Building (ECM 65B)  
Bronco (ECT 17)  
Brown, Nathaniel P. (NEV 96-03)  
Calanan Park Monitor and Drill Core (NGW 65C)  
Caldwell's Upper Store Site (NEV 18)  
Canyon Creek Bridge (NEV 95-07)  
Caroline Mead Hansen House (NEV 28)  
Carriage House—see Hefelfinger Wagon Shed (NGW 83A)  
Chapman, Allen (NEV 92-01)  
Charles Marsh House (NEV 96-02)  
Chinatown, Grass Valley (ECM 69)  
Chinatown, Truckee (ECT 4/20)  
China Wall of the Sierra (ECT 27)  
Chinese Herb Shop (ECT 4/20)  
City Square, Grass Valley (NGW 91)  
Clinton Narrow Gauge Railroad (ECT 21)  
Coleman, Edward (NEV 96-01)  
Colley House (NGW 94)  
Columbia Hill School (NEV 06)  
Congregational Church (NGW 87C)  
Covey, Earl (MISC 78)  
Crabtree House (CHL 293)  
Cranford, Thomas W. (VET 66 and VET FWY)  
Deeble, James F. (VET 66 and VET FWY)

**Donner Party:**

Camp at Alder Creek Valley (MISC 96)  
Donner Camp Site (NIIL 61)  
Donner or Pioneer Monument (CHL 134)

Graves Cabin Site (NGW 19)  
Tamsen and Elizabeth Donner (ECT 96)

Donner Summit Bridge (NEV 98-01)  
Doris Foley Library of Historical Research (NEV 27)  
Douglass, Sheriff David Fulton (NGW 36E)  
Dow Alexander Park (NGW 91)  
Drill Cores from Idaho-Maryland Mine (NHS 61 and NGW 65C)  
Drum Power House Pelton Wheel (ECM 87)  
Edward Coleman House (NEV 96-0 1)  
Edwards Crossing Bridge (NEV 95-03)  
Empire Mine (CHL 298)

**Emigrant Trail:**

Emigrant Trail at Alder Creek (N}{L 61)  
Emigrant Trail on Cold Stream Road (NGW 29C)  
Emigrant Trail through Truckee (NGW 29B)  
Emigrant Trail to Nevada City (NEV 91-01)  
Overland Emigrant Trail, Highway 49 (CHL 799)  
Pioneer Emigrant Trail (I) (NGW 36B)  
Pioneer Emigrant Trail (II) (NGW 36C)

Emmanuel Episcopal Church (NEV 12)  
Empire House (ECM 91)  
Englebright House (NEV 23)  
English and New Salmon Mine (NGW 2001)  
Firehouse No. 1, Nevada City (ECM 65A)  
Firehouse No.2, Nevada City (NHL 74-544)  
First Brick Building in Nevada City (NGW 32)  
First Long Distance Telephone (CHL 247)  
First Transcontinental Railroad—Truckee (CHL 780-6)  
First Wagons Across the Sierra (ECT 13)  
Five-Stamp Mill 1893 (ECM 82B)  
Flagg Building (ECM 89)  
Fleming, Isaac Leslie (VET 21)  
Floriston (Bronco) (ECT 17)  
Foley, Doris (NEV 27)  
Foote's Crossing Road (NHL 8 1-180)  
Frandy, Melvyn (VET 21)  
Freeman, Loyle C. (CHL 843 and NGW 76C)  
Freestone, David E. (VET 66 and VET FWY)  
Gary Ames Miller Memorial (VET 66 and VET FWY)  
George, Harold J. (NGW 64)  
Oillet, Felix (MISC 33)  
Gilmore Flying Field (NEV 10)  
Gilmore, Lyman Jr. (NEV 10)  
Goeller, Michael (VET 66 and VET FWY)

Gold Hill (CHL 297)  
Gold Quartz Discovery (CHL 297)

**Grass Valley Area Landmarks and Memorials:**

Bell Hill School (NGW 51)  
Binkelman Brewery (ECM 90A)  
Boot, James A. (MISC 66C)  
Chinatown (ECM 69)  
City Square (NGW 91)  
Covey, Earl (MISC 78)  
Crabtree House (CML 293)  
Dow Alexander Park (NGW 91)  
Edward Coleman House (NEV 96-01)  
Emmanuel Episcopal Church (NEV 12)  
Empire House (ECM 91)  
Empire Mine (CML 298)  
Freeman, Loyle C. (CML 843 and NGW 76C)  
George, Harold J. (NGW 64)  
Gilmore Flying Field (NEV 10)  
Gilmore School (NEV 10)  
Gold Quartz Discovery (CML 297)  
Hammill, Malcolm (MISC 71)  
Hansen, Caroline Mead (NEV 28)  
Hard Rock Gold Mining (ECM 73)  
Hennessy School (NGW 37A)  
Holbrooke Hotel (CML 914)  
Idaho-Maryland Core Samples (NHS 61 and NGW 65C)  
Idaho-Maryland Mine Site (NEV 33)  
Jones House Site (NEV 29)  
King, Saurin D. (MISC 18)  
King, Thomas Starr (NGW 76A)  
Looser, Katherine M. (MISC 81)  
Montez House (CML 292)  
McGagin, Alyne (NGW 36A)  
Mount Saint Mary's Academy and Convent (CML 855)  
Nevada County Narrow Gauge Railroad —Grass Valley (ECM 77)  
Nevada Union High School (NGW 61)  
North Star Mine Powerhouse (CML 843)  
Pelton Water Wheel at North Star Power House (CHL 843)  
Penaluna, James E. (MISC 83)  
Pioneer Mothers and Fathers (NGW 29D)  
Red Ledge Stamp Mill (MISC 80)  
Reliance Hose Company #3 (NGW 88A)  
Ridge, John Rollin (NGW 33 and NGW 76B)  
Root Cellar on Mexican War Land Grant (NEV 30)  
Royce, Josiah (NGW 31)  
Scott, Edith C. (NGW 88B)

Saint Patrick's Cemetery (NGW 84)  
Snyder, Jo V. (NGW 30)  
Walkie, John (MISC 87)  
Washington Brewery (ECM 72B)  
Watt, Ailson Finnie (NGW 83B)  
Watt, James (NGW 14)  
Veterans Memorial Flagstaffs (VET 54)  
Veterans World War I Memorial (VET 21)  
Veterans World War II and Korean War Memorial (VET 55)  
Vietnam War Memorial (VET 66)  
Vincent, Walter (MISC 88)

Grass Valley Hardware (NGW 69)  
Grass Valley Historical District (MISC 69B)  
Grass Valley Public Library (NHL 92-)  
Grass Valley's Famed Maple (NGW 76B)  
Graves Cabin Site, Donner Party (NGW 19)  
Hague, William (VET 21)  
Hammill, Malcolm (MISC 71)  
Hansen, Caroline Mead (NEV 28)  
Hard Rock Gold Mining (ECM 73)  
Haugen, Alan Robert (VET 66)  
Hefelfinger, Isabel (NGW 83A)  
Hennessy School (NGW 37A)  
Hill, Hedley (VET 21)  
Hobart Mills (ECT 12)  
Holbrooke Hotel (CHL 914)  
Hooligan Rock (ECT 97)  
Idaho-Maryland Core Samples (NHS 61 and NGW 65C)  
Idaho-Maryland Mine Site (NEV 33)  
Indian Medicine Stone (NGW 36D)  
Jatunn, Lenville Dooley (VET 21)  
James S. Hennessy School (NGW 37A)  
Jensen, Bruce Allan (VET 66 and VET FWY)  
Jiboom Street (ECT 5/18)  
Jones, Dr. W. C. (NEV 29)  
Judah, Theodore Dehone (ECT 25)  
Kidd and Knox Building (ECM 78A)  
King, SaurinD. (MISC 18)  
King, Thomas Starr (NGW 76A)  
Kneebone, William A. (VET 21)  
Kohler Building (ECM 67)  
Korean War Memorial, Grass Valley (VET 55)  
Korean War Memorial, Nevada City (VET 90)  
Kunkel, John Robert (VET 66 and VET FWY)  
Kruger, William Henry (NHL 82-2220)  
Kruger-White House (NHL 82-2220)  
Ladies of the Evening (ECM 72A)

Lake Olympia (NEV 93-01)  
Lola Montez House (CHL 292)  
Lone Grave (NEV 09)  
Long Distance Telephone (CHL 247)  
Looser, Katherine M. (MISC 81)  
Lyman Gilmore School (NEV 10)  
Malakoff Diggins Camp picnic Area (ECM 66)  
Malakoff Diggins-North Bloomfield Historic District (NHL 73-418)  
Marsh, Charles (NEV 96-02)  
Martin Luther Marsh House (NEV 11)  
McOagin, Alyne (NGW 36A)  
McGlashan Point (NEV 34)  
Meadow Lake Petroglyphs (NHL 7 1-169)  
Meadow Lake and Summit City (ECT-95)  
Memorial Grove, Nevada City (VET 46)  
Methodist Episcopal Church, North San Juan (NEV 14)  
Mexican War Land Grant (NEV 30)  
Miller, Gary Ames (VET 66 and VET FWY)  
Miners' Foundry (NEV 21)  
Monitor at Calanan Park (NGW 65C)  
Montez, Lola (CHL 292)  
Moran, William Hawley (VET 21)  
Mooney Flat Hotel (ECV 82A)  
Mount Saint Mary's Academy and Convent (CHL 855)  
Mount Elisha Stephens (NEV 94-01)  
Naffziger, Howard Christian (NHS 73)  
Nathaniel P. Brown House (NEV 96-03)  
National Exchange Hotel (CHL 899)  
Nevada Brewery (NHL 85-2303)

**Nevada City Area Landmarks and Memorials:**

545 Main Street (NEV 02-01)  
American Hill Diggings (NEV 17)  
Baruh Home (NEV 24)  
Bi-Centennial Community (NGW 87A, NGW 87B)  
Calanan Park Monitor and Drill Core (NGW 65C)  
Caldwell's Upper Store Site (NEV 18)  
Chapman House (NEV 92-01)  
Charles Marsh House (NEV 96-02)  
Chinese Section Memorial and Monument (2005)  
Colley House (NGW 94)  
Doris Foley Library of Historical Research (NEV 27)  
Douglass, Sheriff David Fulton (NGW 36E)  
Englebright House (NEV 23)  
First Brick Building in Nevada City (NGW 32)  
Five-Stamp Mill 1893 (ECM 82B)

Flagg Building (ECM 89)  
Gillet, Felix (MISC 33)  
Hefelfinger, Isabel (NGW 83A)  
Indian Medicine Stone (NGW 36D)  
Kidd and Knox Building (ECM 78A)  
Ladies of the Evening (ECM 72A)  
Marsh House (NEV 11)  
Miners' Foundry (NEV 21)  
Monitor at Calanan Park (NGW 65C)  
Naffziger Home (NHS 73)  
Nathaniel P. Brown House (NEV 96-03)  
National Exchange Hotel (CHL 899)  
Nevada Brewery (NML 85-2303)  
Nevada City Bicentennial Community (CML 832 and NGW 37B)  
Nevada City Downtown Historic District (NML 85-2520)  
Nevada City Elementary School (NGW 38)  
Nevada City Firehouse #1 (ECM 65A)  
Nevada City Firehouse #2 (NHL 74-544)  
Nevada City Hall (NGW 37B)  
Nevada City High School Site (MISC 52)  
Nevada City Historic District (MISC 68)  
Nevada City Methodist Church (NGW 65A)  
Nevada City Public Library (NEV 27)  
Nevada County Court House (MISC 37)  
Nevada County Narrow Gauge Railroad—Nevada City (ECM 68A)  
Nevada County Narrow Gauge Railroad Employees (NHS 94A)  
Nevada County Traction Company (ECM71A)  
Nevada Theatre (CML 863)  
Northern Queen Inn and Ramey Family (NHS 94B)  
Old Brick Gothic (Church) Building (NGW 87C)  
Ott Assay Office Site (NEV 01)  
Paine, Robert (MISC 94)  
Pelton Water Wheel (ECM 87)  
Pine Street Crossing (NIEV 95-05)  
Pioneer Cemetery (NEV 20)  
Pioneer Emigrant Trail (I) (NGW 36B)  
Pioneer Emigrant Trail (II) (NGW 36C)  
Plaza Grocery (NEV 22)  
Powell House (ECM 85)  
Red Castle, The (NEV 02)  
Saint Canice Catholic Church (NGW 6513)  
Sargent House (NEV 19)  
Searls Law Office (NEV 15)  
Shaft Drill Core at Calanan Park (NGW 65C)  
South Yuba Canal Office (CML 832)  
Stewart House (NEV 16)  
Thompson, Leland (MISC 91)  
Trinity Episcopal Church (NEV 18)

**Wagon Shed (NGW 83A)**  
**Wells, Fargo Building Site (NGW 26)**

**Nevada City Firehouse No.2 (NHL 74-544)**  
**Nevada City Hall (NGW 37B)**  
**Nevada Union High School (NGW 61)**  
**Newlands Reclamation Project—Boca Dam (NHL 8 1-72)**  
**North Bloomfield Historic District (NHL 73-418)**  
**North Bloomfield Mining and Gravel Company (CML 852)**  
**North San Juan (ECM 63A)**  
**North San Juan Fire Department (ECM 39)**  
**North San Juan Methodist Episcopal Church (NEV 14)**  
**North Star Mine Powerhouse (CML 843)** **Northern Queen Inn and Ramey Family (NHS 94B)**  
**Old Auburn Road Bridge (NEV 95-06)**  
**Old Bear River Bridge (NEV 92-02)**  
**Old Brewery (NML 85 -2303)**  
**Old Brick Gothic (Church) Building (NGW 87C)**  
**Old Capitol Building (ECT 6)**  
**Old Chinese Herb Shop (ECT 4)**  
**Old North San Juan School (ECM 98A)**  
**Old Pacific Fruit Packing Shed (NEV 96-04)**  
**Old Stone Garage (ECT 8/22)**  
**Old Truckee Jail (NEV 04)**  
**Omega Hydraulic Diggings and Townsite (CML 629)**  
**Ormonde Town Site (ECM 90B)**  
**Ott Assay Office Site (NEV 01)**  
**Overland Emigrant Trail, Highway 49 (CML 799)—see also Emigrant Trail**  
**Owry, Edward Allen (VET 66)**  
**Paine, Robert (MISC 94)**  
**Pelton Water Wheel at North Star Power House (CML 843)**  
**Pelton Water Wheel at Drum Power House (ECM 87)**  
**Pennsylvania Engine Company No. 2 (NHL 74-544)**  
**Pine Street Crossing (NEV 95-05)**  
**Pinkham, Albert (VET 21)**  
**Pioneer Cemetery (NEV 20)**  
**Pioneer Emigrant Trail (I) (NGW 36B)—see also Emigrant Trail**  
**Pioneer Emigrant Trail (II) (NGW 36C)**  
**Pioneer Monument (CML 134)**  
**Pioneer Mothers and Fathers (NGW 29D)**  
**Plaza Grocery (NEV 22)**  
**Powell House (ECM 85)**  
**Purdon Crossing Bridge (NEV 95-02)**  
**Red Castle, The (NEV 02)**  
**Red Dog Townsite (NEV 25)**  
**Red Ledge Stamp Mill (GV 80)**  
**Reliance Hose Company No. 3, Grass Valley (NGW 88A)**

Ridge, John Rollin (NGW 33 and NGW 76B)  
 Rix, Douglas A. (VET 66 and VET FWY)  
 Rocking Stone (ECT 3/14)  
 Rodgers, James (VET 21)  
 Rollins Dam and Reservoir (MISC 66B)  
 Root Cellar on Mexican War Land Grant (NEV 30)  
 Rough and Ready Republic (ECM 70A)  
 Rough and Ready Schoolhouse Site (NEV 95-04)  
 Rough and Ready Townsite (CML 294)  
 Royce, Josiah (NGW 31)  
 Saint Canice Catholic Church (NGW 65B)  
 Saint Columncille's Church (NGW 49)  
 Saint Patrick's Cemetery (NGW 84)  
 Saint Paul Lutheran Church Site (MISC 93)  
 San Juan Town Site (ECM 63A)  
 Sargent, Aaron A. (NEV 19)  
 Schaffer, George (ECT 29)  
 Schallenberger Cabin Site (NEV 95-01)  
 Scott, Edith C. (NGW 88B)  
 Scurr, Kenneth W. (VET 66 and VET FWY)  
 Searls Law Office (NEV 15)  
 Seeley, John Stuart (VET FWY)  
 Shaft Drill Core at Calanan Park (NGW 65C)  
 Sheriff David Fulton Douglass (NGW 36E)  
 Sierra Sun-Bonanza (ECT 9)  
 Skisport Museum (NEV 03)  
 "Snowshoe" Thompson Monument (NEV 03)  
 Snyder, Jo V. (NGW 30)  
 South Yuba Canal Office (CML 832)  
 Spencer, J. M. (VET 21)  
 Stamp Mill at Grass Valley (MISC 80)  
 Stamp Mill at Nevada City (ECM 82B)  
 Star Hotel, Truckee (ECT 29)  
 Stephens, Elisha (NEV 94-01)  
 Stewart, William Morris (NEV 16)  
 Stidham, Ernest J. (VET 66 and VET FWY)  
 Tamsen and Elizabeth Dormer (ECT 96)  
 The Union newspaper (NEV 13)  
 Theurkauf, Harry Lee (VET 66 and VET FWY)  
 Thomas, Clarence Crase (VET 21)  
 Thompson, Leland (MISC 91)  
 Thompson, "Snowshoe" (John Tostensen) (NEV 03)  
 Trans-Sierra Freeway Project (MISC 66A)

**Tree Memorials:**

Freeman, Loyle C. (CML 843 and NGW 76C)  
 George, Harold J. (NGW 64)  
 Hammill, Malcolm (MISC 71)

King, Thomas Starr (NGW 76A)  
Thompson, Leland (MISC 91)  
McGagin, Alyne (NGW MA)  
Edith C. Scott (NGW 88B)  
Watt, Alison Finnie (NGW 83B)

Trinity Episcopal Church or Caldwell's Upper Store Site (NEV 18)  
Tritsch, Philip A. (VET 66 and VET FWY)  
Trivelpiece, Alvin Stevens (ECM 66B)  
Truckee (ECT 32)

**Truckee Area Landmarks and Memorials:**

Chief Truckee (ECT 11)  
Boca Brewery (ECT 15)  
Boca Dam (NHL81-712)  
Boca Ice Harvest Site (NEV 32)  
China Wall of the Sierra (ECT 27)  
Chinese Herb Shop (ECT 4/20)  
Donner Camp Site (NML 61)  
Donner Monument or Pioneer Monument (CML 134)  
Donner Party Camp at Alder Creek Valley (MISC 96)  
Emigrant Trail on Cold Stream Road (NGW 29C)  
Emigrant Trail through Truckee (NGW 2913)  
Floriston (Bronco) (ECT 17)  
Graves Cabin Site, Donner Party (NGW 19)  
First Wagons Across the Sierra (ECT 13)  
First Transcontinental Railroad—Truckee (CML 780-6)  
Hobart Mills (ECT 12)  
Hooligan Rock (ECT 97)  
Jiboom Street (ECT 5/18)  
Judah, Theodore Dehone (ECT 25)  
Kruger-White House (NML 82-2220)  
McGlashan Point (NEV 34)  
Mount Stephens (NEV 94-01)  
Old Capitol Building (ECT 6)  
Old Stone Garage (ECT 8122)  
Rocking Stone (ECT 3/14)  
Schaffer, George (ECT 29)  
Schallenberger Cabin Site (NEV 95-01)  
Sierra Mountain Cemetery (ECT-2001)  
Sierra Sun-Bonanza (ECT 9)  
Tamsen and Elizabeth Donner (ECT 96)

Truckee (ECT 32)

Truckee Fire Protection District (ECT 32)  
Truckee Flag Pole (ECT 32)  
Truckee Jail (NEV 04)

Truckee Roundhouse (ECT 34)  
Truckee's Famous Rocking Stone (ECT 3/14)  
Truckee's First Log Cabin (ECT 1)  
Truckee's Vigilance ("601") Committee (ECT 24)  
Victory Highway Monument (MISC-98)

Union newspaper (NEV 13)  
Veterans Memorial Flagstaffs (VET 54)  
Veterans World War I Memorial, Grass Valley (VET 21)  
Veterans World War II Memorial, Nevada City (VET 46)  
Veterans World War II and Korean War Memorial, Grass Valley (VET 55)  
Vietnam War Memorial, Grass Valley (VET 66)  
Vietnam War Memorial, Nevada City (VET 92)  
Vietnam Veterans Freeway Overcrossing Memorials (VET FWY)  
Vincent, Walter "Ralph" (MISC 88)  
Wagon Shed (NGW 83A)  
Walber, Ronald J. (VET 66 and VET FWY)  
Walkie, John (MISC 87)  
Washington Brewery (ECM 72B)  
Washington Hotel and Site (NEV 94-02)  
Washington Town (NEV 31)  
Watt, AlisonFinnie (NGW 83B)  
Watt, James (NGW 14)  
Webb, Donald Ray (VET 66)  
Wells, Fargo & Company, North San Juan (ECM 78B)  
Wells, Fargo Building Site, Nevada City (NGW 26)  
Western American Skisport Museum (NEV 03)  
White, Charles Bernard (NHL 82-2220)  
White, John Edward(VET21)  
Whiting, Elton Thomas (VET 21)  
William Morris Stewart House or Mansion (NEV 16)  
World War I Memorial, Grass Valley (VET 21)  
World War II Memorial, Nevada City (VET 46)  
World War II & Korean War Memorial, Grass Valley (VET 55)  
You Bet Townsite (NEV 26)

**The following are contemporary sites and monuments not currently listed but which are so well known in the community that they will doubtless be part of officially listed monuments in the future:**

RESOURCE	ADDRESS	LOCATION
Nevada County Fairgrounds	McCourtney Road	Grass Valley
Del Oro Theater	165 Mill Street	Grass Valley
Grass Valley Veterans Building	255 South Auburn Street	Grass Valley
Draft Horse Monument	McCourtney Road and Brighton Street	Grass Valley
Julia Morgan House	Old Auburn Road	County
Independence Trail	Hwy 49 1 mi. N of South Yuba River	County
Fallen Public Safety Employees Memorial	950 Maidu Avenue	Nevada City
Madelyn Helling Library	980 Helling Way	Nevada City
L. Wilcox/P.M. Feldman/ M. Markle, January 10, 2001 Memorial	950 Maidu Avenue	Nevada City
Truckee Hotel	Commercial Row	Truckee
Truckee Depot	Commercial Row	Truckee

#### **4.5.4 Natural Resources:**

For the purposes of this plan, natural resources include threatened and endangered species and wetlands.

##### **4.5.4.a Threatened and Endangered Species:**

To further evaluate the county's vulnerability in the event of a disaster, it is important to inventory key natural resources such as threatened and endangered species.

Endangered Species means any species of fish, plant life or wildlife, which is in danger of extinction throughout all or a significant part of its range and is protected by law.

Threatened Species means any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range and protected by law.

Special concern means any species about which problems of status or distribution are suspected, but not documented. Many animal species listed as Special Concern are protected under other state and federal laws addressing hunting, fishing, collecting and harvesting.

The State of California, Department of Fish and Game, identified the following numbers of state and federally listed endangered, threatened, and rare plants of California. See County PDF Map "Special Status Animal Species" for known locations of state and federally listed endangered, threatened and rare mammals, birds, fish, amphibians and reptiles. Information for invertebrates was obtained from the California Academy of Sciences and is reported in Appendix 2. This information has not yet been posted to the GIS Mapping System.

## State/ Federally Listed Endangered, Threatened and Rare Plants of California

<b>Designation</b>	<b>Totals</b>
State Listed-Endangered	131
State Listed-Threatened	22
State Listed-Rare	67
State candidate for Listing	1
Federally Listed-Endangered	138
Federally Listed-Threatened	47
Federally Proposed-Endangered	0
Federally Proposed-Threatened	0
Both Federally and State listed	123

### **4.5.4.b Wetlands:**

Wetlands are an important and legally protected resource. Wetland communities play a vital role in groundwater recharge, water quality protection, and provide habitat for dependent plant and wildlife species. A variety of wetlands occur in western Nevada County and activities that affect these wetlands may require special permitting under Section 404 of the Federal Clean Water Act. Wetlands for eastern Nevada County did not appear to have been mapped and should be reviewed for future updates. It is suspected that due to the arid nature of the eastern slope of the Sierra Nevada that wetlands have not been located in sufficient quantity to be mapped on the County GIS system. Wetland locations were more prominent in the

most westerly quarter of Nevada County from Nevada City and to the west. See County PDF Map “Wetlands Western Nevada County”.

#### **4.5.5 ECONOMIC FORECAST**

**Reprinted on the following pages is the 2005 Nevada County Economic Forecast prepared by the California Department of Transportation, Economic Planning Unit:  
Web Location:**

**<http://www.dot.ca.gov/hq/tpp/offices/ote/socio-economic.htm>**

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# Nevada County Economic Forecast

Nevada County is located on the California-Nevada state border. The county is north of Placer County, east of Yuba County, and south of Sierra County. Nevada County has a population of 98,955 people and 28,890 wage and salary jobs. The per capita income in Nevada County is \$32,360, and the average salary per worker is \$35,610. The median household income was \$63,600 in 2005.

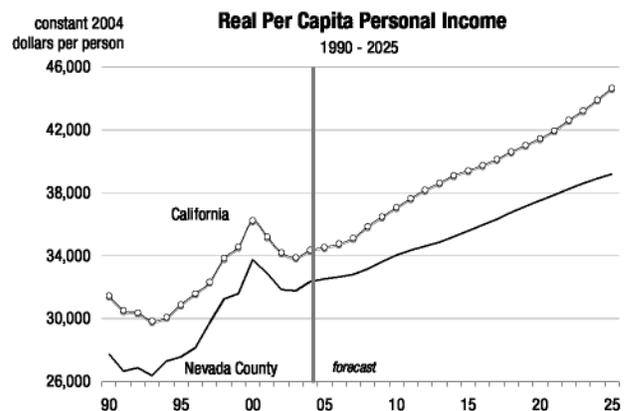
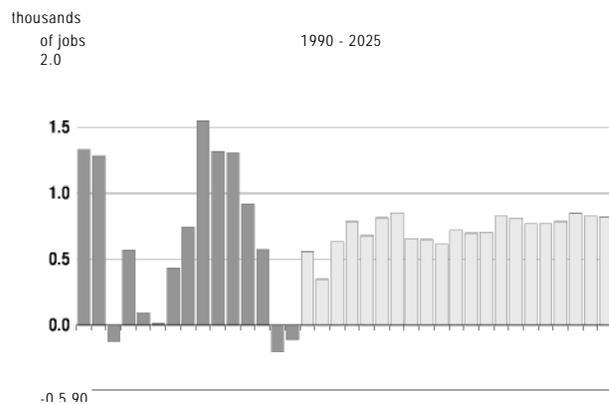
In 2004, 109 total wage and salary jobs were lost in Nevada County, representing a decline in employment of 0.4 percent. Non-farm employment, which accounts for over 99 percent of total employment in the county, lost 102 jobs last year. The unemployment rate declined however, to 5.2 percent in 2004.

The principal sectors that are producing jobs in Nevada County are leisure services, manufacturing, and construction. Each of these sectors created 130 or more jobs in 2004. Several sectors lost a significant number of jobs last year. Employment in professional services and government declined 250 and 220 jobs respectively. The largest employment sectors in the county are retail, leisure services, education and healthcare services, and government. Many of the largest employers in the county are related to tourism, including Soda Springs Ski Area, Sugar Bowl Ski Resort, and Boreal Mountain Resort.

The population grew in Nevada County at a rate of 1.7 percent in 2004. The fastest growing cities in the county are Grass Valley and Truckee, which grew 6.0 and 2.4 percent respectively from January 2004 to January 2005. Truckee is the largest city in the county with 15,657 residents. Net migration was positive last year, with an estimated total of 1,730 migrants entering the county.

## Forecast Highlights

- Non-farm employment growth is forecast to turn positive in 2005, rising 1.9 percent. Job growth is expected to continue to rise over the next five years, and will average 2.1 percent per year over that time period.
- Average salaries adjusted for inflation are currently below the California state average, and will remain so over the forecast period. Inflation adjusted salaries are expected to rise an average of 0.3 percent per year over the next 5 years.
- Between 2005 and 2010, the momentum for employment growth is in professional services, leisure services, and government. These sectors account for over 60 percent of all jobs created in the county over the next five years.
- The population in the county will continue to grow, and at a faster rate than the state average. Annual growth in the 2005 to 2010 period averages 1.8 percent per year. The growth rate in the state over that same time period averages 1.5 percent per year.
- Net migration is expected to reach 1,900 net migrants entering the county in 2005. Over the next five years average net migration will increase slightly to approximately 2,000 net migrants per year.
- Real per capita income is forecast to increase 0.5 percent in 2005. Over the next five years real per capita incomes are expected to increase an average of 0.9 percent per year.
- Total taxable sales, adjusted for inflation, are forecast to increase 0.3 percent in 2005. Over the next five years real taxable sales are forecast to increase at a rate of 3.2 percent per year.
- Industrial production is forecast to increase 5.2 percent in 2005. Over the next five years the growth rate of industrial production will increase, with total production rising 4.8 percent per year. Total crop production is expected to decline an average of 1.0 percent per year between 2005 and 2010.



# Nevada County Economic Forecast

## 1995-2004 History, 2005-2025 Forecast

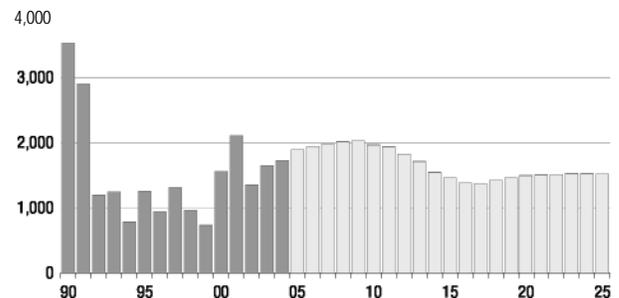
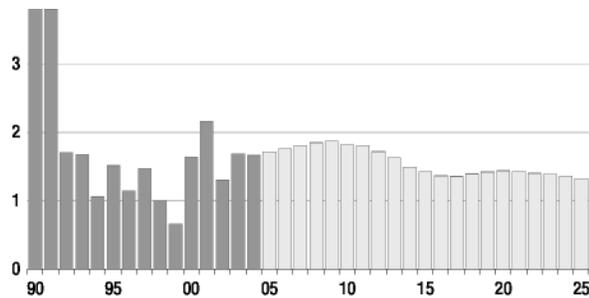
	Population (people)	Net Migration (people)	Registered Vehicles (thousands)	Households (thousands)	New Homes Permitted (homes)	Total Taxable Sales (billions)	Personal Income (billions)	Real Per Capita Income (dollars)	Inflation Rate (% change in CPI)	Real Farm Crop Value (millions)	Real Industrial Production (millions)	Unemploy- ment Rate (percent)
1995	87,100	1,250	96.1	34.1	730	\$0.7	\$1.8	\$27,565	2.0	8.1	215.3	7.6
1996	88,100	946	98.5	34.5	599	\$0.7	\$1.9	\$28,152	2.3	8.4	216.3	7.0
1997	89,400	1,318	95.1	35.0	645	\$0.8	\$2.1	\$29,733	3.4	8.7	236.3	6.2
1998	90,300	958	102.0	35.4	668	\$0.8	\$2.3	\$31,247	3.2	7.2	272.4	5.5
1999	90,900	729	106.1	36.0	815	\$0.9	\$2.5	\$31,588	4.2	7.7	249.2	4.1
2000	92,393	1,564	112.4	36.9	847	\$1.0	\$2.8	\$33,749	4.5	7.9	261.9	4.0
2001	94,393	2,114	118.0	37.4	680	\$1.0	\$3.0	\$32,886	5.4	7.5	249.1	4.3
2002	95,623	1,352	120.1	38.0	912	\$1.0	\$3.0	\$31,852	1.6	7.7	229.9	5.2
2003	97,239	1,646	119.3	38.6	912	\$1.1	\$3.1	\$31,777	1.8	8.0	245.9	5.5
2004	98,857	1,726	128.2	39.4	979	\$1.2	\$3.2	\$32,358	1.2	7.8	266.7	5.2
2006	102,325	1,945	134.7	40.9	939	\$1.2	\$3.5	\$32,659	2.7	8.2	291.5	4.8
2007	104,173	1,983	137.2	41.6	944	\$1.3	\$3.7	\$32,807	2.6	8.1	308.3	4.7
2008	106,102	2,017	140.4	42.4	794	\$1.4	\$3.9	\$33,167	2.6	8.0	324.4	4.6
2009	108,089	2,031	143.5	43.1	705	\$1.5	\$4.1	\$33,609	2.5	7.8	339.6	4.6
2010	110,058	1,973	147.0	43.7	841	\$1.6	\$4.4	\$34,038	2.7	7.8	354.9	4.6
2011	112,047	1,941	150.9	44.4	912	\$1.7	\$4.6	\$34,344	2.7	7.7	371.0	4.6
2012	113,977	1,829	154.4	45.1	781	\$1.8	\$4.8	\$34,599	2.8	7.6	386.9	4.6
2013	115,837	1,716	157.8	45.8	724	\$1.9	\$5.1	\$34,864	2.9	7.5	402.6	4.4
2014	117,567	1,548	161.1	46.4	783	\$2.0	\$5.4	\$35,212	2.9	7.4	417.8	4.4
2015	119,244	1,465	164.6	47.0	693	\$2.1	\$5.7	\$35,579	3.1	7.4	430.7	4.4
2016	120,873	1,390	168.1	47.6	675	\$2.2	\$6.0	\$35,948	3.0	7.4	444.3	4.4
2017	122,514	1,377	171.6	48.1	690	\$2.4	\$6.3	\$36,313	2.9	7.3	458.8	4.6
2018	124,222	1,422	175.3	48.7	705	\$2.5	\$6.7	\$36,751	2.7	7.2	476.1	4.6
2019	125,988	1,462	179.1	49.3	716	\$2.6	\$7.0	\$37,140	2.8	7.2	492.3	4.7
2020	127,803	1,495	182.6	49.9	726	\$2.8	\$7.4	\$37,512	2.7	7.2	506.7	4.7
2021	129,628	1,508	185.9	50.5	726	\$2.9	\$7.7	\$37,866	2.6	7.2	521.7	4.7
2022	131,449	1,516	188.9	51.1	723	\$3.1	\$8.1	\$38,242	2.6	7.3	529.0	4.7
2023	133,274	1,530	192.1	51.7	717	\$3.2	\$8.6	\$38,602	2.7	7.3	543.0	4.7
2024	135,086	1,528	195.2	52.3	713	\$3.4	\$9.0	\$38,912	2.7	7.3	552.1	4.7
2025	136,877	1,522	198.2	52.9	711	\$3.6	\$9.4	\$39,189	2.7	7.3	565.3	4.7

percent change  
5

Population Growth  
1990 - 2025

immigrants  
minus  
outmigrants  
5,000

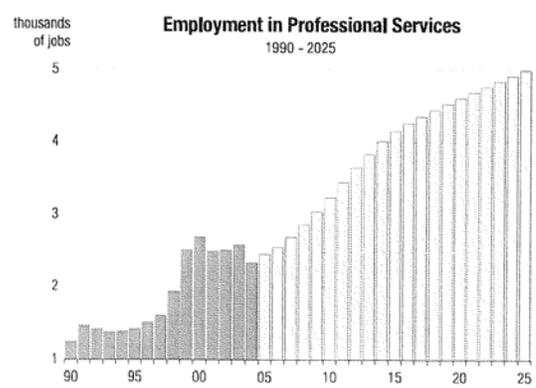
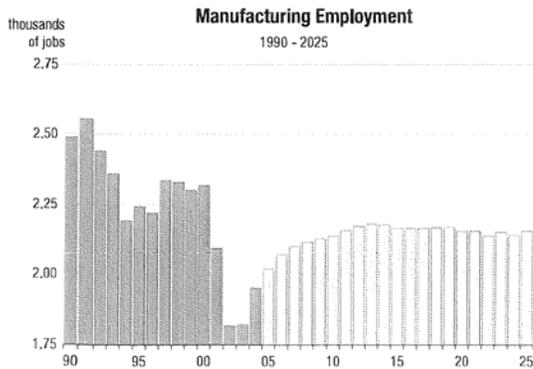
1990 - 2025

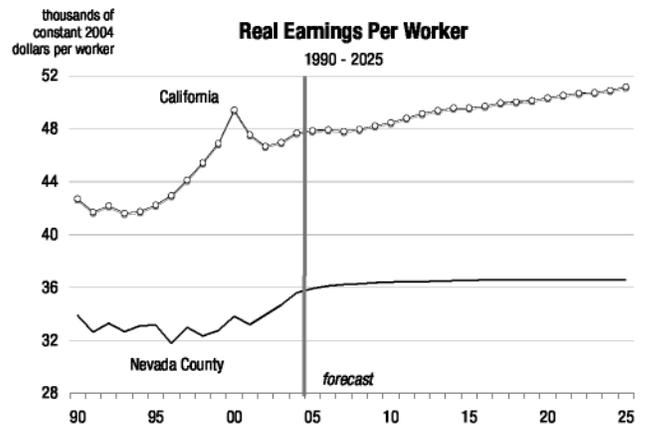
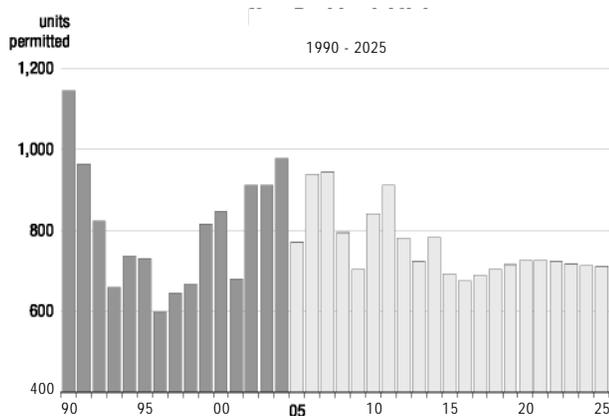
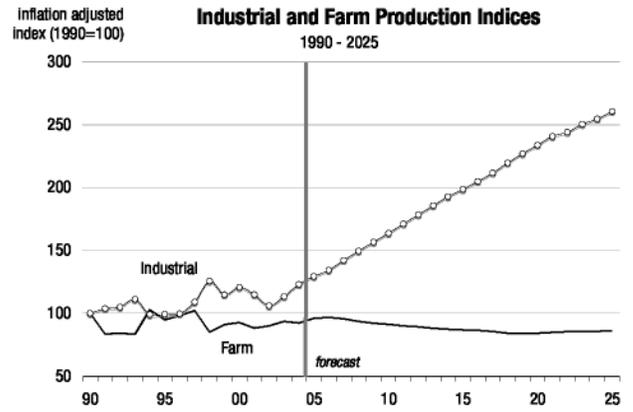
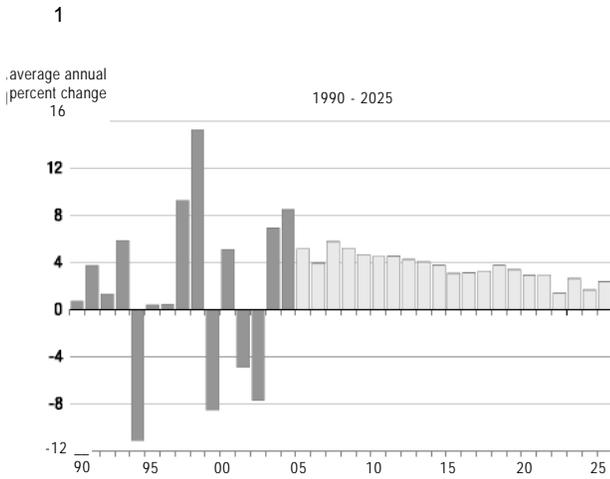
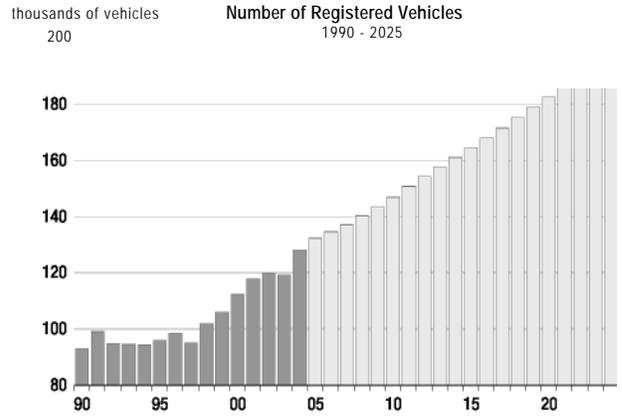
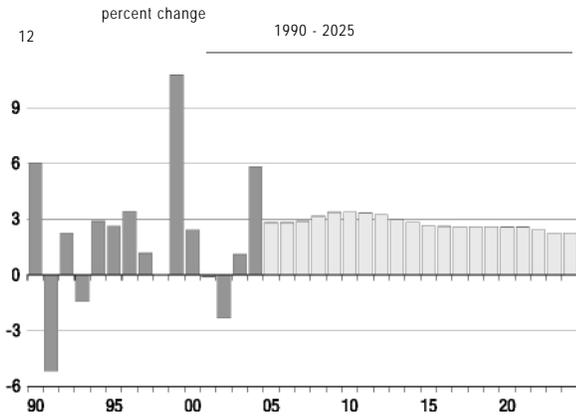


# Nevada County Employment Forecast

## 1995-2004 History, 2005-2025 Forecast

	Total Wage & Salary	Farm	Mining & Construction	Manufacturing	Transportation & Utilities	Wholesale & Retail Trade	Financial Activities	Professional Services	Information	Health & Education	Leisure	Government
1995	22.6	0.08	1.64	2.24	0.44	4.01	1.40	1.42	0.36	2.74	3.16	4.50
1996	23.0	0.10	1.90	2.22	0.43	4.14	1.31	1.51	0.34	2.59	3.13	4.70
1997	23.8	0.11	1.92	2.34	0.47	4.36	1.31	1.61	0.39	2.59	3.11	4.89
1998	25.3	0.13	2.34	2.33	0.71	4.44	1.34	1.93	0.38	2.65	3.41	4.95
1999	26.7	0.15	2.66	2.30	0.48	4.62	1.42	2.51	0.40	2.82	3.49	5.06
2000	28.0	0.09	2.92	2.32	0.46	4.86	1.46	2.69	0.37	3.01	3.65	5.33
2001	28.9	0.10	3.29	2.10	0.54	4.66	1.61	2.49	0.38	3.43	3.67	5.56
2002	29.5	0.10	3.32	1.82	0.55	4.76	1.73	2.51	0.39	3.58	3.80	5.81
2003	29.0	0.10	3.05	1.82	0.53	4.58	1.66	2.58	0.36	3.82	3.74	5.66
2004	28.9	0.09	3.24	1.95	0.51	4.52	1.65	2.33	0.36	3.84	3.88	5.43
2005	29.4	0.09	3.23	2.02	0.52	4.58	1.64	2.44	0.36	3.91	4.00	5.53
2006	29.8	0.09	3.14	2.07	0.53	4.65	1.64	2.54	0.37	3.97	4.10	5.55
2007	30.4	0.09	3.22	2.10	0.54	4.72	1.63	2.69	0.37	4.00	4.20	5.64
2008	31.2	0.09	3.33	2.12	0.56	4.81	1.62	2.86	0.38	4.03	4.32	5.80
2009	31.9	0.09	3.29	2.13	0.57	4.90	1.62	3.04	0.38	4.05	4.43	5.99
2010	32.7	0.09	3.40	2.14	0.58	5.00	1.62	3.24	0.38	4.06	4.54	6.16
2011	33.6	0.09	3.56	2.16	0.59	5.09	1.61	3.45	0.39	4.09	4.65	6.31
2012	34.2	0.09	3.50	2.17	0.60	5.18	1.62	3.65	0.39	4.14	4.74	6.46
2013	34.9	0.09	3.46	2.18	0.61	5.27	1.63	3.84	0.40	4.22	4.83	6.59
2014	35.5	0.09	3.39	2.18	0.62	5.35	1.67	4.01	0.40	4.33	4.92	6.72
2015	36.2	0.09	3.42	2.17	0.64	5.43	1.70	4.15	0.40	4.46	5.01	6.85
2016	36.9	0.09	3.42	2.17	0.65	5.51	1.73	4.26	0.40	4.63	5.11	6.99
2017	37.6	0.09	3.41	2.17	0.66	5.59	1.77	4.35	0.41	4.82	5.20	7.13
2018	38.4	0.09	3.48	2.17	0.67	5.67	1.79	4.44	0.41	5.03	5.29	7.29
2019	39.3	0.09	3.51	2.17	0.68	5.74	1.81	4.52	0.41	5.27	5.38	7.47
2020	40.0	0.09	3.53	2.15	0.69	5.82	1.83	4.60	0.41	5.53	5.45	7.63
2021	40.8	0.09	3.53	2.16	0.70	5.90	1.86	4.68	0.42	5.79	5.50	7.79
2022	41.6	0.09	3.53	2.14	0.71	5.98	1.89	4.76	0.42	6.05	5.56	7.97
2023	42.4	0.09	3.60	2.15	0.72	6.05	1.91	4.84	0.42	6.32	5.60	8.14
2024	43.3	0.09	3.66	2.14	0.73	6.12	1.94	4.91	0.42	6.59	5.64	8.32
2025	44.1	0.09	3.73	2.16	0.74	6.20	1.96	4.99	0.43	6.85	5.68	8.48





## **4.5.6 POPULATION PROJECTIONS:**

A primary source of statistical population information for Nevada County is the California Department of Finance (<http://www.dof.ca.gov/HTML/DEMOGRAP/repndat.asp>) who provide population projections, in this case through 2050. Estimates/Projections for Nevada County were used through 2020 as agreement could not be found beyond that period and are greatly influenced by pending special development projects and boundary realignments pending before the Local Agency Formation Commission and or City/Town Councils

<b>Year</b>	<b>Grass Valley</b>	<b>Nevada City</b>	<b>Truckee</b>	<b>County Total</b>
1970	5,149	2,314	Not incorporated	26,346
1980	6,697	2,431	Not Incorporated	51,465
1990	9,048	2,855	1/94 11,150	78,510
2000	10,922	3,001	13,864	92,033
2005	13,006	3,041	15,657	98,955
<b>PROJECTIONS</b>	<b>BY CITY NOT</b>	<b>AVAILABLE</b>	<b>AFTER 2005,</b>	<b>FOLLOWING</b>
<b>ARE</b>	<b>ESTIMATES</b>			
2010	15,086	3,120	18,679	106,910
2020	21,900	3,200	22,980	126,912

Source CA Dept. Finance, Demographic Research Unit, Population Projects by race/Ethnicity, Gender and Age Report 03 P-3 May 2004, factored by actual trends by city and town planning departments. and increases due to annexation especially by Grass Valley.

## **4.5.7 Hazard Assessment by Jurisdiction:**

### **4.5.7.a COUNTY OF NEVADA, UNINCORPORATED AREA**

**Population: 66,408 (2005 Estimate)**

**Area: 936.6 square miles**

Nevada County had 17 declared state or federally declared emergencies since 1950. 1988 was the 49er Fire and most of the remaining emergencies were due to severe flooding in California. While more numerous, flooding has resulted in less damage in Nevada County than did the single fire event. We can expect that fire events will continue to be the event of greatest potential loss and damage.

#### **SUMMARY HAZARD ANALYSIS: UNINCORPORATED NEVADA COUNTY**

<b>HAZARD</b>	<b>ESTIMATED FREQUENCY</b>	<b>EXPECTED SEVERITY</b>
<b>Wildland Fire (300+ acres)</b>	<b>Occasional</b>	<b>Moderate</b>
<b>Earthquake/Geological</b>	<b>Rare</b>	<b>Low</b>
<b>Floods</b>	<b>Occasional</b>	<b>Low</b>
<b>Hazmat</b>	<b>Occasional</b>	<b>Low</b>
<b>Terrorism</b>	<b>Rare</b>	<b>Low</b>
<b>Propane/Natural Gas</b>	<b>Occasional</b>	<b>Low</b>
<b>I-80, SR 49, SR20, SR 174 events</b>	<b>Occasional</b>	<b>Low</b>
<b>Pipeline events</b>	<b>Few</b>	<b>Low</b>
<b>Airborne Hazards</b>	<b>Occasional</b>	<b>Low</b>
<b>Storm/Freeze/Heavy Snow/Heavy Precipitation</b>	<b>Occasional</b>	<b>Low</b>

#### **Total Vulnerability and Values at Risk**

The following table shows the value of property and key inventories at risk within the unincorporated County of Nevada.

## Assessor Data

Utilizing Nevada County Assessor data, the following table of information was obtained for the unincorporated area of Nevada County.

### 2004 CERTIFIED ROLL VALUES, UNINCORPORATED NEVADA COUNTY

Property Type	Building Sq. Ft.	Number of Records	Replacement cost per sq. ft.	Indicated Value
Commercial/Business	2,099,972	499	150	\$ 310,000,000
Residential	35,090,368	18,816	100	\$3,510,000,000
<b>GRAND TOTAL ENTIRE COUNTY</b>	<b>127,597,997</b>	<b>65,564</b>	<b>N/A</b>	<b>\$15,953,293,450</b>

### 2004-2005 SELECTED TAX REVENUE

ITEM	AMOUNT
SALES TAX REVENUE/-IN-LIEU	\$2,774,791 / \$1,964,085
TRANSIENT OCCUPANCY TAX	\$166,312

### Critical Facilities Potentially at Risk

#### ➤ Class 1 Facilities:

- Wayne Brown Correctional Facility (location of Sheriff and Nevada City dispatch for western portion of Nevada County).
- Truckee Government Center (location of Sheriff dispatch center for eastern Nevada County).
- Sierra Nevada Memorial Hospital (non-profit) western Nevada County.
- Tahoe Forest Hospital (hospital district) eastern Nevada County.
- CDF Inter-Agency Command Dispatch Center (all fire dispatch).

#### ➤ Class 2 facilities:

- Eric Rood County Administration Center (western portion of Nevada County).
- Richard Joseph Government Center (eastern portion of Nevada County of Nevada).

- All fire stations within the unincorporated county including Tahoe National Forest and California Department of Forestry and Fire Protection (32 Stations).
- Nevada County Airport.
- Truckee Airport (located in both Nevada and Placer Counties).

➤ **Class 3 Facilities:**

- All schools (29) except Nevada City, Grass Valley and Tahoe Truckee School Districts (these are included in the specific city/towns).
- All wastewater treatment plants (12) not located in an incorporated city or town.
- Power generation infrastructure.
- Park facilities not located on state land or in an incorporated city or town.
- All water storage or treatment facilities owned by the Nevada Irrigation District and not owned by a city or town.

➤ **Cultural and Natural Resources at Risk**

Cultural and natural resources include those identified in Section 4.5.3 above which is not located in a national forest, state park or in an incorporated city or town. No other separate inventory or mapping of cultural or natural resources has been completed and accepted by Nevada County.

**Development Trends**

Approximately one half of the population increase projected between 2005 and 2050 (28,103) will occur within areas that are now in the unincorporated areas of Nevada County. There are expected to be four significant future development areas: within the sphere of influence of Grass Valley; within the sphere of influence of the Town of Truckee; in the southwestern portion of the County; and finally in the western portion of the County along the State Route 20 corridor (Penn Valley).

**Vulnerability to Human Caused Hazard Threats**

As development occurs along identified trends, there will be an increasing potential loss due to hazmat issues. As would be expected, future development is largely in areas now served by federal or state highways; in our circumstances Interstate 80, State Highways 49, 20, 174 in western Nevada County and State Highways 82, and 267 in eastern Nevada County.

With increased population and commerce traveling on these highways we can reasonably expect a greater gross number of accidents and a greater number of accidents that result in a hazmat incident. While Nevada County now contracts for its hazmat response team with the City of Marysville and Truckee Fire Protection District, it will become more likely that a locally based and supported hazmat response team will become a necessity.

Nevada County can reasonably expect that the airborne hazards arriving from the Sacramento Valley and the Bay area via prevailing delta winds and atmospheric conditions will continue to be a health threat.

While Nevada County and its public entities have been aggressive in reducing locally generated particulate material in the atmosphere (dust, smoke) increased vehicle trips will add to existing airborne pollution. Unfortunately, additional solutions to Nevada County's air quality issues reside outside of the governmental control of Nevada County.

### **Vulnerability to Wildfire**

Wildland fire is a serious concern to Nevada County in its unincorporated areas. Many of the roadways in the unincorporated portion of the county are not county maintained roads so there are a great number of single lane roads and double lane roads that are not to current standards for county maintained roads. Many residential parcels have driveways that are also only single lane, some paved but most not, that may have only sporadic clearing of encroaching vegetation.

A second and probably more significant issue is the large amount of fuel load remaining on unincorporated lands. 30.47% (190,000 of 623,000 acres) of Nevada County is located in federal forest lands where fire suppression has been the recently, most dominant fire management strategy. Any fire in the unincorporated areas of Nevada County has a significant potential to become a catastrophic fire when wind, temperature and humidity can combine to enlarge fires very quickly.

### **Vulnerability to Dam Failure**

There are large regulated (and inspected) dams located in the unincorporated portions of Nevada County. Review of dam inundation maps and response plans indicated a very low probability of an incident related to uncontrolled release from a regulated dam. Smaller unregulated dams are more numerous and usually consist of ponds located on private property. Our review does indicate potential damage to public facilities from an uncontrolled release from some dams. More study and information is needed concerning unregulated dams in Nevada County which would include their size, highest water capacity, physical structure and dam maintenance procedures.

### **Vulnerability to Earthquake and Geologic Hazards**

Most of unincorporated Nevada County is located in seismic zone 2 with only the most eastern portion located in zone 3. With the exception of Lake of the Pines in southeastern Nevada County and Lake Wildwood near Grass Valley most of the population density is located in the incorporated cities and towns. Both Lake of the Pines and Lake Wildwood are planned development communities built large since the 1960's and are not of unreinforced masonry. Nevada County has a low probability of an earthquake exceeding a magnitude 5.0-5.5.

### **Vulnerability to Volcano**

There are no active volcanoes in or near Nevada County. Vulnerability is likely to be light ash fall associated with large or very large explosive eruptions most likely occurring in the area of Mt. Lassen or the Long Valley Caldera.

### **Vulnerability to Landslide/Avalanche/Subsidence**

Vulnerability to landslide and earth subsidence exists primarily in the Grass Valley and Nevada City gold mining districts. While there have been some episodic events in the past of landslide and land subsidence, hydraulic mining activity ended in the 1880-1890's and underground hard rock mining ended in the mid 1950's. We would not expect significant events absent an earthquake or other geologic events or unusually high rainfall years.

Our avalanche events are normally associated with high snowfall on the eastern slopes of the Sierra Nevada. While an annual event in the backcountry, avalanche potential is monitored by the ski resorts and ski patrol organizations of the portion of the Sierra Nevada in Nevada County. Adequate precautions are in place if followed by snow activity patrons.

### **Vulnerability to Flood**

100 year and 500 year flood plains have been mapped for Nevada County with the exception of incorporated Nevada City. Floodplains and floodways are primarily located along the channel of area creeks and rivers. Residential flooding has occurred in the past primarily as a result of clogged drainage ditches and seasonal dry creeks. When flooding does occur it is usually confined to a portion of the property and recedes usually within a few minutes to a few hours. See County PDF Maps "Nevada County Watershed Hydrology-Western and Eastern County" 2 maps.

### **Vulnerability to Severe Weather (Snow, Ice, Wind, Drought, Rainfall)**

With 35% of Nevada County located above the snow line (3,000 ft.) snow and ice is a reality of foothill living. Nevada County and the snow prone community of Truckee have developed response mechanisms involving community groups for snow and ice conditions. See County Maps "Nevada County Precipitation"; "Norcal Precipitation".

## Loss Estimates and Rationale

Unincorporated Nevada County has recent experience with catastrophic fire. For the purpose of property loss estimate we used the 49er Fire actual homes lost and updated to 2006 median residential unit cost. We used the ratio of land to improvements from Assessor's values for a city residential parcel. Approximately 76% of residential home is structure value and 24% is land value. No other improvements or acreage was included in the calculation. Contents value was calculated based upon the percentages in a common homeowners insurance policy. Infrastructure losses were estimated as 10% of structure losses. Suppression costs were estimated at \$1,100,000 per day (5 days 33,500 acres).

### EST. RESIDENTIAL PROPERTY VALUE LOSS OF 49ER TYPE FIRE IN 2005

Number of residential Structures lost in 49er fire	2005 median cost of residential structures	Less land value estimated at 24%	Contents based estimated	Total Loss
185	\$460,000	-\$110,400	+125,000	\$83,359,000
Infrastructure				8,335,900
Suppression				5,500,000
<b>Total</b>				<b>\$97,194,900</b>

Source DataQuick Information Systems, San Diego, reported in *The Union newspaper* 2/7/2006: actual tax billing and insurance information for a residence valued at \$462,000 In 2005.

#### **4.5.7.b CITY OF NEVADA CITY, an incorporated city**

**Population: 3,041**

**Area: 1.1 square miles**

The City of Nevada City is 150 years old on April 19, 2006. The incorporated city is primarily of wood frame construction with some re-inforced masonry in newer portions of the city and un-reinforced masonry in the downtown historic District. The entire downtown business district is a historic district. In the mid 19<sup>th</sup> century there were numerous fires that destroyed significant parts of the downtown district. In the 20<sup>th</sup> century, there have been few fires in the downtown district although there was a significant commercial fire in 2003.

State Route 49 bisects the city into a western section, which is commercial and some residential, and an eastern section, which is primarily residential with some commercial. See County PDF Map "Nevada City Business and Commercial District.

Deer Creek and Little Deer Creek further bisect the city into a northern section and a southern section. There has been some flooding along Little Deer Creek in Pioneer Park and at Sacramento and Broad Street. Deer Creek has flooded some businesses at Sacramento and Broad Street and on its Nevada Street interface with the Deer Creek at Broad Street. These sites have been related to extremely high rainfall periods.

On the northern edge of Nevada City is the intersection of State Route 49 as it then progresses north and State Highway 20 where it then progresses east. This intersection has been the site of numerous accidents as it is a 90 degree left hand turn against downhill traffic for Highway 49 bound traffic. Significant hazardous materials traffic uses this intersection daily.

#### **SUMMARY HAZARD ANALYSIS: NEVADA CITY**

<b>HAZARD</b>	<b>ESTIMATED FREQUENCY</b>	<b>EXPECTED SEVERITY</b>
<b>WILDLAND FIRE</b>	<b>Low</b>	<b>Moderate</b>
<b>ARSON/COMMERCIAL FIRE</b>	<b>Low</b>	<b>Moderate</b>
<b>HAZMAT INCIDENT</b>	<b>Low</b>	<b>Low</b>
<b>EARTHQUAKE/GEOLOGICAL</b>	<b>Rare</b>	<b>Low</b>
<b>SNOW STORM</b>	<b>Occasional</b>	<b>Low</b>
<b>FLOODS</b>	<b>Low</b>	<b>Low</b>
<b>TERRORISM</b>	<b>Rare</b>	<b>Low</b>
<b>SR-49 &amp; SR-20 Accidents</b>	<b>Low</b>	<b>Low</b>
<b>AIRBORNE HAZARDS</b>	<b>Occasional</b>	<b>Low</b>

## Total Vulnerability and Values at Risk

The following tables show the value of property and key inventories at risk within the incorporated City of Nevada City.

### Assessor Data

Utilizing Nevada County Assessor data 12/12/2005 and City of Nevada City data, the following table of information was obtained for the incorporated City of Nevada City:

#### 2004 CERTIFIED ROLL VALUES, CITY OF NEVADA CITY

Property Type	Buildings Sq ft	Number of Records	Replacement Cost Sq ft	Indicated Value
Residential	2,866,830	1,390	150	\$430,024,500
Business/Commercial	807,973	188	175	\$141,395,275
Total Housing Units-2000 census		1,415		

#### 2004-2005 SELECTED TAX REVENUE

ITEM	AMOUNT
SALES TAX REVENUE/-IN-LIEU	\$1,066,840 / \$285,731
TRANSIENT OCCUPANCY TAX	\$353,350

### Critical Facilities Potentially At Risk

#### Class 1 Facilities:

City Hall (Location of Police Chief and EOC)

#### Class 2 Facilities:

Providence Mine Road Fire Station  
Miner's Clinic

#### Class 3 Facilities

Wastewater Treatment Plant  
Water Treatment Plant  
Seaman's Lodge  
Nevada City Veterans Building  
All Schools of Nevada City School District (5)  
Pioneer Park

## **Cultural and Natural Resources at Risk**

Cultural and natural resources includes those identified in Section 4.5.3 above.

## **Development Trends**

Nevada City has historically been one square mile in size. Recent annexations for the County Administration Building and in the Gold Flat area have increased the City size to approximately 1.1 square miles. Nevada City's sphere of influence extends primarily to the east of Nevada City as indicated on The Nevada County Local Agency Commission Sphere of Influence Map. ([www.mynevadacounty.com/lafco](http://www.mynevadacounty.com/lafco)). The night-time population of Nevada City is approximately 3,041, The business day population is thought to be in excess of 11,000. Special event populations have been estimated as high as 30,000.

Most future development of incorporated Nevada City will be infill development of existing parcels and multi-family housing.

## **Vulnerability to Human Caused Hazard Threats**

The intersection of State Highway 49 and State Highway 20 is of particular concern for hazmat incidents. State Highway 20 is an alternate route when Interstate 80 is otherwise closed. State Highway 49 is the primary access highway for western Sierra County. Increasing population and commerce will invariably result in increasing shipment of hazardous materials on these two significant local routes. Many rural residences use propane as their primary heat and cooking source year round. While little can be done in this intersection aside from adding traffic control lights, this intersection remains of concern for serious accidents.

## **Vulnerability to Wildfire and Arson/Commercial Fires**

Nevada City is literally at the urban-wildland interface. Conifer and oak forests completely surround Nevada City, with significant growths within the City. There is significant growth of large trees, ladder fuel and ground growth in the Deer Creek environs. 50% or more of the residential structures within the City were built before adequate property line setbacks were established. Consequently most buildings in the business and residential areas could be damaged in a large, hard to control fire.

Arson fires and commercial fires are of serious concern because of the damage that could be done in tightly compacted areas and the subsequent economic damage that could, and has, flowed from such fires.

## **Vulnerability to Floods/Dam Failures**

Nevada City is built on seven hills or knolls. Consequently most of the storm runoff exits developed areas very quickly. The primary drainage ways are Deer Creek and Little Deer Creek. Historic flood patterns have involved Deer Creek at the intersection of

Sacramento and Broad Street (which is also the confluence of Deer Creek and Little Deer Creek). One commercial/restaurant building on the south-west corner of Broad and Sacramento Street is a bell weather of flooding conditions. It might be possible to build a gabion wall to protect this site. The other significant flooding that occurs at this site is in conjunction with an underground culvert that is positioned beneath a commercial parking lot on the southeast corner of Boulder Street and Sacramento Street. Possible solutions would be to enlarge the culvert. This culvert carries waters of Little Deer Creek into Deer Creek. Losses due to previous flooding have generally been less than \$125,000

Little Deer Creek also flows through and along Pioneer Park. In heavy rain events (which have occurred about every 10 years) there have been occurrences of Little Deer Creek flooding the recreation improvements (baseball diamonds, tennis courts, horseshoe pits and picnic areas) of the park. Proposed solution would be to build a retaining berm along the creek within the park boundary.

### **Unique Vulnerabilities:**

A greater vulnerability would be a collapse of Upper Scotts Flat Dam, which would immediately overflow Lower Scotts Flat Dam. Approximately 25% of Nevada City and 65% of the downtown historic district would be submerged in such a failure. The loss would be approximately \$91,650,000. As described previously, this event has a very low probability unless there is a change in geological activity in the near foothills area.

Nevada City has probably the greatest vulnerability to wildland fire of the incorporated cities of Nevada County. Being a smaller city, tightly compacted, with immediate proximity to Tahoe National Forest, it has wildland range encircling it. The predominance of older wooden structures increases the loss threat. A fire which resulted in a 15% of residential structures would have a loss estimate of \$100,615,200 (212 structures X \$474,600 cost of residence less land, plus contents. Suppression costs could add another \$1.1 million per day.

**Other threats:** The other primary threat categories, both natural and human caused, are the same for the unincorporated county and have been covered in the Unincorporated County section.

Page Reserved for Map of Nevada City Sphere of Influence

### **4.5.7.c CITY OF GRASS VALLEY an incorporated city**

**Population: 13,006**

**Area: 4.6 square miles**

The City of Grass Valley is 113 years old having been incorporated on March 13, 1893. It was initially founded in the 1850's. The incorporated city is primarily of wood frame construction with some re-inforced masonry in newer construction in the city and primarily un-reinforced masonry in the historic downtown District. In the mid 19<sup>th</sup> century there were numerous fires that destroyed significant parts of the downtown district. In the 20<sup>th</sup> century, there have been few fires in the downtown district. State Route 49 bisects the city into a western section, which is commercial and some residential, and an eastern section, which is primarily residential with some commercial. State Route 20 bisects Grass Valley on a north and south axis. The area north of State Route 20 is the city center. The area south of State Route 20 is the site of the largest retail/commercial area designated as Pine Creek Center. The Nevada County Fair Grounds is also located in this southern portion of the city. 30 percent of the city center is in a re-development district primarily in the Mill Street, South Auburn Street and East Main Street corridors. See County PDF Map "Grass Valley Business and Commercial District.

Wolf Creek abuts the Golden Center Freeway (State Route 49/20) in incorporated Grass Valley. Wolf Creek has flooded some multi-family residences and businesses along the south and east side of Mill Street as recently as the winter of 2005/2006. Damage has been relatively minor at these sites and has been related to extremely high rainfall periods.

On the northern edge of Grass Valley encompasses most of a commercial area known as the Glenbrook Basin. Progressing easterly, the city now encompasses the Whispering Pines Business Park and the Loma Rica Industrial Park is in the future annexation plan of Grass Valley.

#### **SUMMARY HAZARD ANALYSIS: GRASS VALLEY**

<b>HAZARD</b>	<b>ESTIMATED FREQUENCY</b>	<b>EXPECTED SEVERITY</b>
<b>WILDLAND FIRE</b>	<b>Low</b>	<b>Moderate</b>
<b>ARSON/COMMERCIAL FIRE</b>	<b>Low</b>	<b>Moderate</b>
<b>HAZMAT INCIDENT</b>	<b>Low</b>	<b>Low</b>
<b>EARTHQUAKE/GEOLOGICAL</b>	<b>Rare</b>	<b>Low</b>
<b>SNOW STORM</b>	<b>Occasional</b>	<b>Low</b>
<b>FLOODS</b>	<b>Low</b>	<b>Low</b>
<b>TERRORISM</b>	<b>Rare</b>	<b>Low</b>
<b>SR-49 &amp; SR-20 Accidents</b>	<b>Low</b>	<b>Low</b>
<b>AIRBORNE HAZARDS</b>	<b>Occasional</b>	<b>Low</b>

## Total Vulnerability and Values at Risk

The following tables show the value of property and key inventories at risk within the incorporated City of Grass Valley.

### Assessor Data

Utilizing Nevada County Assessor data 12/12/2005 and City of Grass Valley data, the following table of information was obtained for the incorporated City of Grass Valley:

#### 2004 CERTIFIED ROLL VALUES, CITY OF GRASS VALLEY

Property Type	Buildings Sq Ft	Number of Records	Replacement Cost per Sq ft	Indicated Value
Residential	10,076,523	4,030	\$150	\$1,511,478,450
Business/Commercial	2,457,153	534	\$175	\$ 430,001,775
Total Housing Units 2000 census		5,266		

#### 2004 SELECTED TAX REVENUE

ITEM	AMOUNT
SALES TAX REVENUE / IN LIEU	\$3,323,927 / \$1,013,179
TRANSIENT OCCUPANCY TAX	\$425,385

### Critical Facilities Potentially At Risk

#### Class 1 Facilities:

City Police Department  
City Hall (Location of Fire Chief)  
Fire Station # 2 (213 Sierra College Blvd-primary EOC))

#### Class 2 Facilities:

Fire Station # 1 (Brighton Street)  
Sierra Nevada Memorial Hospital  
The Love Building (Location of the secondary EOC)

#### Class 3 Facilities

Wastewater Treatment Plant  
Water Treatment Plants

Grass Valley Veterans Building  
 Sierra College  
 All Schools of the Grass Valley School District (5)  
 Condon Park  
 Memorial Park

**Cultural and Natural Resources at Risk**

Cultural and natural resources includes those identified in Section 4.5.3 above

**Development Trends**

Grass Valley has recently annexed portions of the Glenbrook Basin and Sutton Way, which have been in the city’s sphere of influence. Pending before the planning commission and city council are four special development areas/projects in its sphere of influence, which if approved, would require further annexations. The Grass Valley City 2020 General Plan has lower reservations for land use than does the “Proposed SDA Land Uses-High Range” study. Additional population projections are based on the “Economic and Fiscal Conditions Study for the City of Grass Valley” September 8, 2005 by Applied Development Economics, which indicates 2.49 persons per household in the Grass Valley sub-area.

	<u>Added Acreage</u>	<u>Added Pop When developed</u>	
		<u>Gen Plan 2020</u>	<u>High Range</u>
a) Loma Rica	452	461	2,766
b) Kenney Ranch	356	886	1,153
c) Northstrar	762	904	5,329
d) Southhill	66	0	695
<b>Total</b>	<b>1,636</b>	<b>2,251</b>	<b>9,943*</b>

Source: Applied Development Economics, September 8, 2005.  
 \* Subject report notes that full build out will occur many years after 2020.

**Vulnerability to Human Caused Hazard Threats**

State Highway 49 and State Highway 20 are of particular concern for hazardous materials incidents. State Highways 49 and 20 are both alternate routes when Interstate 80 is otherwise closed. State Highway 49 is the primary access highway for travel in western Nevada County and links to Interstate 80 at Auburn. It also cross-links with State Highway 20 and State Highway 174 within the city limits. Increasing population of western Nevada County and Grass Valley will invariably result in increasing shipment of hazardous materials on these three significant local routes. Many rural residences use propane as their primary heat and cooking source year round. County government contracts with the Marysville Fire Department for hazardous materials response capabilities as local resources are insufficient beyond first responder scene control.

## **Vulnerability to Wildfire and Arson/Commercial Fires**

Grass Valley is literally at the urban-wildland interface. Mixed conifer and oak forests completely surround Grass Valley. Grass Valley doesn't have as much of the heavy fuel load within the city as does Nevada City. Of some concern are the Morgan Ranch, Doris/June street area (Glenwood) and the Whispering Pines areas of the city as these are densely forested areas with sloping terrain. 30% or more of the residential structures within the City were built before adequate property line setbacks were established. Consequently most buildings in the business and residential areas could be damaged in a large, hard to control fire. An estimate of potential loss would be 15% of the residential structures (790) times an average loss of \$474,600 cost of residence less land, plus contents, for a total of \$374,934,000. Suppression costs would average \$1.1 million per day.

Arson fires and commercial fires are of serious concern because of the damage that could be done in the tightly compacted downtown area and the subsequent economic damage that could flow from such fires. Grass Valley has proposed a fire mitigation project involving strategically placed improvements in the downtown area. Loss estimates are included with this project.

**Other threats:** The other primary threat categories both natural and human caused are the same for the unincorporated county and have been covered in the Unincorporated County section.

Page Reserved for map of Grass Valley Sphere of Influence

RESERVED FOR GRASS VALLEY ZONING MAP

#### **4.5.7.d TOWN OF TRUCKEE, an incorporated town**

**Population: 15,657**

**Area: 32 square miles**

The Town of Truckee was incorporated on March 1, 1993. The incorporated city is primarily of wood frame construction with some re-inforced masonry in newer portions of the city and un-reinforced masonry in the downtown historic District. Truckee is one of California's largest cities at 32 square miles. The Union Pacific Railroad operates an active trans-Sierra rail-line immediate adjacent to the town's commercial district. The Tahoe Donner residential area is the town's largest residential community with 5,000 residences. It has been directly threatened by wildfire as recently as 2004. Glenshire-Devonshire has 1,300 homes.

#### **SUMMARY HAZARD ANALYSIS: TOWN OF TRUCKEE**

<b>HAZARD</b>	<b>ESTIMATED FREQUENCY</b>	<b>EXPECTED SEVERITY</b>
<b>WILDLAND FIRE</b>	<b>Low</b>	<b>Moderate</b>
<b>ARSON/COMMERCIAL FIRE</b>	<b>Low</b>	<b>Moderate</b>
<b>HAZMAT INCIDENT</b>	<b>Frequent</b>	<b>Moderate</b>
<b>EARTHQUAKE/GEOLOGICAL</b>	<b>Low</b>	<b>Moderate</b>
<b>SNOW STORM</b>	<b>Medium</b>	<b>Moderate</b>
<b>FLOODS</b>	<b>Medium</b>	<b>Low</b>
<b>TERRORISM</b>	<b>Low</b>	<b>Low</b>
<b>INTERSTATE 80; RAILROAD; PIPELINE ACCIDENTS</b>	<b>Low</b>	<b>Low</b>
<b>AIRBORNE HAZARDS</b>	<b>Low</b>	<b>Low</b>

#### **Total Vulnerability and Values at Risk**

The following tables show the value of property and key inventories at risk within the incorporated Town of Truckee. See County PDF Map "Truckee Business and Commercial District".

#### **Assessor Data**

Utilizing Nevada County Assessor data 12/12/2005 and Town of Truckee data, the following table of information was obtained for the incorporated Town of Truckee:

## 2004 CERTIFIED ROLL VALUES, TOWN OF TRUCKEE

Property Type	Buildings Sq. Ft.	Number of Records	Replacement Cost per Sq Ft	Indicated Value
Residential	20,287,628	11,169	\$200	\$4,057,525,600
Business/Commercial	1,341,442	248	\$225	\$301,824,450
Total Number of Housing Units-2000 census		9,757		

## 2004-2005 SELECTED TAX REVENUE TOWN OF TRUCKEE

ITEM	AMOUNT
SALES TAX REVENUE / IN LIEU	\$2,246,372 / \$946,622
TRANSIENT OCCUPANCY TAX	\$1,010,416

### Critical Facilities Potentially At Risk

#### Class 1 Facilities:

Town Hall (Location of Police Department and EOC)

#### Class 2 Facilities:

All Fire Stations (6)  
Tahoe Forest Hospital  
Tahoe Truckee Airport (mass casualty center)

#### Class 3 Facilities

Truckee-Donner PUD Admin. Building and facilities  
Truckee Sanitary District facilities  
Park and Recreation District Center  
Truckee Veterans Building (Park and Recreation Dist.)  
All Schools (8)  
West End Beach  
Riverview Park

### Cultural and Natural Resources at Risk

Cultural and natural resources includes those identified in Section 4.5.3 above.

## **Development Trends**

Truckee has in recent years become the largest incorporated town in Nevada County both in physical geography and in population. Population increases will be accommodated through use of infill within the Town and new residential developments. See "Land Use Designations in the Proposed Sphere of Influence, Town of Truckee 2004 General Plan" PRD1 is planned for a maximum of 250 units, PRD2 and PRD2 are being evaluated. The Ponderosa Gold Course special study area is being considered for a maximum of 125 units. Proposed Martis Valley communities will impact regional development. However, Martis Valley is outside the incorporated Town limits.

## **Vulnerability to Human Caused Hazard Threats**

As development occurs along identified trends, there will be an increasing potential loss due to hazmat issues. Federal highway I-80, State Highways 89 and 267 as well as the Union Pacific Railroad are all located within the Town limits. With increased population and commerce traveling on these highways and railways we can reasonably expect a greater gross number of accidents and a greater number of accidents that result in a hazmat incident. Currently the Truckee Fire Protection District responds within the Town of Truckee limits to hazmat releases.

In recent years the Town of Truckee has developed and maintained a comprehensive wood stove replacement plan as well as a street sweeping plan whose goal is to reduce the particulate matter released from these sources. While the Town has been aggressive in reducing locally generated particulate material in the atmosphere, increased vehicle trips will add to existing airborne pollution. The Town can also reasonably expect that the airborne hazards arriving from the Sacramento Valley and the Bay area via prevailing delta winds atmospheric conditions will also continue to add to the health threat.

## **Vulnerability to Wildfire**

Wild land fire is a serious concern to the Town of Truckee. Any fire in the Town limits or surrounding areas has a significant potential to become a catastrophic fire when wind, temperature and humidity can combine to enlarge fires very quickly. The Town's major subdivisions are all surrounded by large parcels of unimproved land mostly outside the Town limits. The potential fire loss would include 10% of the residential stock (975) times an average residential loss of \$575,000 cost of residence less land, plus contents for a total of \$560,625,000.

While most of our roadways are paved and to current Town standards, only recently has the Town addressed the issue of reducing roadside fuel. The Town of Truckee and Truckee Fire Protection District have stepped up their brushing and chipping plan, but there are still many miles of roadside fuel remaining. The Town has proposed mitigation projects to address this threat issue.

## **Vulnerability to Dam Failure**

There is one regulated and inspected dam located in the Town of Truckee. Review of dam inundation maps and response plans indicated a very low probability of an incident related to uncontrolled release from a regulated dam. More study and information is needed concerning unregulated dams in the Town of Truckee which would include their size, highest water capacity, physical structure and dam maintenance procedures.

## **Vulnerability to Earthquake and Geologic Hazards**

Most of the Town of Truckee is located in seismic zone 3. The historic town communities have a few structures that are not of unreinforced masonry. The Town of Truckee has a moderate probability of an earthquake exceeding a magnitude 5.0-5.5.

## **Vulnerability to Volcano**

There are not active volcanoes in the Town of Truckee. Vulnerability is likely to be ash fall associated with large explosive eruptions most likely occurring in the area of Mt. Lassen or the Mammoth Lakes area.

## **Vulnerability to Landslide/Avalanche/Subsidence**

Vulnerability to landslide exists primarily above the Donner Lake area. Large cuts in the land while installing the I80 corridor through the Donner area left the land vulnerable. While there have been episodic events in the past, we would not expect significant events absent of an earthquake or other geologic events or unusually high rainfall years.

Our avalanche events are normally associated with high snowfall in the Sierra Nevada. A small number of residential units exist within established high avalanche zones. While an annual event in the backcountry, avalanche potential in and near the Town is monitored by the USFS and Placer County Office of Emergency Services.

## **Vulnerability to Flood**

100 year and 500 year flood plain have been mapped for the Town of Truckee. Floodplains and floodways are primarily located along the channel of area creeks and rivers. Residential flooding has occurred in the past primarily as a result of clogged drainage ditches and swelled tributaries of the Truckee River. When flooding does occur it usually subsides when the rainfall is reduced. The Town has proposed mitigation project to lessen flood threats to the community.

## **Vulnerability to Severe Weather (Snow, Ice, Wind, Drought, Rainfall)**

The Town of Truckee's highest elevation is approximately 7100'. Snow and ice conditions are a reality of mountain living. Truckee has developed response mechanisms involving community groups for snow and ice conditions. A snow removal

policy and guidelines for ice and snow conditions has been implemented. During severe weather events the Town initiates the Emergency Operational Plan.

### **Unique Vulnerabilities for the Town of Truckee**

The Town's vulnerabilities primarily mirror those of the balance of the County except that the town's earthquake vulnerability is in a higher seismic zone. Hazmat vulnerabilities are somewhat higher due to the presence of major highway, pipeline, waterway and railroad assets within the Town.

**Page Reserved for Map of Truckee Sphere of Influence**

# NEVADA COUNTY

## Multi-Jurisdiction, Multi-Hazard Mitigation Plan

### 4.6 Community Mitigation Capacity Assessment

#### 4.6.1 Discussion:

The planning process has identified the natural and selected man-made hazards posing a threat to Nevada County and described and quantified the vulnerability of the County and communities to these risks. The next step is to assess what loss prevention mechanisms are already in place. Doing so provides the County's "net vulnerability" to natural and the selected man-made disasters and more accurately focuses the goals, objectives and proposed actions of this plan. This part of the planning process is referred to as "The Community Mitigation Capability Assessment".

The Emergency Services Council used two techniques in conducting this assessment. First an inventory of existing policies, regulations and plans was made. These policy and planning documents were collected and reviewed to determine if they contributed to reducing hazard related losses or if they inadvertently contributed to increasing such losses. Second an inventory of other mitigation processes was conducted through the use of a matrix. The purpose of this inventory was to identify activities beyond policies, regulations and plans that were either in place, needed improvement, or could be undertaken, if deemed appropriate.

In some cases, while this plan was being developed, mitigation measures were identified that could be easily implemented. When possible, they were.

Below is a summary of documents that contribute to the overall Hazard Mitigation framework. Each document identifies where mitigation concepts, principles and measures are integrated into the normal day-to-day activities of our local governments.

# NEVADA COUNTY

Nevada County General Plan, adopted September 1996

## Elements:

- Chapter 1 Land Use
- Chapter 2 Economic Development
- Chapter 3 Public Facilities and Services
- Chapter 4 Circulation
- Chapter 5 Recreation
- Chapter 6 Open Space
- Chapter 7 Education
- Chapter 8 Housing, Revised
- Chapter 9 Noise
- Chapter 10 Safety
- Chapter 11 Water
- Chapter 12 Soils
- Chapter 13 Wildlife and Vegetation
- Chapter 14 Air Quality
- Chapter 15 Forest
- Chapter 16 Agriculture
- Chapter 17 Mineral Management
- Chapter 18 Aesthetics
- Chapter 19 Cultural Resources
- Implementation Measures

Land Use regulations are adopted in the Nevada County Land Use and Development Code.

## Chapters:

- Chapter 1 General Provisions, revised 7/27/00
- Chapter 2 Zoning Regulations, revised 9/28/04
- Chapter 3 Airport Zoning, revised 5/2/00
- Chapter 4 Subdivisions, revised 8/9/05
- Chapter 5 Buildings, revised 5/24/05
- Chapter 6 Sewage Disposal, revised 1/13/04
- Chapter 7 Street Addressing and Numbering , revised 4/20/00
- Chapter 8 repealed
- Chapter 9 Mitigation and Development Fees, revised 6/5/01
- Chapter 10 Water Supply and Resources, revised 4/13/00
- Chapter 11 Hazardous materials, 11/8/04
- Chapter 12 Flood Plain Management
- Chapter 13 California Environmental Quality Act (CEQA)
- Chapter 14 Agricultural Lands and Operations

Chapter 15 repealed  
Chapter 16 Fire Safety Regulations  
Chapter 17 Road Standards

Nevada County Emergency Operations Plan, adopted December 2003

Basic Plan including continuity of government  
Emergency Operations Center  
Hazardous Materials Response Plan  
WMD and Bio Terrorism Response Plans  
Community Disaster Care and Shelter Plan  
Fire Safety Plan

Community Emergency Response Plans

Rough and Ready  
Lake Wildwood  
Cascade Shores

Local Agency Formation Commission Municipal Services Review, 12/15/05  
Resource Conservation District  
Eastern Nevada County General Government  
Nevada County Cemetery District

Nevada County Fire Plan, September 2004

# **CITY OF GRASS VALLEY**

City of Grass Valley 2020 General Plan Update Report 11/1998

- Chapter 1 Grass Valley General Plan
- Chapter 2 Natural Setting
- Chapter 3 Population
- Chapter 4 Economy
- Chapter 5 Housing
- Chapter 6 Public Facilities and Services
- Chapter 7 Land Use
- Chapter 8 Transportation/Circulation
- Chapter 9 Open Space and Conservation
- Chapter 10 Noise
- Chapter 11 Safety/Hazards
- Chapter 12 Community Design
- Chapter 13 Cultural/Historical Resources
- Chapter 14 Recreation
- Chapter 15 Neighborhoods
- Chapter 16 Planning Standards and Ratios
- Chapter 17 Bibliography and References

Grass Valley General Plan Mining Element 8/1993

## **Town of Truckee**

Town of Truckee General Plan 1996

- Chapter 1 Introduction
- Chapter 2 Land Use Element
- Chapter 3 Circulation Element
- Chapter 4 Conservation and Open Space
- Chapter 5 Safety Element
- Chapter 6 Noise Element
- Chapter 7 Housing Element

Town of Truckee General Plan Update 2020 (currently underway)

Town of Truckee Housing Element Revision March 30, 2005

Town of Truckee Title 18 Development Code 8/4/2003

Article I - Development Code Enactment and Applicability

- [Chapter 18.01](#) - Purpose and Effect of Development Code
- [Chapter 18.02](#) - Development and Land Use Approval Requirements
- [Chapter 18.03](#) - Interpretation of Code Provisions

#### Article II - Zoning Districts and Allowable Land Uses

- [Chapter 18.06](#) - Establishment of Zoning Districts, Adoption of Zoning Map
- [Chapter 18.08](#) - Residential Zoning Districts
- [Chapter 18.12](#) - Commercial and Manufacturing Zoning Districts
- [Chapter 18.16](#) - Special Purpose Zoning Districts
- [Chapter 18.20](#) - Overlay Zoning Districts
- [Chapter 18.24](#) - Design Guidelines
- [Chapter 18.26](#) - Historic Preservation Design Guidelines

#### Article III - Site Planning and General Development Standards

- [Chapter 18.30](#) - General Property Development and Use Standards
- [Chapter 18.32](#) - Affordable Housing
- [Chapter 18.34](#) - Flood Plain
- [Chapter 18.36](#) - Hillside Development Standards
- [Chapter 18.38](#) - Lake and River/Stream Corridor Development
- [Chapter 18.40](#) - Landscape Standards
- [Chapter 18.42](#) - Landscape Design Guidelines
- [Chapter 18.44](#) - Noise
- [Chapter 18.46](#) - Open Space/Cluster Requirements
- [Chapter 18.48](#) - Parking and Loading Standards
- [Chapter 18.50](#) - Parking Design Guidelines
- [Chapter 18.52](#) - Rail Corridor Standards
- [Chapter 18.54](#) - Signs
- [Chapter 18.56](#) - Sign Design Guidelines
- [Chapter 18.58](#) - Standards for Specific Land Uses
- [Chapter 18.60](#) - Surface Mining and Reclamation Standards
- [Chapter 18.62](#) - Temporary Uses and Events
- [Chapter 18.64](#) - Truckee-Tahoe Airport Area Restrictions

#### Article IV - Land Use and Development Permit Procedures

- [Chapter 18.70](#) - Applications, Processing, and Fees
- [Chapter 18.72](#) - Zoning Clearance
- [Chapter 18.74](#) - Development Permits
- [Chapter 18.76](#) - Use Permits and Minor Use Permits
- [Chapter 18.77](#) - Historic Design Review
- [Chapter 18.78](#) - Planned Developments
- [Chapter 18.80](#) - Temporary Use Permits
- [Chapter 18.82](#) - Variances and Historic Variances
- [Chapter 18.83](#) - Demolition Review
- [Chapter 18.84](#) - Permit Implementation, Time Limits, and Extensions
- [Chapter 18.86](#) - Lot Line Adjustments
- [Chapter 18.88](#) - Vacations

## Article V - Subdivisions

- [Chapter 18.90](#) - Subdivision Map Approval Requirements
- [Chapter 18.92](#) - Subdivision Design and Improvement
- [Chapter 18.94](#) - Residential Subdivision Design Guidelines
- [Chapter 18.96](#) - Tentative Map Filing and Processing
- [Chapter 18.98](#) - Parcel Maps and Final Maps
- [Chapter 18.100](#) - Condominiums and Condominium Conversion
- [Chapter 18.102](#) - Certificates of Compliance
- [Chapter 18.104](#) - Reversions to Acreage
- [Chapter 18.106](#) - Dedications, Exactions, Reservations, Easements
- [Chapter 18.108](#) - Improvement Plans and Agreements
- [Chapter 18.110](#) - Surveys and Monuments

## Article VI - Development Code Administration

- [Chapter 18.120](#) - Administrative Responsibility
- [Chapter 18.130](#) - Nonconforming Uses, Structures, and Parcels
- [Chapter 18.140](#) - Appeals
- [Chapter 18.150](#) - Development Agreements
- [Chapter 18.160](#) - General Plan, Zoning Map, and Development Code Amendments
- [Chapter 18.170](#) - Specific Plans
- [Chapter 18.174](#) - Master Plans
- [Chapter 18.180](#) - Public Hearings
- [Chapter 18.190](#) - Revocations and Modifications
- [Chapter 18.200](#) - Enforcement

## Article VII - Development Code Definitions

- [Chapter 18.220](#) - Definitions, Glossary

# City of Nevada City

Nevada City General Plan 1980-2000, adopted March 24, 1986

- Chapter 1 Introduction and Community Goals
- Chapter 2 Land Use and Economic Development
- Chapter 3 City Resources
  - Historic and Cultural Resources
  - Conservation and Scenic Resources
  - Scenic Highways
  - Parks and Recreation
- Chapter 4 Housing Element 1992-1997
- Chapter 5 Circulation
- Chapter 6 Public Safety

## Chapter 7 Implementation of the Plan

Nevada City Zoning Ordinance, Adopted March 9, 1987

- Base Zoning Districts
- Combining District Regulations
- Residential Development and Conditional Uses
- General Provisions
- Flood Plain Management (Ord. 97-04)
- Development Performance Standards
- Exceptions and Modifications
- Administrative Procedures and Permits
- Zoning Contents
- Powers of the Planning Commission
- Amendments, rezoning and prezoning
- Penalties, validity, repeal, certification and publication
- Future Annexations
- Condominium Regulations
- Development Agreements
- In Lieu Parking Payments
- Park and Recreation Fee Provisions

### **Other Community Stakeholders/Groups:**

- Yuba River Watershed Council
- Bear River Watershed Council
- South Yuba River Citizens League (SYRCL)
- Sierra Conservancy
- Nevada County Fire Safe Council
- Nevada County Fire Chiefs Association
- Nevada County Resource Conservation District
- Nevada County Contractor's Association
- Nevada County Land Trust

### **Other County Projects**

- Fire Prevention Officers
- Code Enforcement Officers
- Building Inspection

## **Federal and State Considerations**

- California Public Resources Code (PRC 4290,4291)
- Urban-Wildland Interface Code
- California Fire Plan

Uniform Fire Code  
California Multi-Jurisdiction, Multi-Hazard Mitigation Plan, September 2004  
Tahoe National Forest-Shaded Fuel Breaks  
Healthy Forest Restoration Act of 2003

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## 4.6.2 LOCAL GOVERNMENT CAPABILITY

### LOCAL GOVERNMENT CAPABILITY MATRIX

ITEM	NEVADA COUNTY	CITY OF NEVADA CITY	CITY OF GRASS VALLEY	TOWN OF TRUCKEE
Comp General Plan?	Yes - 1995	Yes - 2000	Yes - 1999	Yes - 2006
Land Use Plan?	Yes - 1995	Yes - 2010	Yes - 1999	Yes - 2006
Subdivision Ordinance?	Yes	Yes	Yes - 1990	Yes - 2000
Zoning Ordinance?	Yes	Yes	Yes - 1995	Yes - 2000
NFIP/FPM Ordinance?	Yes	Yes		Yes - 2000
-Map Date?	Varies by location	Not mapped Yet by FEMA	Varies by location	Varies by location
-Substantial Damage Language?	yes			yes
-Certified Floodplain Manager?	Yes	Yes	Yes	Yes
-# Flood prone Buildings?		6		30
-# NFIP Policies?	unknown	unknown	unknown	unknown
-Maintain elevation certificates?	yes	Yes	yes	Yes
-# of Repetitive losses?	1	unknown	unknown	unknown
# of claims and \$ Value of losses 1978-2004	19; \$279,835	1; \$3,572	6; \$135,571	Included in County totals
CRS Rating if applicable?	None	None	None	None
Stormwater Program?	yes	yes	needs update	District
Building Code Version?	2004	2004	2001	2004
Fulltime Building Official?	Yes	Contract w/County	Yes	Yes
-Conducts "as built" inspections?	Yes	Yes	Yes	Yes
BCEGS Rating	no	no	no	no
Local Emergency Operations Plan?	Yes 12/2003	Yes-County	Yes	Yes – county, city in 2006
Hazard Mitigation Plan?	In progress	In Progress	In Progress	In Progress
Warning System In Place?	Yes	Yes	Yes	Yes
-Storm Ready Certified?	No	No	No	No
-Weather Radio Reception?	Yes	Yes	Yes	Yes
-Outdoor Warning Sirens?	No	No	No	No
-Emergency R-911?	Yes	Yes	Yes	Yes
-Rapid Dial System?	Yes	Yes	No	Yes
-Cable Override?	Yes	Yes	Yes	Yes
-Local Radio Station	Yes - 2	Yes - 2	Yes - 2	Yes - 1
GIS System	Yes	County	Yes	County/PUD
-Hazard Data?	Yes	Yes	Yes	Yes- county
-Building Footprints?	Partial	Partial	No	Partial
-Tied to Assessor Data?	Yes	Yes	Yes	Yes-county
-Hazmat Storage mapped?	Yes-county	Yes-county	Yes - County	Yes-county
-Hazmat Generators Mapped?	Yes-county	Yes-county	Yes - County	Yes-county

-Land use Designations?	Yes	Yes by hand	Yes	Yes
Structural Protection Proj?	Yes	No	No	No
Property Owner Protection Projects?	Yes	Yes	No	No
Critical facilities Protected?	Yes	Yes	Yes	Yes
Natural Resources Inventory?	Yes	Yes	Yes – G.P.	Yes
Cultural Resources Inventory?	Yes Landmarks Commission	Yes, historic district	Yes – G.P.	Yes
Erosion Control Procedures?	Yes	Yes	Yes	Yes
Sediment Control Procedures?	Yes	Yes	Yes	Yes
Public Information Program/Outlet?	Yes	Yes	Yes	Yes
Environmental Education Program?	Yes	Yes	Yes	Yes

## EXPLANATION OF CAPABILITY ASSESSMENT MATRIX ENTRIES

**Comp General Plan:** Comprehensive Long Term Community Growth Plan

**Land Use Plan:** Designates types of land use desired-composed of zoning

**Subdivision Ordinance:** Dictates lot sizes, density, set-backs, construction type

**Zoning Ordinance:** Dictates type of use and occupancy, implements land use plan

**NFIP/FPM Ord:** Floodplain Management Ordinance, Directs development in identified flood hazard areas: Required for participation in NFIP and availability of flood insurance

Sub. Damage: Does your FPM Ordinance contain language on substantial Damage/improvements? (50% rule)

**Administrator:** Do you have a Floodplain Management Administrator? Someone with the responsibility of enforcing the ordinance and providing ancillary services (map reading public education on floods, etc.)

**# of FP Bldgs:** Number of buildings in the floodplain?

**# of policies:** How many buildings are insured against flood through the NFIP

**# of Repetitive losses:** number of repetitive losses (paid more than \$1,000 twice in the last 10 years)

**CRS Rating:** Are you in the Community Rating System of the NFIP, and if so, what is your rating?

**BCEGS:** Building Code Effectiveness Grading System rating

**LEOP:** Do you have a Local Emergency Operations Plan-a disaster response plan?

**HM Plan:** do you have an approved Hazard Mitigation Plan?

**Warning System In Place:** Do you have any type of warning system, such as “storm ready” certification from the National Weather Service; reverse 911, NOAA weather radio reception, sirens, cable tv override; local radio/TV station, rapid dial system.

**GIS:** Geographic Information System

**Structural Protection Projects:** Levees, drainage facilities, detention/retention basins

**Property Protection Projects:** buy-outs, elevation of structures, floodproofing, small levees or berms/floodwalls

**Critical Facility Protection:** protection of Critical facilities that are in the floodplain?

**Natural and Cultural Inventory:** Do you have and inventory of resources, maps, or special regulations within the community? (wetlands, historic structures/districts, etc.)

**Erosion or Sediment Control:** Do you have projects or regulations in place?

**Public Information Outlet:** Ongoing PI program, website, community reports, televised meetings of public bodies

**Environmental Education Program:** “Flows to” placards, burn day restrictions, green waste pickup, recycling programs, etc.

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# NEVADA COUNTY

## Multi-Jurisdiction, Multi-Hazard Mitigation Plan

### 5.0 MITIGATION STRATEGY

The Nevada County Emergency Services Council upon reviewing the “Hazard Identification” sections and the “Vulnerability” information in a council meeting on May 17, 2006 concluded that:

1. Wildfire continues to be a significant threat to Nevada County,
2. Commercial fires in the business districts of the incorporated cities or towns pose a threat to the continued economic viability of these districts. Arson fires, while rare, could also be a similar threat.
3. Flooding is somewhat of a threat especially along the Truckee River and tributaries in the Town of Truckee and along Wolf Creek in the City of Grass Valley,
4. Hazardous Materials Incidents constitute a threat in the major transportation corridors of Interstate 80, State Highway. 49, 20, 267 and 174 and along the Union Pacific/Santa Fe pipeline,
5. Most meteorological and natural biological hazards occur periodically and sometimes annually (drought, snow, ice, severe thunderstorms/rain, wind, West Nile Virus, airborne pollution non-attainment) but do not constitute a significant on-going threat, as severe events resulting in excessive damages are infrequent. In addition, the general manpower and budget requirements for responding to these annual occurrences such as snowfall is planned for by communities and individuals. Periodically these events exceed the capacity of response by local government.

The Capability Assessment describes the current ability of Nevada County and its incorporated cities and towns to counter these threats through existing policies, regulations, programs and procedures. The Nevada County Emergency Services Council concluded:

1. The wildfire mitigation programs (defensible space and fuels management) while having many successes, are often limited due to the lack of resources for public education, property owner funded improvements and enforcement.

2. Effective fuel reduction efforts such as mastication and chipping will require funding beyond the capacity of individual property owners. Cost sharing projects will result in the most productive use of manpower and financial resources. There is a need to continue and expand these programs, because there is additional work to be done, they are never completed because vegetation grows back, new residents move in, etc.
3. In the Wolf Creek , Trout Creek, Little Deer Creek and Gregory Creek drainages and along South Shore Drive and Donner Lake Road and other local county roadways and drainages, there are specific areas that require creekbed maintenance projects. These specific projects are identified in Section 5.4 below.
4. The Nevada County Fire Plan must be provided the resources in manpower and finances to insure its implementation in as reasonable a time frame as possible.
5. Nevada County has a good emergency management program and partnership with other emergency response agencies and offices.
6. There is a need to identify effective public information and education methods to improve subsequent individual and community action. Communities need to know the hazards in their area and individuals need to know how to mitigate against these hazards. Current efforts have had only limited success.
7. There is a need to develop community hazard mitigation guidelines for each identified geographical community. These could be built around the existing fire districts and even sub-divided in the large districts.
8. Community resources such as the Nevada County Fire Safe Council and the Nevada County Resource Conservation District need financial assistance in their community projects.
9. Nevada County local governments should seek funding as the lead agency, when necessary, to support local; non-profit; state or federal projects that have hazard mitigation outcomes benefiting the Nevada County watershed.

## **5.1 GOAL SETTING**

The Nevada County Emergency Council formatted a goal statement, which was submitted to the community groups for discussion and amendment. After discussion and review, the accepted goal statement became:

“ To make Nevada County, its watershed, cities, town and unincorporated areas and its businesses, special districts and local, state and federal agencies less vulnerable to the effects of natural and man-made hazards through responsible application of hazard mitigation grants

programs, hazard risks assessments, flood plan management and coordinated mitigation policies.”

This statement provided the overall direction but more concrete goals were needed that could be operationalized into objectives and programs: For this purpose, the Nevada County Emergency Services Council adopted the following final, operational goals, a portion of which were approved in the “Nevada County Fire Plan, August 2004”:

Goal 1: Prevent future hazard related losses of life, property or damage to the environment.

Objective 1.1 Reduce fire severity and intensity through fuels management.

- 1.1.1 Improve public awareness and understanding of the Nevada County fire adapted ecosystem.
- 1.1.2 Define the desired future fuel condition and develop a vegetation management prescription for defensible space around structures.
- 1.1.3 Develop prescription for defensible community-level fuel modifications on the wildland portion of all parcels 10 acres or less.
- 1.1.4 Develop a fuels management implementation strategy phased in over 5 years, initially focusing on education and assistance with ultimate implementation through education, assistance and enforcement.
- 1.1.5 Provide fuel management consulting service contacts for private property owners of parcels greater than 10 acres in size.
- 1.1.6 Develop, organize and fund a property owner assistance program.

Objective 1.2 Enhance public safety and improve effectiveness of emergency services through infrastructure improvements.

- 1.2.1 Identify existing County maintained roads not meeting design standards for current or anticipated use as in dictated by the General Plan.
- 1.2.2 Ensure that private roads required as a condition of approval through the Subdivision Map Act be maintained to the design standard to which they were originally required to be built.
- 1.2.3 Review private roads that have offers of dedication placed on them and develop mechanisms for taking those of significant regional importance to public safety into the county maintained mileage program.
- 1.2.4 Develop a countywide rural fire protection water system that provides a cost effective, adequate water supply and seek adoption into County ordinance.

- 1.2.5 Develop an emergency public notification system and educate citizens and agencies on its intent and use.
- 1.2.6 Create a business environment that encourages the development of a sustainable fuels management industry

Objective 3: Reduce risk to life and property through new or revised codes, ordinances and compliance programs.

- 1.3.1 Review and revise, as needed, existing wildland fire related codes and ordinances to address the recognized hazards of building and living in the wildland urban interface.
- 1.3.2 Consider new fire safety codes and ordinances to meet the County's fire safe needs.
- 1.3.3 Review and recommend improvement of "same practical effect" process for meeting the intent of the Fire Safety regulations.

Objective 4: Increase community awareness and involvement to promote participation and voluntary compliance.

- 1.4.1 Utilize the Nevada County Fire Safe Council, community and business associations within Nevada County for public education and assistance.
- 1.4.2 Develop a template for community/neighborhood fire safe plans
- 1.4.3 Provide on-site consulting for homeowners.
- 1.4.4 Create incentives that encourage voluntary compliance.
- 1.4.5 Identify fuel reduction priorities for grant funded projects and public education.
- 1.4.6 Provide a better understanding to the public, architectural and building industry about the benefits and material/design options available with ignition resistant building materials.

Objective 5: Involve fire agencies, county and municipal departments, federal agencies having land management obligations, private and public land owners, the Nevada County Conservation District and the Nevada County Fire Safe Council in collaborating on county-wide goals and plans to consistently and effectively implement mitigation measures.

- 1.5.1 Provide adequate resources to implement a Fuels Modification Ordinance, Rural Fire Protection Water Supply System and County Chipper Assistance Program and other programs appropriate for County-wide application.
- 1.5.2 Create a collaborative process for integration of County-wide common goals, into each agency's Fire Prevention Program.
- 1.5.3 Public and private lands-The County Board of Supervisors should direct the County Fire Marshal to develop and collaborative process with public land managers, open space

districts and land trusts for wildland urban interface fuel management.

- 1.5.4 Review the effectiveness of the fire plan in five years and every five years thereafter.

Objective 6: Reduce threat of flooding along County-wide creeks, streams and rivers.

- 1.6.1 Review appropriate flood protection infrastructure improvements and implement where feasible and economically viable.
- 1.6.2 Prepare public information materials concerning the risk associated with creek, stream and river flooding.
- 1.6.3 Prepare public education materials concerning appropriate methods for creek-bed, ditch maintenance.

Objective 7: Provide protection for natural/cultural resources to the extent possible.

Goal 2            Increase public awareness/actions of vulnerability to hazards

Objective 2.1 Participate in appropriate state-wide hazard awareness campaigns.

Objective 2.2 Place awareness/protection materials on the County website.

Goal 3:            Improve community Emergency Services/Management capability.

Objective 3.1 Continue to coordinate jurisdictional responsibilities to various hazards through County and community disaster/emergency response plans and exercises.

Objective 3.2 Maintain the County and expand the use of the County emergency dial up system.

Objective 3.3 Continue to coordinate the County responses to US and California Department of Homeland Security requirements.

Goal 4:            Maintain the County's eligibility for, and, pursue multi-objective funding opportunities wherever possible

Objective 4.1 Nevada County local governments should seek funding as the lead agency, when necessary, to support local; non-profit; state or federal projects that have hazard mitigation outcomes benefiting Nevada County's citizens.

- 4.1.1 Obtain, or coordinate county cemetery district

facilities for disaster mass casualty burial sites.

Objective 4.2 Nevada County should maintain its cooperative efforts with other agencies so that combined efforts result in the best conceived projects possible.

## **5.2 Identification of Mitigation Measures**

Participating agencies were asked to submit specific mitigation projects using a template that described categories of mitigation measures into:

- Prevention
- Emergency Services
- Property Protection
- Natural Resource Protection
- Structural Projects
- Public Information

No limit was placed on the number of measures that each agency could propose and they were encouraged to submit multi-agency projects. Specifically the federal government, Tahoe National Forest, was invited to share in project proposals.

Submitted projects were reviewed by the Nevada County Emergency Services Council for their appropriateness to the overall goals of the plan, but it was decided not to address the issue of prioritization of agencies. The nature, cost and feasibility of the agency recommendations were diverse. The recommended actions in most cases are complimentary so it was found to be divisive to place recommendations outside of those recommended by each agency. Rather, recognizing the Disaster Mitigation Act regulatory requirement to prioritize by Benefit-Cost and the need for any publicly funded project to be cost-effective, the Emergency Services Council decided to pursue implementation according to when and where damages occur, available funding, individual community priority and priorities identified in the California Multi-Jurisdiction, Multi-Hazard Mitigation Plan. When applications are submitted, we will use the appropriate FEMA Benefit Cost Analysis Tool ( FEMA BCA Toolkit v.2.0 currently).

## **5.3 The Mitigation Strategy**

Any effective mitigation strategy must encompass the participation of the communities forming the partnership. Within Nevada County there are 3 incorporated cities, the unincorporated county and 27 special districts or non-profit public agencies that participated in this Mitigation plan. While different in boundaries, form and function, each of these agencies recognize their role to prepare for disaster, respond to natural or man-made hazard and undertake mitigation initiatives. This partnership of participating jurisdictions defines the overall hazard mitigation planning strategy for Nevada County.

Stimulating collaboration among local communities and agencies for hazard mitigation, the Local Hazard Mitigation Plan Program (LHMP) is a priority program of the California Governor's Office of Emergency Services to meet one of their primary goals: "*promote Hazard Mitigation as an integrated policy*". The LHMP provides a mechanism for the state to provide technical assistance, and to track the progress and effectiveness of local government mitigation planning programs. As part of this program, California established the following criteria for prioritizing local mitigation activities for funding:

- ❑ Percent of population at risk
- ❑ Frequency and likelihood of hazard
- ❑ Repetitive loss areas
- ❑ Small/impooverished communities
- ❑ Planning resources available
- ❑ Types/percent of land areas at risk
- ❑ Development pressure rating
- ❑ Project urgency and cost/benefit analysis
- ❑ Cost effectiveness of measure

The results of the planning process, the Risk Assessment, the Goals Setting, the Identification of Mitigation Measures and the work of the Emergency Services Council led to the Action Plan present in the next section.

All of the recommendations set forth fall into four identifiable strategies:

- ✓ ENFORCE existing rules, policies and procedures already in existence. Communities can reduce future losses, not only by pursuing new programs and projects, but also by more stringent attention to what's already on the books.
- ✓ EDUCATE the public about hazard information that Nevada County has collected and analyzed through this planning process so that the community better understands what can happen where and what they can do themselves to be better prepared.
- ✓ IMPLEMENT Action Plan below, some of which is comprised of recommendations that have previously been recommended through other existing community plans and efforts.
- ✓ Multi-objective Management. Monitor multi-objective opportunities, so that funding opportunities may be shared and packaged for broader community support.

## **5.4 ACTION PLAN**

The Action Plan presents the prioritized recommendations for Nevada County and its agencies to pursue in order to lessen the vulnerability of people, property, infrastructure, and natural and cultural resources to future disaster losses. The recommended Mitigation Actions are organized by agency. Each recommendation also includes a discussion of the cost-benefit to meet the regulatory requirements of the Disaster Mitigation Act of 2000.

### **SUMMARY TABLE OF PROPOSED MITIGATION ACTIONS** *(Not in Priority Order; arranged by jurisdiction and project number)*

<b>JURISDICTION</b>	<b>PROJECT TITLE</b>	<b>Proj#</b>	<b>PRIORITY</b>	<b>PROJECT COST</b>
NEVADA COUNTY	Community Assistance Project	1	HIGH	\$3,032,300
NEVADA COUNTY DOTS	Roadside Brush Clearing	2	HIGH	\$422,200
NEVADA COUNTY	Education and Training	3	HIGH	\$75,000
NEVADA COUNTY	Water Supply	4	MEDIUM	\$50,000
NORTH SAN JUAN FIRE DISTRICT	Firebreak 100'X5000'	1	HIGH	\$30,000
NEVADA CEMETERY DISTRICT	Emergency Mass Burial Site	1	MEDIUM	\$81,060
RESOURCE CONSERVATION DISTRICT	Community Shaded Fire Break Project	1	HIGH	\$350,250
SIERRA COLLEGE DISTRICT	Fire Prevention Project	1	HIGH	\$72,000
SIERRA COLLEGE DISTRICT	Crisis Response Plan and Training	2	HIGH	\$30,000
CITY OF NEVADA CITY	Brush clearing and ladder fuel reduction	1	HIGH	\$33,053
CITY OF NEVADA CITY	Downtown Fire Suppression Sprinkler System	2	HIGH	\$550,000
CITY OF GRASS VALLEY	Downtown Conflagration Miltigation	1	HIGH	\$485,400
TOWN OF TRUCKEE	Trout Creek stream and floodplain restoration	1	HIGH	\$5,000,000

TOWN OF TRUCKEE	Donner Lake Road Drainage Improvements	2	HIGH	\$250,000
TOWN OF TRUCKEE	Tahoe Donner Access Road	3	HIGH	\$11,000,000
TOWN OF TRUCKEE	Brushing and Debris chipping, various	4	MEDIUM	\$500,000
TOWN OF TRUCKEE	South Shore Drive Drainage Improvements	5	MEDIUM	\$500,000
TOWN OF TRUCKEE	Gregory Creek cleaning and creek bank restoration	6	MEDIUM	\$450,000
TOWN OF TRUCKEE	Retrofit Dispatch Center for seismic	7	MEDIUM	\$250,000
TOWN OF TRUCKEE	Drainage way rehab & culvert replacement	8	LOW	\$10,000,000
US FOREST SERVICE	Fuel Mastication near Washington town site	1	HIGH	\$225,000
US FOREST SERVICE	Fuels treatment at Columbia Hill	2	HIGH	\$340,000
US FOREST SERVICE-Truckee	'Billy Project" 100 acres	1	HIGH	\$70,000
US FOREST SERVICE-Truckee	"Alder Creek Project" 100 acres	2	HIGH	\$70,000
US FOREST SERVICE-Truckee	"Joey Project" 30 acres	3	HIGH	\$41,000
TRUCKEE SANITARY DISTRICT	6 Overflow Tanks	1	High	\$494,400
TRUCKEE SANITARY DISTRICT	Alder Creek lift Station Overflow Tank	2	MEDIUM	\$82,400
TRUCKEE SANITARY DISTRICT	Outfall Sewer Line	3	HIGH	\$2,500,000
TRUCKEE SANITARY DISTRICT	Donner Creek Outfall Sewer Line	4	MEDIUM	\$2,750.000

# **NEVADA COUNTY FIRE PLAN - HAZARD MITIGATION PROJECT REQUESTS**

## **Background:**

In August 2003, the Nevada County Board of Supervisors (BOS) acknowledges their concern of the negative effects of wildland fires in Nevada County. The Nevada County Fire Plan (NCFP) recognizes the hazards and risks of wildland fires, and intends to reduce these hazards and risks to the public, as well as reduce the cost and losses resulting from wildland fires. The NCFP also intends to comply with the Disaster Management Act of 2000 and the Healthy Forest Restoration Act of 2003.

Nevada County situated in the northern section of the Sierra Nevada Range is like much of the western United States, which is a region that is prone to severe wildland fires. Nevada County has experienced four major wildland fires in the last 18 years, causing the loss of over 200 homes and buildings at a cost over 33 million dollars, and in addition, the cost to tax payers for fire suppression reached over 39 million dollars. The average number of wildland fires reported in the county, on private lands, is over 120 fire starts each year. Each fire start has the potential to affect 400,000 acres and threaten over 28,000 developed parcels with homes and buildings - valued over 4 billion dollars, within the Nevada County's jurisdiction.

Nevada County is considered one of the fastest growing counties in the Wildland-Urban Interface (WUI) of California. Most of the development is occurring in areas, such as oak woodlands and mixed conifer forest areas, which are prone to severe WUI wildland fires. Since 1970 to 2000, the number of households increases from 9,600 to 43,500 a 353% increase, and the population increased from 25,000 to 96,000, a 268% increase in the same 30-year period within the city and county areas. The development and population will likely continue to grow and develop to the extent of the County General Plan, where the population cap rate is set at 150,000. In 1988, the 49er Fire burned in a mixed conifer forest area that was moderately populated with homes and other buildings. In a 48-hour period, the 49er Fire destroyed over 180 homes and consumed over 33,500 acres. This area has re-grown with the same flammable native vegetation, re-developed the destroyed homes and buildings, and added new homes and buildings within the same area of the 49er Fire. These homes and building could be protected from another wildland fire, like the 49er Fire, if protection measures are adopted in the WUI areas. The protection measures means managing the flammable native vegetation to defensible space standards around the homes and the communities.

Public Resources Code 4291, the Defensible Space law that requires property owners to reduce the flammable vegetation around their homes, has recently undergone revisions. In 2005, based on the aftermath of the Fire Siege in 2003 and the Blue Ribbon Committee's recommendation, the State Legislature adopted changes to PRC 4291. The key change increases the treatment distance from 30 feet to 100 feet from the structure or to the property line. The increase in the defensible space distances indicates the State's concern for improving fire safety and reducing the losses for wildland fires.

In August 2003, prior to the Fire Siege (October) 2003, the Nevada County Board of Supervisors, concerned with the hazards and risks of wildland fires within their jurisdiction, appointed a Fire Plan Committee and charged the committee with developing a Nevada County Fire Plan. The Fire Plan Committee submitted the NCFP to the BOS in August 2004. The BOS approved the plan and requested amendments to address their concerns. These amendments were approved in May 2005.

The NCFP is a comprehensive document that provides guidance to reduce the impacts of wildland fires to life, property and natural resources in Nevada County. Currently, the NCFP is undergoing a full environmental analysis through an Environmental Impact Report (EIR). It is anticipated the EIR will be completed by the latter part of 2006 and available to the BOS before the end of the year to review and to formally adopt of the Nevada County Fire Plan.

The Nevada County Fire Plan, consisting of five Goals, 25 Objectives and 42 Recommendations, provides the framework and 5-year timeline for implementation of the Fire Plan. The primary goals of the Fire Plan are as follows:

1. Reduce fire severity and intensity through fuels management.
2. Enhance public safety and improve effectiveness of emergency services through enhanced infrastructure improvements.
3. Reduce risk to life and property through new or revised codes, ordinances and compliance programs.
4. Increased community awareness and involvement to promote participation and voluntary compliance.
5. Involve fire agencies, County departments, public and private land managers, and the Fire Safe Council in collaborating on countywide goals and plans to consistently and efficiently implement mitigation measures.

The NCFP intends to develop and implement various programs, such as:

- Adopt defensible space guidelines and establish defensible space ordinances
- Implement the defensible space inspection programs
- Develop and implement educational and training programs for the public, private property owners and supporting industry and workforce
- Provide fuels treatment assistance programs to private property owners
- Develop a compliance (inspection) program for existing water storage facilities
- Conduct a water storage study to identify the means to improve and provide an efficient countywide water storage system for emergency services,
- Develop and implement a road compliance program consistent with the original standard
- Conduct roadway study to identify areas that need improvement for safe access and egress,
- Modify sections of the land use and development codes related to fire safety
- Seek funding to support the implementation of the NCFP

### **NCFP Projects: Funding Needs**

There are three key projects that need funding under the Fire Marshal's Office (FMO) lead: educational and training programs, community assistance for fuels treatment, and a water storage and supply study, which includes a compliance program.

The most significant recommendations of the NCFP are related to the defensible space guidelines and the defensible space ordinances. The FMO is directed to develop and implement the Defensible Space inspection programs. To provide the public with the necessary information to perform the fuels treatment and meet the defensible space guidelines, educational and training programs are required. The educational and training programs need to be developed and implemented to ensure appropriate dissemination of the guidelines and the ordinance requirements. Moreover, the educational and training programs are the key conduits for delivering the environmental mitigation measures according to the EIR. Additionally, the FMO is tasked to develop and implement community assistance programs for on-ground treatment to meet the Defensible Space standards. These programs will need to be developed in coordination with the FireSafe Council of Nevada County. Lastly, the FMO is tasked to study the water storage and supply system, and develop and implement an inspection program to ensure the existing water storage systems are being maintained to original approved conditions. Each projects is discussed to a fuller extent in the following attached Hazard Mitigation Projects.

# **NEVADA COUNTY FIRE PLAN - HAZARD MITIGATION** **PROJECT REQUEST**

**Agency Name: Nevada County Fire Marshall's Office**

## **Action Item # 1 Community Assistance Project**

**Project Area and Key Audience:** The project area, in the unincorporated area of Nevada County, excluding city, state and federal lands, is approximately 35,000 parcels on 88,000 acres. It is estimated that 56,600 acres may need various degrees cost assistances to reduce flammable native vegetation to meet Defensible Space standards over a 10-year period.

The Nevada County Fire Plan (NCFP) outlines two fuels management prescriptions – Defensible Space and Community Defensible Space. The prescriptions are centered on providing wildland fire protection for homes, building and communities areas. The Defensible Space program requires property owners to reduce the flammable native vegetation around homes and buildings up to 200 feet on the steepest slopes, and the Community Defensible Space program requires property owners of 10 acres or less to reduce the flammable native vegetation on 80% of the parcel. Many of these property owners will likely need minor cost assistance to meet the Defensible Space prescriptions, such as pruning, removal, and chipping services. However, many property owners required to meet the Community Defensible Space prescriptions likely will need additional cost assistance to treat more acreage and greater volumes of vegetation by either manual or mechanical treatment methods.

**Issue/Background Statement:** The intent of the NCFP is to reduce the impacts of wildland fires to life, property and the natural resources in Nevada County. The NCFP provides the framework on how to mitigate wildland fire hazards through Defensible Space prescriptions. The key to the success is mitigating the hazards through extensive educational and training programs. The next step is to provide a Community Assistance Program to provide the financial and technical support to the public for the implementation of the Defensible Space prescriptions and the NCFP.

The Defensible Space prescriptions are relatively a new approach to defining the means on how to create defensible space. The Public Resources Code (PRC) 4291 is the state's minimum requirement for defensible space, which requires 100 feet of clearance around homes and buildings. The flammable native vegetation surrounding a community area is not addressed in the state standards. The NCFP's Defensible Space standards build on the state standard by establishing comprehensive requirements through a prescriptive process based on parcel size, vegetation type and slope. In addition, the NCFP prescriptions address the issues of community protection by treating the flammable native vegetation around these areas. The overall intent of the prescriptions is to 1) reduce the volume and spatial break up the fuel continuity and 2) maintain the native vegetation prescription in perpetuity. The key importance for establishing the Community Assistance Program is to provide the financial and technical support for transitioning from the state standards to the county standards. Once the county standards are

met, then the issue switches to a maintenance mode where the associated costs are significantly diminished and the cost are attainable and manageable by the property owner.

Nevada County Board of Supervisors may adopt the Defensible Space prescriptions into a county ordinance. If the county adopts the Defensible Space prescription into an ordinance, the educational and training programs must be implemented to support the public's understanding of the new regulations and the process on how to treat the flammable fuels. In addition, the property owners will need financial assistance for implementing these extensive prescriptions. The Nevada County Board of Supervisors has expressed their concerns regarding the financial impacts to the property owner and potentially for county services. This suggest that while educational and training programs are the key to the success of the NCFP, the financial needs are equally important for a successful fire plan.

The large-scale, maximum treatment of 88,000 acres at a cost of \$750.00 acre results in a total cost of \$66 million dollars. The proposed project suggest a reduced treatment acreage of 56,600 acres and redistribution of the treatment areas may reduce the cost per acre to \$675.00 acre, which results in a total cost of \$38 million dollars. Whether reviewing the maximum treatment acres or the proposed reduced treatment acreage, clearly, fuels treatment is an expensive endeavor. However, it is important to reference the cost of destructive fires. In Nevada County, four major fires have destroyed over 200 homes and buildings at a loss over 33 million dollars, and in addition, the cost to tax payers for fire suppression was over 39 million dollars, for a total cost and loss of \$72 million dollars. The simple cost comparison suggest fuels treatment is less than the cost and losses of major wildland fires.

The Community Assistance Programs will need to meet a variety of needs for the community. Currently, the Nevada County Fire Safe Council of Nevada County provides two programs: a chipping program, and a fuels treatment program. The Community Assistance program will need to coordinate with the Fire Safe Council and likely upgrade and refine these programs. The Fire Safe Council utilizes a financial means test (low income/ economically stressed) to provide cost assistance. These programs provide the baseline assistance to meet the state's standards. The Community Assistance programs will need to improved efficiency and effectiveness of these programs and be able to deliver services to more property owners to meet the higher standards of the county. It is estimated that the Community Assistance Programs will likely need to meet the need of at least 35% of the 35,000 parcels identified in the project area.

The NCFP is currently undergoing a full environmental review through an Environmental Impact Report (EIR) according to the California Environmental Quality Act (CEQA). The EIR will likely indicate a variety of protection measures to mitigate the environmental concerns during the implementation of the defensible space prescriptions. The environmental protection measures may influence the treatment locations, treatment methods or require mitigation after the treatment has been completed. These factors may influence the cost of implementing the prescriptions. The Community Assistance Program will need to be flexible to adjust to the constraints of the environmental protection measures

While, the primary assistance is for Defensible Space assistance, the Community Assistance program will also need to include supporting services such as

- Technical/consultation services for professional services such as biologists, hydrologists or archaeologists
- Alternative greenwaste disposal program for slash treatment, such as a biomass center

- Community-Neighborhood Fire Safe Plan program oversight and coordination
- Defensible Space Awards program

The overall goal of the Community Assistance Program is to provide cost assistance needed to meet property owners needs for meeting the county's Defensible Space standards and the supporting services that encourages and motivates property owners to meet the intent of the NCFP. The Nevada County Fire Marshal's Office would provide the oversight of the Community Assistance Program.

**Other Alternatives Considered (including taking no action):**

The alternative to the Community Assistance program will shift the demand for services to the Fire Safe Council of Nevada County. This organization is primarily a volunteer community service organization that provides localized services for low-income or economically stressed property owners. The Council primarily operates on small grants and donations. Moreover, the Council does not have governmental authority or responsibilities to implement the NCFP.

The no action alternative means not assisting property owners with supporting funds to meet the Defensible Space prescriptions. The need for Community Assistance Program will be related to the adoption of the Defensible Space prescriptions as ordinances. If the prescriptions are adopted into ordinance, then this will place a significant financial burden on property owners to meet the extensive new standards. Conversely, if the prescriptions are not adopted into ordinance then there is no incentive/ pressure to comply with the prescription standards. The result is retaining the state's standard for clearance around structures. The community fuels treatment will not be addressed. Wildland fire cost and losses will likely remain on the current trend with excessive cost and losses.

**Responsible Office/Person:**

Frank Quadro, Nevada County Fire Marshal  
California Dept. of Forestry and Fire  
Protection

13760 Lincoln Way  
Auburn, CA 95603  
(530) 889-0111

Kathleen Edwards, Deputy Fire Marshal  
Nevada County – Fire Marshal's Office  
950 Maidu Ave.  
Nevada City, CA 95959  
(530) 265-1253

**Cost Estimate:**

Type	Cost	Description
Defensible Space	\$ 650,000	Assuming 25% of the 13,000 property owners may need some assistance to meet the minimum standard @\$200.00 per parcel. May co-op with Fire Safe Councils
Community Defensible Space	\$ 2,292,300	Assuming 60% of overall annual cost will need assistance
Technical Services	\$ 50,000	Approximate cost for 1/2 year of technical service for one specialist
Alternative Greenwaste Disposal	\$ 25,000	Approximate cost for developing and maintaining greenwaste site
Community-Neighborhood Fire Safe Plans	\$ 10,000	Approximate cost to assist local fire districts and volunteers to develop fire safe plans
Awards Program	\$ 5,000	Annual award for property owners who provide excellent examples of defensible space
Grand Total	\$ 3,032,300	10 year Program = \$30,323,000

**Potential Sources of Funding:** Federal grants are the key desirable funding sources; state and county services are secondary funding options, then lastly, fee collection for providing the inspection and enforcement services from property owners. One other possible option is a tax lien program, however, least desirable.

**Cost Benefit:** The cost benefits will result in effective wildland fire control that:

- Minimizes the number of homes and building during a wildland fire
- Direct saving from minimizing the losses
- Reduction of the property damage losses
- Reduction in wildland fire suppression cost

In addition, the Community Assistance programs are key to encouraging on-the-ground fuels reduction treatments, plus:

- Positive government reinforcement to meet new county government requirements
- Provides the technical services for property owners to address concerns in meeting Defensible Space prescriptions
- Provides alternatives greenwaste disposal, which assist with retaining clean air and minimize debris burning
- Provides funds to assist fire districts with developing their individual emergency plans based on a county wide template
- Creates an award program to reward property owners who implement ideal defensible space conditions

**Priority (high, medium, low): High**

**Schedule for the work:** The project is structured on a 10-year plan, where the goal is to treat and/or provide outreach services to 22,000 parcels on 61,000 acres.

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# NEVADA COUNTY - HAZARD MITIGATION PROJECT REQUEST

**Agency Name: Nevada County Department of Transportation and Sanitation**

**Action Item #: 2**

**Issue/Background Statement:** The County wants to reduce the fire danger and loss of life and property caused by wildfire ignitions along County roads by removing hazardous roadside vegetation along 523 miles of County maintained rights of way. This program would have its primary focus in the area south and west of the community of Washington to the Nevada County border with Placer and Yuba counties.

**Other Alternatives Considered (including taking no action):** This could be done by individual property owners, homeowner associations, fire districts and the Fire Safe Council. In fact these individuals and groups do this type of work. Unfortunately it is not done in a consistent manner and, therefore, is not as effective as a comprehensive program.

**Responsible Office/Person:** Ken Ribble, Road Supervisor, Department of Transportation and Sanitation 12548 Loma Rica Drive, Grass Valley, CA 95945 530-265-1411

**Cost Estimate:** \$422,200/year; \$175,000 Hazard Mitigation Funding, \$247,200 county funding

**Potential Sources of Funding:** The Road Fund contributes approximately \$247,200 each year to vegetation management along County roads. An additional \$175,000 from this Hazard Mitigation program would almost double the County's efforts.

**Cost Benefit:** For estimating purposes, we are calculating that four (4) homes per year could be lost as a result of not having this comprehensive program. These would be homes directly adjacent to the roadway and lost prior to the intervention of fire fighting equipment. Calculation: \$478,000 median value of home, less land value plus contents value equals \$474,600 times 4: \$1,898,400.

**Priority: HIGH**

**Schedule of the work:** The work could begin as early as October 2006 and continue throughout the year (weather permitting).

# **NEVADA COUNTY FIRE PLAN - HAZARD MITIGATION PROJECT REQUEST**

**Agency Name:** Nevada County Fire Marshall's Office

## **Action Item # 3 Public Education and Training**

**Project Area and Key Audience:** The project area, in the unincorporated area of Nevada County, excluding city, state and federal lands, is approximately 35,000 parcels on 88,000 acres.

The Nevada County Fire Plan (NCFP) outlines two fuels management prescriptions – Defensible Space and Community Defensible Space. The prescriptions are centered on providing wildland fire protection for homes, building and communities areas. The Defensible Space program requires property owners to reduce the flammable native vegetation around homes and buildings up to 200 feet on the steepest slopes, and the Community Defensible Space program requires property owners of 10 acres or less to reduce the flammable native vegetation on 80% of the parcel. The property owners of these parcels are the key audience that will likely need education and training on how to implement these prescriptions and how to provide for environmental protection as directed by the environmental review document. Additionally, the fire abatement industry (the workforce of landscapers, arborist, tree workers and others) is another key audience that has been identified for the education and training program. Moreover, the public will be encouraged to attend these programs to expand the fire safety education and education.

**Issue/Background Statement:** The Public Education and Training Program

The intent of the Public Education and Training Program is to provide to education and training programs for purpose of informing property owners, the fire abatement industry and the public of the risk of wildland fires and how to mitigate the wildland fire hazards through Defensible Space prescriptions. Nevada County's pro-active approach to mitigating the hazards through and education and training program is fundamental to the success of the NCFP. Moreover, the Nevada County Board of Supervisors' may adopt the Defensible Space prescriptions into a county ordinance. If the county adopts the Defensible Space prescription into an ordinance, then the importance of having an educational and training program will be necessary for successful implementation of the ordinance.

The NCFP focuses on providing defensible space for individual homes and building, and defensible space for community level protection for reducing the risk and hazards during a wildland fire, and reducing fire suppression cost to taxpayers. The Defensible Space prescriptions address the unnatural and dangerous accumulation of native vegetation around homes, buildings and community areas. The native vegetation, which is highly flammable, is identified as 'fuels' by wildland fire experts. The Defensible Space prescriptions focus on fuels management of the flammable native vegetation, and intend to reduce the volume and the spatial arrangement of the flammable native vegetation by a prescriptive process on 35,000 parcels on

88,000 acres. The Public Educational and Training Program targets property owners, the fire abatement industry and the public associated with these 35,000 parcels.

The Defensible Space prescriptions are relatively a new approach to defining the means on how to create defensible space. The prescriptions are defined by parcel size, vegetation type and slope. In addition, these prescriptions build on State's standard for Defensible Space under Public Resources Code 4291. The importance of the education and training program is to define the difference between the state standard and the county standard, define and describe the prescriptions, explain the environmental protection measures and the county's inspection program.

The NCFP is currently undergoing a full environmental review through an Environmental Impact Report (EIR) according to the California Environmental Quality Act (CEQA). The EIR will likely indicate a variety of protection measures to mitigate the environmental concerns during the implementation of the defensible space prescriptions. The educational and training program is critical for the delivery of the environmental protection information and the protection measures that need to be carried out while conducting fuels reductions.

The Education and Training Program will be delivered in a multitude of formats: town hall meetings, workshops, seminars, handouts and brochures, and participation into other public forums such as the county fair and wildland fire awareness week. The program will incorporate experts into the educational and training programs from associated field. As an example, including botanist and wildlife biologist into the educational and training programs will assist in bridging the issues for protected species with the needs of providing for wildland fire protection. Lastly, the Educational and Training Program, as well as the prescriptions, must developed and delivered in a format that is cost efficient and functional for public implementation and benefit.

### **Other Alternatives Considered (including taking no action):**

The certification of the EIR and the Defensible Space prescriptions likely will hinge on the implementation of the educational and training programs. If the certification of the EIR occurs, then educational and training programs will be required for the county to adopt the Defensible Space prescriptions. If educational and training programs are not developed, then strong likelihood the implementation of the Defensible Space prescriptions will not occur. The result is that the county will revert to the state minimum standards for defensible space.

The NCFP indicates the importance public awareness regarding wildland fire concerns and issues. As an alternative, the prescriptions and related fire safety information could be provided in handout, brochure and website access, which is the standard format for public information distribution. However, the success of the NCFP likely will be comparable to other fire safety handouts and informational material – minimal, but available.

### **Responsible Office/Person:**

Frank Quadro, Nevada County Fire Marshal  
California Dept. of Forestry and Fire  
Protection  
13760 Lincoln Way  
Auburn, CA 95603  
(530) 889-0111

Kathleen Edwards, Deputy Fire Marshal

Nevada County – Fire Marshal's Office  
950 Maidu Ave.  
Nevada City, CA 95959  
(530) 265-1253

**Cost Estimate:** \$75,000 for 1<sup>st</sup> year, then \$60.00 for maintain educational – training program for minimum of four additional years. Total \$315,000

**Potential Sources of Funding:** Federal grants are the key desirable funding sources; state and county services are secondary funding options, then lastly, fee collection for providing the educational and training services from the audience.

**Cost Benefit:** The cost benefits will result in effective wildland fire control that:

- Minimizes the number of homes and building during a wildland fire
- Direct saving from minimizing the losses
- Reduction of the property damage losses
- Reduction in wildland fire suppression cost

In addition, the educational and training programs are a key means of delivering environmental protection measures, thus the cost benefit to the public:

- Protects protected and endangered species
- Minimizes soil disturbance and provide erosion control guidance that protect watercourses
- Protects historical and pre-historical record in Nevada County of Nevada
- Minimizes use of herbicides
- Minimize and protect additional environmental resources for public benefit

**Priority (high, medium, low): High**

**Schedule for the work:** The first year of implementing the NCFP will require extensive educational and training programs to be developed and implemented. The 2<sup>nd</sup>- year programs likely will taper off to a maintenance program, and the program should be maintained for four additional years, for a total of a 5-year program.

# **NEVADA COUNTY FIRE PLAN - HAZARD MITIGATION PROJECT REQUEST**

**Agency Name: Nevada County Fire Marshall's Office**

## **Action Item # 4 Water Storage and Supply Study and Compliance Program**

**Project Area and Key Audience:** The project is a water storage study in the unincorporated area of Nevada County, excluding city, state and federal lands. Additionally, a water storage tank compliance program needs to be developed and implemented to ensure water tanks are maintained to original approved conditions. The audience affected by this project is the private property owner with current water storage systems or seeking to develop parcel with a single-family dwellings and the fire protection agency that provide fire protection services.

**Issue/Background Statement:** The Water Storage and Supply Study and Compliance Program

The intent of the Nevada County Fire Plan (NCFP) is to reduce the impacts of wildland fires to life, property and the natural resources in Nevada County. The NCFP provides the framework on how to mitigate wildland fire hazards through five goals. One goal of the NCFP focuses on enhancing public safety and improving emergency services through infrastructure improvements of roadways and water storage and supply systems. These critical infrastructure components influence the successful response of emergency services, especially during a wildland fire. The NCFP identifies the need to assess and study these systems, and provide the necessary recommendations for improving these systems. Nevada County Department of Transportation is tasked with leading the roadway assessment and study. The Nevada County Fire Marshal's Office is tasked with conducting a study of the water storage and supply systems in the county. The focus of this project is the water storage and supply study.

This project is the study of Nevada County's water storage and supply system. The current system is a rural fire protection system, which includes private, community and public water storage systems in the form of individual water storage tanks, cisterns, lakes, ponds and pressurized hydrants systems. The preliminary review of the individual water storage system suggests this system to be least effective of all the systems. Moreover, preliminary review suggests a strategically located water storage system will improve fire protection services for individual residences and for the community as well. This project is the study to assess and determine the effectiveness of the current water storage system, provide recommendations for improving the water storage system, which could include the discontinuation of the individual water storage tank system, and the adoption of a strategically located water storage system. Lastly, there may be merit to including with the study the security protection assessment and the recommendations to ensure protected water storage and supply system.

The Compliance Program is a program that needs to be developed and implemented for ensuring the water storage tanks are being maintained to original approved conditions. This program likely will provide supportive information for the water storage and supply study.

**Other Alternatives Considered (including taking no action):**

The alternative to the study is to create an internal assessment mechanism within the county planning and building departments and the fire districts to determine the effectiveness of the water storage and supply system. This process would require the Fire Marshal’s Office to create this assessment system, which essentially is performing the studying. The FMO has limited staff and is unable to produce the study within a 3-year period. The delay in study essentially means retains the existing water storage and supply standards.

The ‘no action’ alternative is not performing the study, which results in retaining the existing water storage and supply standards. While the standards are not substandard, the opportunity to improve the efficiency and effectiveness of the system likely would not occur without the basis of the study.

**Responsible Office/Person:**

Frank Quadro, Nevada County Fire Marshal  
California Dept. of Forestry and Fire  
Protection  
13760 Lincoln Way  
Auburn, CA 95603  
(530) 889-0111  
Kathleen Edwards, Deputy Fire Marshal  
Nevada County – Fire Marshal’s Office  
950 Maidu Ave.  
Nevada City, CA 95959  
(530) 265-1253

**Cost Estimate:** \$50,000.00 for the Water Storage and Supply Study.  
\$5,000 for Compliance Program (handheld computers for tracking water storage systems)

**Potential Sources of Funding:** Title III funds from the USFS under HR2389 have been identified as the desirable funding source. State and county funds are secondary funding options.

**Cost Benefit:** the study would provide the necessary information to make an informed decision on how to effectively, efficiency provide a master water storage and supply system for fire protection services. In addition, the assumption that if the water storage and supply system is effective and efficient, then the cost of implementing the recommendation would provide cost benefit to the property owner and the community.

**Priority (high, medium, low): Medium**

**Schedule for the work:** The goal is to complete the study within 2 years of contracting the work out to a private consultant. The goal is to implement the water storage and supply compliance program within 1 year.

# **NEVADA COUNTY - HAZARD MITIGATION PROJECT** **REQUEST**

**Agency Name:** North San Juan Fire District

**Action Item # 1 Firebreak approximately 5000' X 100' on two Bureau of Land Management parcels just north of the unincorporated town of North San Juan.**

**Issue/Background Statement:**

Western Nevada County has a history of catastrophic wildfire (49er Fire in 1988, Oak Tree Fire in 1976). The historic town of North San Juan is located upslope and downwind from dangerous north wind driven potential wildfires originating at the United States Forest Service and private recreation facilities in the middle fork of the Yuba River canyon. The town site contains approximately 50 residences as well as the historic Methodist Church and historic downtown buildings. These valuable and historic resources are at significant risk from wildfire.

**Other Alternatives considered (including taking no action):**

Assistance from the USFS/BLM/CDF/Nevada County Fire Safe Council; taking no action.

**Responsible Office/Person:** North San Juan Fire Department, Chief Boyd Johnson, P. O. Box 299, North San Juan, CA 95960 530-292-9159

**Cost Estimate:** \$30,000

**Potential Sources of Funding:** USFS/BLM/CDF or pre or post hazard mitigation funding

**Cost Benefit:** The North San Juan community will benefit from a marked increase in wildfire safety. Surrounding communities will benefit from improved air quality during fire season, improved forest health and improved watershed. Many residents are elderly or low income and would have a difficult time rebuilding. The estimated value of the 50 homes in North San Juan would be \$5,000,000 plus another \$500,000 for the church and \$1,500,000 for the downtown structures for a total approximate value of \$7,000,000. In uncontained wildland fires it is common to lose the total value of the structures.

**Priority:** (high/medium/low) **HIGH**

**Schedule for the work:** Immediate within the 2006-2007 fiscal year and ongoing

# HAZARD MITIGATION PROJECT REQUEST

FOR

## Action Item # 1 NEVADA CEMETERY DISTRICT MASS INTERMENT SITE

**Agency:** NEVADA CEMETRY DISTRICT  
P.O. Box 1993 Grass Valley, CA 95945  
10523 Willow Valley Road, Nevada City, CA 95959  
(530) 365-3461 Fax (530)265-8706  
E=mail: [tombstone8706@sbcglobal.net](mailto:tombstone8706@sbcglobal.net)

**Action Item:** To develop and secure an emergency mass interment burial site in Nevada County for use during and following a major disaster. The proposed project will include the grading and construction of an access roadway and a 3600 square foot staging area for emergency equipment and vehicles for the processing and mass burial of victims, the installation of 1500 linear feet of security fencing, preparation of a thirty foot fire fuel break buffer zone around the perimeter, and the installation of a power line to provide electricity to the site.

**Issue/Background:** The threat issue to be mitigated by the proposed project is the lack of any available facility/resource to handle and inter a large number of victims of a future catastrophic event in Nevada County.

The Nevada Cemetery District has recently obtained a 5.37 acre open area adjacent to its Loney/Sanford Ranch Cemetery on McCourtney Road. A portion of this site is ideally suited for the development of an emergency mass burial site in times of a major disaster involving a large loss of life. The proposed project will provide for a more than 500 person open interment site, up to 3,000 individual interment plots, and a staging area for earth moving equipment and arriving emergency vehicles. The site would be secured and protected by 1500 feet of six-foot high cyclone fencing and a thirty-foot perimeter fire fuel break

**Other Alternatives:** There are two alternatives to the proposed project. The first alternative would be to prepare an appropriate site during or after a catastrophic disaster occurs. This alternative would divert needed time and resources from the emergency to find and prepare a makeshift site. The second alternative would be to use existing

public and private cemeteries. This alternative would result in a difficult attempt to coordinate small-scale burials at various scattered sites. A sufficient number of sites/plots may not be physically available or extremely expensive to acquire on the open market.

<b>Responsible</b>	<u>Nevada Cemetery District Manager, Gary Plunkett at</u>	
<b>Office/Person</b>	10523 Willow Valley Road, Nevada City, Ca 95959 (530) 265-3416.	
<b>Cost Estimate</b>	1500 ft. of 6ft. cyclone fencing @\$24/ft.	\$36,000
	4000 sq. ft. roadway @\$4/sf	\$16,000
	3600 sf staging area @\$4/sf	\$14,400
	Site preparation and grading	\$ 1,600
	400 ft. power line @25/ft.	\$10,000
	30 ft. buffer zone	\$ 3,060
	<b>TOTAL PROJECT COST</b>	<b>\$81,060</b>

Estimated completion date is two years following approval of the project. Phase one; site preparation, installation of security fencing, and Construction of access road and staging area will be completed during the first year at an estimated cost of \$68,000. Phase two; installation of the power line and construction of the buffer zone will be completed in the second year at an estimated cost of \$13,060.

**Potential Sources** The Nevada Cemetery District currently has \$17,000 budgeted for this project. Further, depending on a possible third year of diversion of funds by the State of California for fiscal year 2006-7, the District may be able to contribute additional funding at that time. Without federal funding, the proposed project, at best, would be scaled down or postponed for several years. At worst, the project would be cancelled.

**Cost Benefit:** The entire geographic area of Nevada County will be better served and protected from the identified threat shown above with the development of the proposed project. There is currently no existing centralized mass burial site/resource to accommodate the need to bury large numbers of corpses in the event of a catastrophic natural or manmade disaster. The proposed project will provide this missing resource. Nevada County emergency and disaster facilities will also be better protected by the proposed project.

The immediate availability of a mass burial site will relieve the diversion of Nevada County manpower emergency facilities (not designed to handle mass burials) during a crises.

**Priority:** Medium to High. The newly acquired land needs to be secured and protected to allow development to proceed.

**Schedule for** Phase one can commence in Summer 2006 or immediately following approval of the proposed project (refer to Cost estimate section for phasing detail).

# HAZARD MITIGATION PROJECT REQUEST

**Agency Name:** Nevada County Resource Conservation District (NCRCD)

**Action item #1:** Community shaded fuel break project for Nevada City and Grass Valley, and nearby communities

**Issue/ Background Statement:**

The Nevada County Resource Conservation District coordinated a community wide committee for forest health issues and fuel load reduction to aid in the prevention of a catastrophic wildfire. Members of the Forestry Committee are NCRCD, BLM, USFS, Fire Safe Council of Nevada County, Nevada Irrigation District, NRCS, CDF and Bear River Watershed Group. As a result of this committee, a shaded fuel break project was developed to help protect the cities of Nevada City and Grass Valley to the west of the project area and also protect the forestland to the east. There are several at risk communities near the project area. The project area has not had a wildland fire in well over 60 years, has heavy accumulation of fuel loads and is designated a high severity fire danger zone area by the California Department of Fire Protection (CDF). The project area encompasses ridge top parcels, most 10 acres and above, that have been strategically chosen due to fire weather wind patterns and the high threat of a catastrophic, unstoppable fire. The project is also consistent with the Nevada County Fire Plan.

The project area involves approximately 90 landowners with 3000 acres including BLM and USFS land. The proposed project area is to create a 1500 foot wide shaded fuel break, approximately 15 miles long. Six public workshops were held to gather community support and awareness and ten letters of support were signed, including a letter from the Nevada County Board of Supervisors, Nevada County Consolidated Fire District, USFS, Bear River Watershed Group, Wolf Creek Community Alliance, Nevada County Farm Bureau, Nevada Irrigation District, Fire Safe Council, NRCS and the Cascade Shores Homeowners Association. Over twenty workshops were held to educate landowners to issues of forest and watershed health and teach them Best Management Practices. Free technical assistance has been provided by the NCRCD and NRCS to offer landowners alternatives in treating and maintaining their properties in the project area. Over 35% of project area has been completed and we estimate that the project needs about \$350,000 in funding assistance.

The project allows for voluntary participation of the landowner and allows for flexible prescriptions. This shaded fuel break would also allow firefighters an area to fight the fire and defend communities. A wildfire costs approximately \$10,000 per acre to suppress compared to reducing fuel loads in high fire danger areas at a cost of approximately \$750 per acre. Our community is enthusiastic in being pro-active.

**Other Alternatives considered (including taking no action):**

No action consideration: The result of inaction is our present day fuel loads and a threat to communities. The prescription for fuels treatment is flexible and allow for various methods and best management practices to be implemented while protecting soil and water quality. As part of the shaded fuel break project, the large educational component teaches landowners to correctly treat and manage their lands in addition to watershed stewardship education.

**Responsible Person:** Lesa Osterholm, Project Manager,  
Nevada County Resource Conservation District  
113 Presley Way, Suite One  
Grass Valley, CA 95945  
(530) 272-3417, ext 107

**Cost Estimate:**

467 acres @ \$750 per acre = \$350,250. funding request

**Potential Source of Funding:**

There are limited cost share, incentive programs available from the USDA/ NRCS /EQIP program under forest health improvement. (program funds approved applicants 50-75% CDF has a limited amount of available funding for approved applicants once a Registered Professional Forrester has submitted their applications. These are terrific programs yet are limited in financial support and can be slow with approval, which may not coincide with landowner fuels treatment. The parcels in the project area were chosen for their large size and limited number of landowners. Due to the large size of the parcels, this creates a financial challenge for each landowner to treat and maintain their properties and also benefit a large community with the shaded fuel break.

**Cost Benefit:** This project protects the cities of Nevada City and Grass Valley including the smaller communities to the west of the project. The project also protects the forestland to the east in the case of an urban-wildland fire. Map attached.

The specific area the project covers: Begins with the Round Mountain and Lake Vera communities north of Nevada City which include several church, school and community camps. The project area continues along Harmony Ridge, and then connects near Washington Ridge near the Conservation Camp. It runs along Highway 20, and then drops south on Remington Ridge and along the eastern side of Scotts Flat Lake, adjacent to the Cascade Shores Homeowners Association. Then, the project area continues south across Buckeye Ridge, (near the Banner Mountain Homeowners) crosses Greenhorn Creek and towards the Red Dog Homeowners area. Cost benefit to treat an acre at \$750 per acre compared to spending \$10,000 an acre for fire suppression and the loss of natural resources and possibly human life.

**Priority (high, medium, low):** This project is a high priority with the Nevada County Resource Conservation District, Bear River Watershed Group, Cascade Shores Homeowners Association, Lake Vera and Round Mountain Homeowner groups, Banner Mountain homeowner group and the Red Dog Homeowners Association in addition to the Nevada County Board of Supervisors.

**Schedule for the work:**

This is a multi-year project, which is in the second year. Our goal is to complete the project within five years. The project area can be treated approximately nine months per year depending on weather. Funding and landowner scheduling of contractors can be a limiting factor to project schedule. Over 35% (1000 acres) of project area has been treated to date with a remainder of approximately 2000 acres to be treated. Without funding, project won't be completed and shaded fuel break area won't be contiguous.

Page Reserved for Project Site Map-Nevada County Resource Conservation District

HAZARD MITIGATION PROJECT – NEVADA COUNTY  
REQUEST

**Agency Name:** Sierra Community College District

**Action Item #1:** Fire Prevention at SC-Nevada County Campus

**Issue/Background Statement:** According to California State OES website, three fires (49er, Miller and Fern; Declared: FEMA 815-DR-CA) in 1988 caused \$31 million in damages, 238 homes and 29 businesses destroyed. 41 homes damaged. The 49er fire was too close for comfort; it was just miles from the SC-Nevada County Campus in the Grass Valley and Nevada City area.

The 100+ acres Sierra College - Nevada County Campus sits on a hilltop, surrounded by pine trees and manzanita brushes down slope. For the last few years, campus administration has been trying to chip away the fire hazard by contracting with CDF/CDC a few days a year to clear low laying tree branches and under brushes. The objective of the project is to: (1) establish an on-going program for fire prevention, (2) reduce and manage fuel, (3) create defensible space and firebreaks.

**Other Alternatives Considered (including taking no action):** (1) No action: This option is not viable because the fire hazard continues to exist. The nature area in question is literally within yards to college buildings where students and employees actively conduct business on a daily basis. Fire and smoke could easily overtake the 4,000+ population within shouting distance.

**Responsible Office/Person:** Sierra College – Nevada County Campus Administration (530-274-5300), Risk Management Office (916-781-7185), City of Grass Valley, Fire Department.

**Cost Estimate:** There are about 60 acres needing to be cleared and cutting chipped into mulch, at a cost of \$72,000. This is a one-time expenditure to establish a baseline program. Thereafter the annual cost to maintain the condition is estimated to be \$4,000.

**Potential Source of Funding:** General fund for a 25% match, or \$18,000. \$54,000 is expected from grant dollars pending application. Project could be spread over multiple years but cost efficiency accrues to larger projects. Projected annual maintenance cost of \$4,000 would be a budgeted expense of Sierra College.

**Cost Benefit:** Life safety; over 4,000 students and employees are going to school and working in this location. In addition, reduction in property loss; based on July 2005 AAA report to Sierra College insurer, ASCIP, the total (building and content) appraised value of the Sierra College –Nevada County Campus properties is \$15,770,500. The buildings have 93,668 square feet. A recently approved \$44 million bond will substantially increase the number of physical structures, property value, as well as student enrollment at this location in the near future.

**Priority (high, medium, low): High**

**Schedule for the Work:** Immediate within fiscal year 2006-2007 or upon grant approval.

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## HAZARD MITIGATION PROJECT – NEVADA COUNTY REQUEST

**Agency Name:** Sierra Community College District

**Action Item #2:** Improve Emergency Response Capabilities through an Up-to-date Crisis Response Plan and Training Program

**Issue/Background Statement:** Sierra Community College District emergency procedure is designed to provide for rapid emergency response at District facilities by using the same Standardized Emergency Management System (SEMS) legally recognized and used by local, state and federal governments.

The District has established a Crisis Response Plan to help facilitate effective coordination of aid requests, resources and the flow of information among all agencies and jurisdictions within the region. The Crisis Response Plan is designed for use during the planning, response and recovery phases of an emergency or disaster that affects the District's operations, facilities, personnel, students, contractors, vendors or visitors. It has been prepared in compliance with State Disaster Planning requirements, City and County Emergency Management Plans, and SEMS, which incorporates the use of Incident Command System (ICS), the Master Mutual Aid Agreement, existing mutual aid systems, the Nevada and Placer County operational area concept, and multi-agency coordination.

Since the Sierra College Crisis Response Plan adoption, Federal Homeland Security Directive-5 and California Executive Order # S-2-05 in 2005 have introduced National Incident Management System (NIMS) as the new standard for the nation. The current plan needs to be updated, to the extent possible, to integrate and implement elements of the NIMS.

The plan also needs to address the specific needs of Sierra College campuses in Nevada County, namely the existing SC-Nevada County Campus and not too distant SC-Tahoe/Truckee Campus.

The objectives of the Crisis Response Plan are:

- A. To provide for effective action in the case of disaster so as to minimize injuries and loss of life among students, staff and the public.
- B. To provide for the maximum utilization of staff and facilities in emergency situations.
- C. To provide for the well being of students, staff, visitors and children in child care programs.
- D. To protect Sierra College property.
- E. To mitigate damage to the environment caused by response to emergency or disaster situations.

This plan is a living document, subject to twice-yearly revisions and goes through periodic, planned, preferably multi-jurisdictional training exercises to ensure accuracy, currency and relevancy.

2006-2007 activities may include:

- Participate in MCI (Multi-Casualty Incident) drills.
- Update and computerize emergency contact information.
- Update Crisis response Plan to NIMS standard.
- Create a chapter “Aftermath Recovery Operations.”
- Review emergency communication system.
- Create consistent “Alpha direction” instructions.
- Exercise Incident Command System (ICS) at all campuses.
- Perform annual check on building kits.
- Create chemical inventory for fire department.
- Train second and third tier members of the Incident Command Team (ICT).
- Provide refresher for first tier members of the ICT.

**Other Alternatives Considered (including taking no action):** None considered.

**Responsible Office/Person:** Sierra College Human Resources Department (916-781-0470), Sierra College Risk Management Office (916-781-7185), State OES, Nevada County OES, City of Grass Valley, City of Nevada, City of Truckee, Fire Department, Police Department, County Sheriff Office, local and regional hospitals, and other public and private medical and emergency response organizations.

**Cost Estimate:** \$30,000 for various activities above, college district to provide for program management and maintenance costs.

**Potential Source of Funding:** District general fund \$2,500, a grant from insurer \$2,500. \$2,500 to be determined, \$22,500 from Hazard Mitigation grant (pending application).

**Cost Benefit:** Life safety; over 4,500 students and employees are going to school and working in Nevada County Campus and Tahoe/Truckee Campus. In addition, reduction in property loss; based on July 2005 AAA report to Sierra College insurer, ASCIP, the total (building and content) appraised value of the Sierra College properties at these locations is \$16,667,967. The buildings have about 100,000 square feet. Two recently approved bonds, \$44 million and \$35 million, will substantially increase the number of physical structures, property value as well as student enrollment at these campuses in the near future.

**Priority (high, medium, low):** **High**

**Schedule for the Work:** Immediate within fiscal year 2005-2006 and on-going.

**HAZARD MITIGATION PROJECT – NEVADA COUNTY  
REQUEST**

**Agency Name: CITY OF NEVADA CITY**

**Action Item # 1 (Fuel Break-Deer Creek Environs)**

**Issue/Background Statement:** Rural Nevada County has experienced major fire damage during the last 25 years. Current records indicate that Nevada City has not had a major wildland fire within city limits in the 20<sup>th</sup> century. Deer Creek environs is the location of the city's only wastewater treatment plant and is heavily overgrown with brush, blackberries and other low ladder fuel making it vulnerable to fire damage. The dollar value of the plant is \$2.5 million. The value of the plant for its intended purpose is extreme. Uncontrolled discharges from the plant, caused by fire, would be in the range of 300,000 gallons of untreated sewage into Deer Creek per day with an accompanying fine of \$10,000 per day. Deer Creek flows directly to Lake Wildwood, a planned community and thence to Yuba City. The City owns 44.07 acres in Deer Creek Environs. A fire starting in this area would directly endanger the historic commercial district starting at Spring Street. Potential loss would be in excess of \$70,000,000.

**Other Alternatives Considered (including taking no action):**

There are no other viable solutions to brush clearing and providing a shaded firebreak. Chemical reduction would not be appropriate in the environs of a waterway

**Responsible Office/Person:** Verne Taylor, Public Works Superintendent, City of Nevada City, 317 Broad Street, Nevada City, CA 95959 530-265-2496

**Cost Estimate:** 44.07 acres multiplied by \$750 per acre: \$33,053

**Potential Sources of Funding:** 75% Disaster Mitigation Project (\$24,790); 25% city general fund (\$8,263)

**Cost Benefit:** This \$33,053 project would clear an ignition source protecting the commercial heart of Nevada City from a potential \$70,000,000 in damage.

**Priority (high, medium, low): High**

**Schedule for the work:** Work can commence as soon as funding is available

**HAZARD MITIGATION PROJECT – NEVADA COUNTY  
REQUEST**

**Agency Name: CITY OF NEVADA CITY**

**Action Item # 2 Downtown Fire Suppression Sprinkler System.**

**Issue/Background Statement:** Downtown Nevada City is primarily constructed of wood and un-reinforced masonry buildings. Broad Street is the main thoroughfare and extends from its intersection with Coyote Street to the historic Methodist church 5 blocks away. Spring Street is one block to the south and contains three blocks of commercial buildings. Commercial Street is one block to the north and contains three blocks of commercial buildings. One block beyond Commercial Street is the County Courthouse complex. An uncontrolled commercial fire in the described area could well result in \$200,000,000 in losses to structures and inventory. There are also some “over-store” residential units that could be lost. A fire in 2001 destroyed \$3,250,000 in businesses located on the corner of Commercial and North Pine Streets.

Borrowing an innovative project from the City of Grass Valley, the most effective fire prevention method available in modern building construction is the use of fire sprinkler systems. They are required for many types of buildings depending on size, location, and use purpose; however our historic building are “grandfathered” and can generally only be held to the code standard (or lack thereof) in place at the time of their original construction. As a result, very few of these buildings have sprinkler systems installed.

What this request proposes is a strategy not unlike what is used in the wildland to mitigate the hazard of contiguous vegetation fuels, that being the creation of fuel breaks. In our urban application of this strategy, the approach would be to implement “sprinkler breaks” in strategically selected downtown buildings with the idea being that an otherwise conflagration fire would at most destroy the “zone” between sprinkled buildings rather than an entire city block (or worse).

**Other Alternatives Considered (including taking no action):** There are no other cost effective solutions that have presented themselves

**Responsible Office/Person:** Mark Miller, City Manager, City of Nevada City, 317 Broad Street, Nevada City, CA 95959 530-265-2496

**Cost Estimate:** \$550,000

**Potential Sources of Funding:** 75% Disaster Mitigation Project (\$413,000); 25% city/property owner funding (\$137,000)

**Cost Benefit:** This \$550,000 project would protect the city's economic core area from a \$200,000,000 potential loss. A more likely estimate would be that such a project could reduce the loss to one block or less, or a total loss in the range of \$20,000,000. It could be done in phases dependent on funding.

**Priority (high, medium, low):** High

**Schedule for the work:** Building site selection and engineering can commence as soon as funding is available

# HAZARD MITIGATION PROJECT REQUEST

**Agency Name:** CITY OF GRASS VALLEY

**Action Item # 1 -- Grass Valley Downtown Conflagration Mitigation Project**

## **Issue/Background Statement:**

The historic downtown area of Grass Valley is both the cultural and economic hub of Western Nevada County. Within its thirteen city blocks are 240 businesses that collectively employ over 1000 people. Dating back to downtown Grass Valley's first fire conflagration in September 1855 during which 300 businesses and homes were destroyed, the threat of fire again consuming our downtown has been continual. Most of the buildings were constructed prior to the establishment of fire codes and before fire prevention design measures were developed. In addition most have been extensively modified over the years. As a result, these beautiful old buildings are highly vulnerable to the kind of fire extension that is most difficult for firefighters to control, that being fire travel through concealed spaces and openings between these connected buildings.

By far the most effective fire prevention method available in modern building construction is the use of fire sprinkler systems. They are required for many types of buildings depending on size, location, and use purpose; however our historic buildings are "grandfathered" and can generally only be held to the code standard (or lack thereof) in place at the time of their original construction. As a result, very few of these buildings have sprinkler systems installed.

What this request proposes is a strategy not unlike what is used in the wildland to mitigate the hazard of contiguous vegetation fuels, that being the creation of fuel breaks. In our urban application of this strategy, the approach would be to implement "sprinkler breaks" in strategically selected downtown buildings with the idea being that an otherwise conflagration fire would at most destroy the "zone" between sprinkled buildings rather than an entire city block (or worse).

## **Other Alternatives Considered (including taking no action):**

- 1) Implement an ordinance requiring sprinkler systems be installed in all connected downtown buildings.

This would have to be enforced globally and would therefore be much more expensive than our proposed strategically located "sprinkler breaks". Although certainly effective from a fire control point of view, given the small business nature of most of these buildings, such a cost applied to each and every one would be cost-prohibitive.

- 2) Increase firefighter staffing; volunteer, career, or both.

The reasons behind the nationwide decline in the volunteer firefighter ranks are numerous and most likely irreversible. Despite best efforts, Grass Valley Fire Department has lost 90% of its volunteer firefighting forces and we don't expect that our future situation will differ significantly from the national trend.

Increasing career firefighter staffing to the degree necessary to assuredly prevent downtown conflagration would require tripling the Fire Department's capability, an augmentation equivalent to 75% of the City's entire annual budget. There is no revenue source available to support such a large increase.

3) Taking no action.

This leaves traditional exterior and limited interior firefighting as the only recourse. Given our limited firefighter staffing and the fire-spread characteristics of older buildings as outlined above, our capabilities could be quickly overwhelmed by an aggressively spreading fire.

**Responsible Office/Person:**

James Marquis, Fire Chief  
City of Grass Valley Fire Department  
125 East Main Street  
Grass Valley, CA 95945  
530.274.4370  
[jimm@cityofgrassvalley.com](mailto:jimm@cityofgrassvalley.com)

**Cost Estimate:** Our proposal calls for the creation of 12 strategically placed "sprinkler breaks" in the downtown area. The 12 buildings selected total 80,900 square feet. Using an installation cost of \$6 per square foot, the total project cost would be \$485,400.

**Potential Sources of Funding:** To be determined.

**Cost Benefit:**

The total at-risk property value of the 13-block downtown area is approximately \$150,000,000 based on 500,000 square feet @ \$300 sq/ft replacement cost. In addition, revenue/income loss potential is approximately \$410,000/day, and lost income potential for the 1000 downtown employees would be up to \$90,000/day, for a total direct economic exposure of \$500,000 per day. Not calculated are all the indirect loss exposures, e.g. the impact to local government by the loss of a majority of its critical sales tax revenue. Last is the very real potential for loss of human life and/or injury to both citizens and firefighters.

Although the likelihood of a total downtown loss is low, a scenario involving the loss of 10 connected buildings is not farfetched. The property value loss alone in that scenario could exceed \$20,000,000. If the fire was stopped by sprinkler breaks at just 5 buildings, a \$10,000,000 benefit would have been realized from this \$485,400 project cost.

**Priority (high, medium, low):      High**

The occurrence of fire is by its nature nearly impossible to predict. The factors that could line up to cause a single building fire to become a conflagration could occur as easily tonight as they could ten years from now. Given that unpredictability and the values at risk in both life and property, we believe this must be considered a high priority project.

**Schedule for the work:**

We envision this as a three-year project:

Year 1:      Front-end administrative tasks, including negotiations with building owners, contract development, bid procurement and award, and establishing project management.

Year 2: First six sprinkler systems installed (50%)

Year 3: Remaining six systems installed (50%)

# **NEVADA COUNTY - HAZARD MITIGATION PROJECT** **REQUEST**

**Agency Name:** TOWN OF TRUCKEE

**Action Item:** #1 Trout Creek stream and floodplain restoration.

**Issue/Background Statement:**

Trout Creek originates near the crest of the Sierra Nevada Mountains and flows southeast for approximately 5.5 miles to its confluence with the Truckee River.

A 6,600' stretch of Trout Creek has been severely diverted and hardened to support logging, and railroad development over the past 140 years such that the current alignment experiences flooding, and has damaged floodplain and riparian habitat.

The Town plans to reconstruct the creek to reduce flooding in downtown Truckee, reduce flooding in the downtown Truckee Union Pacific Railroad yard, and restore the natural creek habitat where possible

A creek restoration project has been broken into 6 phases. The Town plans to construct Phase 2 in the summer of 2006. This phase includes eliminating an undersized box culvert and building a bridge over Trout Creek. (Estimated construction cost of \$1,000,000)

100% design of phase 1, 3, 4, and 5 is scheduled to be complete by winter 2007. No additional funds have been secured to construct phases 1, 3, 4, or 5.

**Other Alternatives Considered (including No Action):** The Town is working in conjunction with the California Dept. of Water Resources, the Regional Water Quality Control Board, the Truckee River Watershed Council, and the Sierra Watershed Education Partnership to restore Trout Creek. Additionally there has been significant public outreach on this project.

Numerous creek re-alignment options are being considered in the design of the creek.

Without additional funding for the construction of phases 1,3,4, and 5 flooding will continue in the downtown area and the Rail yard site.

**Responsible Office/Person:** Daniel P. Wilkins, Town Engineer/ Director of Public Works

**Cost Estimate:** \$5,000,000

**Potential Sources of Funding:** State Parks of California \$400,000 Caltrans Relinquishment Agreement \$400,000; California Department of Water Resources \$300,000

**Cost Benefit:** This project is a multiyear project. Phase 2 is scheduled for construction in 2006. If funding were acquired construction on Reach 1,3,4, and 5 could begin as soon as 2008. Structures to be protected are Historic Catholic Church (1880) \$3,000,000; 2 residences @ \$575,000 each \$1,150,000.

**Priority (H,M,L,) High**

**Schedule for the work:** Phase 2 construction in summer 2005. Design of reaches 1,3,4,5 in 2007. Construction of reaches 1,3,4,and 5 and not scheduled due to funding shortages.

# NEVADA COUNTY - HAZARD MITIGATION PROJECT REQUEST

**Agency Name:** TOWN OF TRUCKEE

**Action Item:** #2 Donner Lake Road Drainage Improvements

**Issue/Background Statement:** Drainage crosses under Interstate 80 and under Donner Lake Road in under defined drainage channels. During high water discharge events drainage exceeds the channel capacity and causes flooding to approximately 20 homes at 18” in depth and then floods across Donner Pass Road. Roadways become impassible due to damage to undercutting roadways and water depth. Structural damage is sustained by homes due to water depth and velocity.

This project plans to complete design and construction of drainage improvements along the drainage courses adjacent to Donner Lake Road and down stream from I-80, to the intersection with Donner Lake.

**Other Alternatives Considered (including No Action):** No Action. Town would continue to respond to emergencies at current level.

**Responsible Office/Person:** Daniel P. Wilkins, Town Engineer/ Director of Public Works

**Cost Estimate:** \$250,000

**Potential Sources of Funding:** Measure A Funds \$100,000

**Cost Benefit:** This project would protect 20 homes from water damage and/or structural damage. Estimate includes 10 homes with structural damage @ \$100,000 per home and 10 homes with water damage at \$50,000 per home. Damage to public and private roadway @ \$1,000,000. Total damage: \$2,500,000.

**Priority (H,M,L,):** HIGH

**Schedule for the work:** Design scheduled in 2006-2007. Construction is scheduled for 2007 pending funding.

# NEVADA COUNTY - HAZARD MITIGATION PROJECT REQUEST

**Agency Name:** TOWN OF TRUCKEE

**Action Item:** #3 3<sup>rd</sup> Tahoe Donner Access Road ( Pioneer Trail Road)

**Issue/Background Statement:** Access into and out of the 7,000 lot Tahoe Donner subdivision is limited to two access roads. These two access roads are steep and are subject to weather related closures. In an emergency situation, evacuation of this subdivision would be difficult. The subdivision is bordered by National forest on two sides thus potential for a forest fire. In 2004 a forest fire directly threatened this subdivision. The Town is proposing to construct an additional access road into and out of this subdivision.

The Town has completed 30% design plans and secured the necessary right-of-way to build this project. The EIR for this project is underway with a completion date of December 2007.

5,000 feet of the 20,000 foot long project have already been built, but until additional funding is secured the project cannot be built.

**Other Alternatives Considered (including No Action):** No Action. Town would continue to respond to emergencies at current level.

**Responsible Office/Person:** Daniel P. Wilkins, Town Engineer/ Director of Public Works

**Cost Estimate:** \$11,000,000

**Potential Sources of Funding:** Developer impact fees,

**Cost Benefit:** Emergency access to 7,000 lots would be improved. There are approximately 6,000 homes in this sub-division.

**Priority (H,M,L,) High**

**Schedule for the work:** No work is scheduled after the EIR is completed in 2007.

# NEVADA COUNTY - HAZARD MITIGATION PROJECT REQUEST

**Agency Name:** TOWN OF TRUCKEE

**Action Item:** #4 Brushing and Debris Chipping, various roadways

**Issue/Background Statement:** Numerous shoulders of roadways require brushing and chipping to reduce roadside debris for fire, drainage and snow removal mitigation.

The Town maintains approximately 150 miles of roadway. Approximately 30 miles of roadway are in need of maintenance to remove debris from the areas adjacent to roadways. The areas requiring this maintenance have been designated as “Fuel Modifications Zones” per the Nevada County and Town of Truckee Standard Specifications.

**Other Alternatives Considered (including No Action):** No Action. Town would continue to respond to emergencies at current level.

**Responsible Office/Person:** Daniel P. Wilkins, Town Engineer/ Director of Public Works

**Cost Estimate:** \$500,000

**Potential Sources of Funding:** None identified to date.

**Cost Benefit:** Numerous roads throughout the Town would be involved, thus providing an additional measure of safety to hundreds of homes and homeowners. Fire protection from roadside ignition fires to average of 3 homes @ \$575,000 = \$1,725,000.

**Priority (H,M,L,) Medium**

**Schedule for the work:** No work scheduled to date due to lack of funding.

# NEVADA COUNTY - HAZARD MITIGATION PROJECT REQUEST

**Agency Name:** TOWN OF TRUCKEE

**Action Item:** #5 South Shore Drive Drainage Project

**Issue/Background Statement:** South Shore Drive Drainage. During heavy rain or rain on snow events drainage ditches along South Shore Drive become plugged with debris and cause water to overtop South Shore Drive and cause flooding to several of the homes adjacent to South Shore Drive. The overtopped water causes flooding to the downstream homes, and erosion from this runoff goes directly into Donner Lake. Multiple utility lines, including high-pressure gas lines were exposed due to uncontrolled drainage.

The watershed is approximately 1900 acres. Directly downstream of the 1900 acres is 9000 feet of roadway with numerous cross culverts and associated outlet channels that need to be updated.

Easements will need to be obtained to construct some of the proposed improvements.

**Other Alternatives Considered (including No Action):** No Action. Town would continue to respond to emergencies at current level.

**Responsible Office/Person:** Daniel P. Wilkins, Town Engineer/ Director of Public Works

**Cost Estimate:** \$500,000

**Potential Sources of Funding:** None identified to date

**Cost Benefit:** Dozens of homes would be better protected from flooding related issues, and erosion into Donner Lake could be reduced. Cost estimate \$500,000 damage to roadways; 214 homes at \$25,000 per home \$600,000. Erosion into Donner Lake incalculable; Total risk \$1,100,000 not counting erosion.

**Priority (H,M,L,) Medium**

**Schedule for the work:** Design is scheduled for 2008. No anticipated date for construction.

# NEVADA COUNTY - HAZARD MITIGATION PROJECT REQUEST

**Agency Name:** TOWN OF TRUCKEE

**Action Item:** #6 Gregory Creek cleaning and creek bank restoration.

**Issue/Background Statement:**

Gregory Creek is located just west of the intersection of Interstate 80 and Donner Lake Road approximately 4 miles east of the crest of Interstate 80 in the Sierra Nevada Mountains.

Gregory Creek has traditionally experienced flooding during high water events. The creek travels south through Negro Canyon, under Interstate 80 and into the west end of Donner Lake. After the creek crosses under Interstate 80 the banks of the creek become less defined, and intermittently plugged with debris. When the creek jumps its banks the watercourse fans out and multiple homes (12) and businesses (5) are flooded.

The creek needs to be cleaned of debris, the banks resized to handle a 100 year event. The latest hydraulic analysis indicates that Q100 = approx. 1000cfs.

**Other Alternatives Considered (including No Action):** No Action. Town would continue to respond to emergencies at current level.

**Responsible Office/Person:** Daniel Wilkins, Public Works Director/Town Engineer

**Cost Estimate:** \$ 450,000

**Potential Sources of Funding:** None identified to date.

**Cost Benefit:** An appropriately sized creek channel would minimize risk of flooding to approximately one dozen homes and five businesses at the west end of Donner Lake. Estimated losses \$20,000 per home; \$100,000 per business: \$740,000.

**Priority (H,M,L,)** Medium

**Schedule for the work:** No work currently planned.

# NEVADA COUNTY - HAZARD MITIGATION PROJECT REQUEST

**Agency Name:** TOWN OF TRUCKEE

**Action Item:** # 7 Retrofit Town Dispatch Center for earthquake stability

**Issue/Background Statement:** The present Town Dispatch Center is a former County Sheriff's sub-station that was built in the 1960's. This facility has not been retrofitted to current seismic safety standards. The building is a single story, concrete tilt up with flat roof structure.

**Other Alternatives Considered (including No Action):** No other alternatives are economically viable

**Responsible Office/Person:** Daniel P. Wilkins, Town Engineer/Director of Public Works

**Cost Estimate:** \$250,000

**Potential Sources of Funding:** None identified at this time

**Cost Benefit:** This dispatch center is the only dispatch center for a Town of 16,000 residents.

**Priority (H,M,L,) Medium**

**Schedule for the work:** Evaluation work can commence when funding is available.

# NEVADA COUNTY - HAZARD MITIGATION PROJECT REQUEST

**Agency Name:** TOWN OF TRUCKEE

**Action Item:** #8 Drainage Way Rehabilitation & Culvert Replacement

**Issue/Background Statement:** Project improvements include, re-establishing drainage ditches, and new drainage inlets/outlets and local storm drainage improvements including new culverts for the roadways throughout the Town.

Existing drainage ditches have become overgrown with vegetation and filled with debris, thus diverting storm runoff into various neighborhoods and causing erosion.

During the January 1997 and January 2006 large storm events numerous culverts and ditches were overwhelmed causing hundreds of thousands of dollars in damage and creating hazards adjacent to Town roadways.

**Other Alternatives Considered (including No Action):** No Action. Town would continue to respond to emergencies at current level.

**Responsible Office/Person:** Daniel P. Wilkins, Town Engineer/ Director of Public Works

**Cost Estimate:** \$10,000,000

**Potential Sources of Funding:** Truckee Special Service Area ( TSSA) funds may be available for partial funding. The Town collects additional funds/taxes from property owners in some areas to be used for some roadway enhancement projects. Anticipated funding from TSSA's is approximately \$500,000

**Cost Benefit:** These drainage benefits will be dispersed Town wide in numerous areas. Containment of drainage will help minimize flooding to hundreds of homes and will help protect roadway infrastructure.

**Priority (H,M,L,) Low**

**Schedule for the work:** The Town has identified 14 miles of drainage courses that need improvements. No construction or design work is anticipated at this time.

## Nevada County – HAZARD MITIGATION PROJECT REQUEST

**Agency Name:** United States Forest Service – Tahoe National Forest

**Action Item #:** 1 Fuel Mastication near Washington town site

### **Issue/Background Statement:**

**Wildland fire:** There are approximately 300 acres planned for under story fuel reduction by mastication within the Washington project. This project was initiated by concerned citizens within the community and brought to the Forest Service. The primary objective of the Washington Fuels Reduction Project is to use a strategic, landscape level approach to enhance forest health and reduce the risk of extreme fire behavior. The purpose and need for treatment is to reduce the risk of rapid-fire spread and its potential impacts to human life, old-forest values, property, and other unique features.

### **Other Alternatives Considered (including taking no action):**

These areas were selected for mastication as a treatment after consideration of other treatment alternatives such as prescribed fire, commercial timber harvest, or biomass. Mastication was selected as the appropriate treatment tool, to move towards the desired fuels condition, given the existing vegetation and terrain. The Firesafe Council of Nevada County is interested in doing complimentary projects within the area.

### **Responsible Office/Person:**

This project is planned by the Yuba River Ranger District of the Tahoe National Forest. The responsible individual is Jean Masquelier. You may contact Jean at (530) 288-3231. You may also contact Mike Cherry, District Fire Management Officer or Melissa Squire, District Fuels Planner at the same number.

### **Cost Estimate:**

300 acres @ 750/acre = \$225,000.00

### **Potential Sources of Funding:**

Forest Service budgeted funds, Hazard Mitigation Grants, other to be determined

**Cost Benefit: – Value of protected resources:**

The potential area protected is much larger than the treatment area. The potential for suppressing a wildfire is increased by multiple fuel treatment areas.

Estimated Real Estate Value 60+ Washington area residences: \$6,000,000

Estimated Timber Value: \$5,000,000

Estimated Recreation, Wildlife, and Water Value: \$6,000,000

**Priority (high, medium, low) HIGH**

This project is high priority for the Ranger District and the citizens of Washington.

**Schedule of activities**

These activities are planned to begin in summer of 2007, funding dependant.

## **Nevada County – HAZARD MITIGATION PROJECT REQUEST**

**Agency Name:** United States Forest Service – Tahoe National Forest

**Action Item #:** 2 Columbia Hill Fuel Treatment areas

### **Issue/Background Statement:**

**Wildland fire:** There are approximately 400 acres of potential fuel treatment areas near Columbia Hill. This project ties in to multiple treatments planned in the North San Juan Coordinated Resource Management Plan (CRMP). The CRMP involves the California Department of Forestry (CDF), Bureau of Land Management (BLM), California State Parks, and the Firesafe Council of Nevada County. This group has been working together since the early 1990's to address wildfire hazards on the North San Juan ridge.

The identified treatment areas are strategic areas for both the Forest Service and surrounding land-owners. These treatments are located adjacent to private lands and many are right along the Forest boundary. These areas may be treated in multiple ways, there is potential to use prescribed fire, hand chainsaw work, and/or mechanical to remove or crush understory fuels.

### **Other Alternatives Considered (including taking no action):**

These areas are proposed for treatment. The chosen treatment method will meet reduced fire behavior guidelines, address the restoration needs of the forest, and utilize the most cost effective method available.

### **Responsible Office/Person:**

This project is planned by the Yuba River Ranger District of the Tahoe National Forest. The responsible individual is Jean Masquelier. You may contact Jean at (530) 288-3231. You may also contact Mike Cherry, District Fire Management Officer or Melissa Squire, District Fuels Planner at the same number.

### **Cost Estimate:**

400 acres @ 850/acre = \$340,000.00

### **Potential Sources of Funding:**

Forest Service budgeted funds, Hazard Mitigation grants, other to be determined

**Cost Benefit: – Value of protected resources:**

The potential area protected is much larger than the treatment area. The potential for suppressing a wildfire is increased by multiple fuel treatment areas.

Estimated Real Estate Value 30 + area residences: \$3,000,000

Estimated Timber Value: \$2,500,000.00

Estimated Recreation, Wildlife, and Water Value: \$4,000,000

**Priority (high, medium, low): HIGH**

This project is high priority for the Ranger District, the CRMP group, and residents of the North San Juan ridge.

**Schedule of activities**

These activities are planned to begin in summer of 2008, funding dependant.

# NEVADA COUNTY - HAZARD MITIGATION PROJECT REQUEST

**Agency Name:** United States Forest Service, Tahoe National Forest, Truckee Ranger District

## **Action Item #: 1** “Billy Project” Hand treat sensitive feature zones.

Hand treat (thin with chainsaws, hand pile fuels, and burn piled fuels) sensitive feature zones (areas that will not allow mechanized equipment) with Forest Service and contracted workforce. Treatment areas will be within the Billy project area. Hand treatment of sensitive feature areas will enhance the overall effectiveness of the Billy Project and will improve fire protection capability to the urban interface regions surrounding the historical Donner Fire burn of 1960.

### **Issue/Background Statement:**

The Billy project was initiated to increase fire protection capability around the communities of Tahoe Donner, Klondike, Tahoe Timber Trails, and Prosser Lakeview Estates and within the general forest. The ambitious plan calls for the thinning and removal of small diameter plantation trees on approximately 5,050 acres. These plantations were established after the 1960 Donner fire. To date, approximately 1,000 acres have been mechanically treated with contract labor and appropriated funding. Thinning treatments have helped create an area more defensible from wildfires around private property and home sites, as well as along Highway 89 North, which is heavily traveled corridor by the public. Hand thinning, piling and burning would enhance the overall effectiveness of the project by treating areas that would otherwise be left untreated and in a highly flammable state.

### **Other Alternatives considered (including taking no action):**

The other alternatives that have been considered and utilized on approximately 1,000 acres include; thinning with feller buncher and skidding systems, chainsaw and skidding, and mastication on site. Currently many of the sensitive feature areas have been avoided (no action) due to lack of funding required for the intensive hand labor needed to complete the work.

### **Responsible Office/Person:**

District Ranger Joanne Roubique,

contact Grace G. Newell District Fuels Specialist  
9646 Donner Pass Road Truckee Ranger District, Truckee CA 96161-2949, 530-587-3558

**Cost Estimate:** 100 acres @ approximately 700/acre = \$70,000.

**Potential Sources of Funding:**

Appropriated dollars may be available through the District fuels and fire suppression program. Over the last several years these funding sources have been used but due to the limited amount of funding, work has been a restricted to small parcels of land.

**Cost Benefit:**

The Billy project enhances fire protection effectiveness around the communities of Tahoe Donner, Klondike, Tahoe Timber Trails, and Prosser Lakeview Estates and within the general forest. The whole project is approximately 5,050 acres in size and the sensitive feature areas that we have targeted for treatment total about 100 acres.

Project areas are located north of the community of Tahoe Donner and south of Stampede Reservoir, on both sides of Highway 89 north. Loss estimates would be based upon the total loss of 50 structures in a difficult to control wildfire. Dollar estimate is based upon \$575,000 median cost of structure in the Truckee region times 50 estimated structures: \$28,500,000. Suppression costs would be \$1,200,000 per day. Timber value lost is not estimated here.

**Priority (high, medium, low): HIGH**

This project is a high priority to the Truckee District. Since 2002 approximately 700 thousand dollars of the District's appropriated funding dollars have been used to complete about a thousand acres of mechanical work. **The funding requested would be used entirely for implementation since District dollars have already funded all planning and NEPA work.**

**Schedule for the work:**

The work proposed in this request would span about 2 – 3 years. Hand thinning and piling work would begin in the first year of funding and would take approximately 1.5 years to complete depending on availability of the workforce. Prescribed burning of the pile fuels is entirely weather dependent and could take up to 1-2 years to complete.

2006	Spring-Fall	cut and pile
2007	Winter-Summer	season (dry) piles
2007	Spring-Fall	complete cut and pile
2007	Fall-Winter	Rx Burn pile fuels
2008	Spring	Rx Burn pile fuels
2009	Fall	Rx Burn pile fuels

# NEVADA COUNTY - HAZARD MITIGATION PROJECT REQUEST

**Agency Name:** United States Forest Service, Tahoe National Forest, Truckee Ranger District

## **Action Item #: 2 Alder Creek Hand Treat Sensitive Feature Zones**

Hand treat (thin with chainsaws, hand pile fuels, and burn piled fuels) sensitive feature zones (areas that will not allow mechanized equipment) with Forest Service and contracted workforce. Treatment areas will be within the Alder Creek project area. Hand treatment of sensitive feature areas will enhance the overall effectiveness of the Alder Creek Project and will improve fire protection capability to the urban interface regions surrounding the historical Donner Fire burn of 1960.

### **Issue/Background Statement:**

The Alder Creek project is designed to increase fire protection capability around the communities of Tahoe Donner, Stony Creek, and Prosser Lakeview Estates and within the general forest. The plan calls for the thinning and removal of smaller diameter trees on approximately 816 acres of National Forest land. Approximately 60% of the project area lies within the burn scar of the 1960 Donner fire. The proposed project would include mechanical treatments that include whole tree removal with feller-buncher, mastication, and thinning for conifer release. These treatments will help create an area more defensible from wildfires around private property and home sites, as well as along Highway 89 North, which is heavily traveled corridor by the public. Hand thinning, piling and burning would enhance the overall effectiveness of the project by treating areas that would otherwise be left untreated and in a highly flammable state.

### **Other Alternatives considered (including taking no action):**

The mechanized treatment alternatives being considered for the majority of the project acres include; whole tree thinning with feller buncher and skidding systems, chainsaw and skidding, mastication on site and conifer release with mechanized and hand treatment. Sensitive feature areas will be avoided (no action) due to lack of funding required for the intensive hand labor needed to complete the work.

**Responsible Office/Person:**

District Ranger Joanne Roubique,  
contact Grace G. Newell District Fuels Specialist  
9646 Donner Pass Road Truckee Ranger District, Truckee CA 96161-2949, 530-587-3558

**Cost Estimate:** 100 acres @ approximately 700/acre = \$70,000.00

**Potential Sources of Funding:**

Appropriated dollars may be available through the District fuels and fire suppression program. Over the last several years these funding sources have been used on other projects with similar needs but due to the limited amount of funding, work has been restricted to small parcels of land.

**Cost Benefit:**

The Alder Creek project enhances fire protection effectiveness around the communities of Tahoe Donner, Stony Creek, and Prosser Lakeview Estates and within the general forest. The whole project is approximately 816 acres in size and the sensitive feature areas that we have targeted for treatment total about 100 acres. The project area is located in Nevada County in the northern portion of the Truckee Ranger District, west of State Route 89. The treatment units are located along the north and south sides of Alder Creek Road in T18N, R16E in Sections 32, 33 and 34. The north facing higher elevation exposures consist primarily of white fir pine series with mixed conifer. The Alder Creek stream corridor is principally composed of lodgepole pine and aspen. The creek corridor is overstocked and years of drought have reduced conifer growth and vigor and left conifers highly susceptible to attack from insects and disease. The south-southwest facing aspects are mainly eastside pine type with Jeffrey pine and ponderosa pine over story. Shrub vegetation within the analysis area includes greenleaf manzanita, snowbrush at higher elevations and bitterbrush on the lower south facing slopes and flat lands.

The Tahoe Donner, Stony Creek and Prosser Lakeview Estates subdivisions border or lie within close proximity to the project area and consist of over 6,500 residences. Loss estimates would be based upon the total loss of 50 structures in a difficult to control wildfire. Dollar estimate is based upon \$575,000 median cost of structure in the Truckee region times 50 estimated structures: \$28,500,000. Suppression costs would be \$1,200,000 per day. Timber value lost is not estimated here.

**Priority (high, medium, low) HIGH**

This project is a high priority to the Truckee District. **The funding requested would be used entirely for implementation since District dollars have already funded all**

**planning and NEPA work. The Environmental Assessment 30 day comment period will begin on March 18, 2006.**

**Schedule for the work:**

The work proposed in this request would span about 2 – 4 years. Hand thinning and piling work would begin in the first year of funding and would take approximately 1.5 years to complete depending on availability of the workforce. Prescribed burning of the pile fuels is entirely weather dependent and could take up to 1-2 years to complete.

Year one	Spring-Fall	cut and pile
Second year	Winter-Summer	season (dry) piles
Second year	Spring-Fall	complete cut and pile
Second year	Fall-Winter	Rx Burn pile fuels
Third year	Spring/Fall	Rx Burn pile fuels
Fourth year	Spring Fall	Rx Burn pile fuels

# NEVADA COUNTY - HAZARD MITIGATION PROJECT REQUEST

**Agency Name:** United States Forest Service, Tahoe National Forest, Truckee Ranger District

## **Action Item #: 3 “Joey Project” Hand Treat older mountain pine beetle infestation material**

Hand treat (cut with chainsaws and pile as needed) older mountain pine beetle infestation material. Use Forest Service and contracted workforce to fall, buck and stack dead timber and logs. Material will be prepared for removal via public fuelwood program.

### **Issue/Background Statement:**

This proposal is an attempt to find a creative approach to a situation that has not been resolved through conventional methods. This request would span 1 year. The area involves a 30 acre area of National Forest System (NFS) lands in the South ½ of section 8, T.17N., R. 16E., M.D.M. It is located west of Northwoods Blvd, south of Tahoe Donner Subdivision (Bernese Lane and Ski Slope Way), and north of Armstrong Subdivision (Sierra Drive and Palisades Street). Much of the area is dense and overstocked with beetle-killed trees. Years of drought, dense tree cover and increasing levels of bark beetles have resulted in high levels of stressed and weakened trees with significant tree mortality throughout the area. Standing and down fuel accumulations are high and are increasing as tree mortality has taken its effect. The forest stands are considered imminently susceptible to both insect attack and fire. Repeated attempts to remove salvage material via commercial fuelwood sales have failed.

### **Other Alternatives considered (including taking no action):**

Repeated attempts to remove salvage material from the parcels via commercial fuelwood sale have failed. Merchantable materials have been removed via timber sales but the dead and down salvage materials have not been attractive to commercial contractors.

### **Responsible Office/Person:**

District Ranger Joanne Roubique,  
contact Grace G. Newell District Fuels Specialist

9646 Donner Pass Road Truckee Ranger District, Truckee CA 96161-2949, 530-587-3558

### **Cost Estimate:**

30 acres @ approximately \$1355.00/acre plus \$345.00 materials/equipment equals approximately \$41,000.00

Cost per acre reflects; hand treatment felling, bucking and 8 days of weekend patrol to regulate control of activities (during periods when public will be gathering fuelwood) due to easement (right of way issues) with Truckee PUD. **The funding requested would be used entirely for implementation since District dollars have already funded all planning and NEPA work**

### **Potential Sources of Funding:**

Appropriated dollars may be available through the District fuels and fire suppression program. However, due to the number of other projects vying for the same funding, opportunities will be limited.

### **Cost Benefit:**

Forested area involves National Forest System (NFS) lands in the South ½ of section 8, T.17N., R. 16E., M.D.M. The two parcels are located west of Northwoods Blvd, south of Tahoe Donner Subdivision (Bernese Lane and Ski Slope Way), and north of Armstrong Subdivision (Sierra Drive and Palisades Street).

The project will enhance fire protection effectiveness around the communities of Tahoe Donner, the Armstrong Subdivision Tract and within the general forest. The project is designed to incorporate approximately 30 acres. The project area is located in Nevada County in the western portion of the Truckee Ranger District, north of interstate 80. . Loss estimates would be based upon the total loss of 50 structures in a difficult to control wildfire. Dollar estimate is based upon \$575,000 median cost of structure in the Truckee region times 50 estimated structures: \$28,500,000. Suppression costs would be \$1,200,000 per day. Timber value lost is not estimated here.

### **Priority (high, medium, low): HIGH**

The need to complete the work is a high District priority. However, the ability to complete the work has proven difficult due to easement, funding and the lack of interest to the commercial fuelwood community.

**Schedule for the work:**

This proposal is an attempt to find a creative approach to a situation that has not been resolved through conventional methods. This request could span 1-2 years depending on when funds are allocated. Falling and bucking would take place the first spring/summer of the funded year. Public fuelwood gathering would follow in late summer and early fall of proceeding year(s).

# NEVADA COUNTY - HAZARD MITIGATION PROJECT REQUEST

**Agency Name: Truckee Sanitary District**

## **Action Item # 1 6 EA. OVERFLOW TANKS**

### **Issue/Background Statement:**

Recent flood conditions demonstrated that the volume of sewage flowing through the Donner Lake sanitary sewer system is close to exceeding design capacity during heavy rain events. The Truckee Sanitary District needs to install overflow tanks at six (6) of the Donner Lake lift stations to prevent sewage overflows into Donner Lake. Donner Lake flows into Donner Creek, which subsequently flows into the Truckee River and down the eastern slope of the Sierra mountain range into Nevada. The overflow tanks will increase the sewage capacity and mitigate possible pollution of Donner Lake and downstream watershed.

### **Other Alternatives Considered (including taking no action):**

1. Upsizing the pumping capacity of the lift stations. Problems due to possible pump failure make this a less-than-optimal solution.
2. Portable tanks or bladders were also considered. Concerns that deployment during flood events cannot occur in a timely manner and uncertain effectiveness makes this an undesirable solution.

### **Responsible Office/Person:**

Denny Anderson, Operations and Maintenance Superintendent  
Truckee Sanitary District  
12304 Joerger Drive  
Truckee, California 96161-3312  
(530)587-3804 phone

### **Cost Estimate:**

Total Project Cost: \$494,400 (\$82,400 for each location)  
Install 3 tanks for year 1: \$246,000  
Install 3 tanks for year 2: \$246,000

### **Potential Sources of Funding:**

No other funding sources currently available. The Truckee Sanitary District is implementing this course of action and has been able to install one overflow tank to one of the lift stations at Donner Lake. This work is scheduled in the Truckee Sanitary District's current 5-year Capital Outlay plan.

**Cost Benefit:**

The District is dedicated to preserving and protecting the Donner Lake and Truckee River environs. This project will maintain an acceptable level of service during heavy rain events to approximately 1,400 homes, ensure the lift stations and sewer system operates properly during heavy rain events, and aid in preventing sewage overflows into Donner Lake, Donner Creek, and the Truckee River.

**Priority (high, medium, low): High**

**Schedule for the work:** Three tanks, lift stations 1, 2, and 3, will be installed this (2006) construction season, and three tanks, lift stations 4, 5, and 6, are scheduled for next year (2007).

# NEVADA COUNTY - HAZARD MITIGATION PROJECT REQUEST

**Agency Name: Truckee Sanitary District**

## **Action Item # 2 Alder Creek Overflow Tank**

### **Issue/Background Statement:**

The District has an overflow tank at the Alder Creek Lift Station that is in need of rehabilitation or replacement. The tank has numerous leaks and does not have the necessary capacity in an emergency due to ground water filling the tank. This lift station is adjacent to Alder Creek, which flows into Prosser Lake, and then into the Truckee River. Rehabilitation of this tank will help to prevent possible sewage overflows into Alder Creek during high flow or flood events.

### **Other Alternatives Considered (including taking no action):**

3. Upsizing the pumping capacity of the lift stations. Problems due to possible pump failure make this a less-than-optimal solution.
4. Portable tanks or bladders were also considered. Concerns that deployment during flood events cannot occur in a timely manner and uncertain effectiveness makes this an undesirable solution.

### **Responsible Office/Person:**

Denny Anderson, Operations and Maintenance Superintendent  
Truckee Sanitary District  
12304 Joerger Drive  
Truckee, California 96161-3312  
(530) 587-3804 phone

### **Cost Estimate:**

\$82,400 for the installation of one tank.

### **Potential Sources of Funding:**

No other funding sources currently available. This work will be prioritized with other work that must be completed by the Truckee Sanitary District and scheduled when funds become available.

**Cost Benefit:**

The District is dedicated to preserving and protecting our environment, so projects that may help to prevent possible sewage overflows into Alder Creek would also have a positive impact on Prosser Lake and the Truckee River.

**Priority (high, medium, low): Medium**

**Schedule for the work:**

If approved, this project could be completed in one year.

# NEVADA COUNTY - HAZARD MITIGATION PROJECT REQUEST

**Agency Name: Truckee Sanitary District**

## **Action Item # 3 Outfall Sewer Line**

### **Issue/Background Statement:**

The District has an outfall sewer line, approximately 12,000 feet in length that is constructed of Techite Pipe. This type of pipe has a known history of failure, and multiple lawsuits have been filed against the company that manufactured the pipe. The District wants to prevent possible failure of this pipe by replacing it with a new pipeline. The existing Techite outfall parallels Trout Creek, which flows into the Truckee River. Movement caused by an earthquake may cause this pipe to fail.

### **Other Alternatives Considered (including taking no action):**

Line the pipe with a structural type lining system if capacity is adequate. Burst the pipe and pull an oversize liner pipe into place.

### **Responsible Office/Person:**

Denny Anderson, Operations and Maintenance Superintendent  
Truckee Sanitary District  
12304 Joerger Drive  
Truckee, California 96161-3312  
(530) 587-3804 phone

### **Cost Estimate:**

Project Total: \$2.5 million  
Costs for Year 1: \$300,000  
Costs for Year 2: \$1.3 million  
Costs for Year 3: \$900,000

### **Potential Sources of Funding:**

No other funding sources currently available. The Truckee Sanitary District is implementing this course of action on portions of the line. Due to workforce and funding constraints, projects are prioritized and completed based upon priority and available resources. It is unknown at this time if the Truckee Sanitary District will be able to complete this project without assistance.

**Cost Benefit:**

Completing this project will offer the highest level of protection to potential contamination of potable water systems, sensitive environmental areas, public exposure and long-term impact to Trout Creek, the Truckee River, and the entire local ecosystem.

**Priority (high, medium, low): HIGH**

**Schedule for the work:**

A portion of Techite pipe will be replaced this (2006) construction season. Design work, funding and scheduling replacement of additional sections are not finalized at this point in time. Once these issues are finalized, the remaining work may be completed within three years.

# NEVADA COUNTY - HAZARD MITIGATION PROJECT REQUEST

**Agency Name: Truckee Sanitary District**

## **Action Item # 4 Donner Creek Outfall Sewer Line**

### **Issue/Background Statement:**

The District has an outfall sewer that was installed along the edge of, and in some areas, within Donner Creek. It is approximately 5,000 feet in length with 21 manholes. Flooding along Donner Creek may expose or damage this pipeline and/or associated manhole structures. Damage to this part of the sewer system could result in sewage spills into Donner Creek, which flows into the Truckee River. This pipeline needs to be routed away from Donner Creek to avoid this potential sewage spill into Donner Creek and downstream water system.

### **Other Alternatives Considered (including taking no action):**

No other alternatives have been identified as a viable course of corrective action at this time.

### **Responsible Office/Person:**

Denny Anderson, Operations and Maintenance Superintendent  
Truckee Sanitary District  
12304 Joerger Drive  
Truckee, California 96161-3312  
(530) 587-3804 phone

### **Cost Estimate:**

\$2.75 million

Costs for Year 1 (Design): \$ 80,000

Costs for Year 2 (Design & Permit Process) \$130,000

Costs for Year 3 (Construction) \$2.54 million

### **Potential Sources of Funding:**

No other funding sources currently available. Due to workforce and funding constraints, projects are prioritized and completed based upon priority and available resources. It is unknown at this time if the Truckee Sanitary District will be able to complete this project without assistance.

**Cost Benefit:**

Completing this project will offer the highest level of protection to potential contamination of potable water systems, sensitive environmental areas, public exposure and long-term impact to the entire local ecosystem.

**Priority (high, medium, low): Medium**

**Schedule for the work:**

This project will take 36 months to complete: 24 months to complete design work; federal, state, and local reviews; and permits to be issued. Actual construction should take 10-12 months, depending on timing and season. This schedule of work is contingent upon reaching agreement with Cal-Trans on realignment into right-of-way.

# **NEVADA COUNTY**

## **Multi-Jurisdiction, Multi-Hazard Mitigation Plan**

### **6.0 Plan Adoption:**

***44 CFR 201.6 ©(5): “{The local hazard mitigation plan shall include} documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g. City Council, County Commission, Tribal Council).”***

The Nevada County Board of Supervisors, as the lead agency, the City and Town Councils and the various Boards of Directors for participating Districts have adopted the Multi-Jurisdiction, Multi-Hazard Mitigation Plan by passing resolution(s), which are included in Appendix A. These resolutions confirm that the Nevada County Operational Area Emergency Services Council will be responsible for the regular review and maintenance of the Nevada County Multi-Jurisdiction, Multi-Hazard Mitigation Plan.

# NEVADA COUNTY

## Multi-Jurisdiction, Multi-Hazard Mitigation Plan

### 7.0 Plan Implementation and Maintenance

#### 7.1 Implementation:

Implementation and Maintenance of this plan is critical to the overall success of the hazard mitigation planning process. Implementation implies two concepts: action and priorities. They are closely related.

While this plan puts forth many worthwhile and high priority recommendations, the decision about which action to take first will be the first task facing the Emergency Services Council. There are two factors that will help make that decision. There are many high priority projects and funding is always a controlling issue. Most of the suggested projects do not have sufficient proposing agency funding for that agency to proceed on its own. Many of the projects overlap specific jurisdictions or contribute significantly to the ultimate success of projects in other jurisdictions. Pursuing low or no cost high-priority recommendations has the greatest likelihood of immediate implementation.

Another method to be employed that is highly effective is to incorporate hazard mitigation strategies and recommendations into other community plans and projects such as comprehensive planning, capital improvement budgeting, economic development goals and incentives, or regional plans such as those of the California Department of Transportation, California Department of Forestry and Fire protection and the U.S. Forest Service.

Simultaneous to these efforts, it is important to maintain a constant monitoring of funding opportunities that can be leveraged to implement some of the more costly recommended actions. This will include creating and maintaining a data bank of ideas on how any of the required local match or participation requirements can be met. Local government may need to be the managing partner where funding resources are provided by other governments or interested parties. Funding opportunities to be monitored include special pre-and post-disaster funds, special district budgeted funds, state or federal earmarked funds and grant programs those that can serve or support multi-objective applications.

**Priority:** The Emergency Services Council chose not to prioritize our recommended actions – for two reasons. First, the Emergency Services Council did not want to have to rank apples and oranges between communities. Each community has its own recommended actions in their own section and will have to determine how to identify their own match requirements and priorities. The priority assigned for each recommendation is an indication of how the priority ranks within the community making the recommendation. Second, the California Multi-Jurisdiction, Multi-Hazard Mitigation Plan 2004 states its own criteria for funding local projects so that the local Emergency Services Council recommendation would hold little weight when compared to that of the State. The DMA regulations state that Benefit/Cost is the #1 method by which projects should be prioritized. In the State ranking, the Benefit/Cost criterion is one of 10, and while they do not state what is their overall priority, Benefit/Cost is listed last.

With the adoption of this plan, the Nevada County Operational Area Emergency Services Council will be tasked with the responsibility to implement and maintain the Nevada County Multi-Jurisdiction, Multi-Hazard Mitigation Plan. This Council, with the leadership of the Nevada County Office of Emergency Services, agrees to:

- ❑ Act as the forum for hazard mitigation issues,
- ❑ Disseminate hazard mitigation ideas and activities to all participants
- ❑ Pursue the implementation high priority actions
- ❑ Keep the concepts of Mitigation in the forefront of community decision decision-making by identifying plan recommendations when other community goals, plans and activities overlap, influence or directly affect increased community vulnerability to disasters,
- ❑ Maintain a vigilant monitoring of multi-objective, cost-share opportunities to assist communities in implementing recommended actions where no current funding or support exists.
- ❑ Monitor and assist in implementation and periodic plan updates,
- ❑ Report on Plan progress and recommend changes to the Nevada County Board of Supervisors, and
- ❑ Inform and solicit input from the public.

The Council is an advisory body to the Nevada County Board of Supervisors. Among its duties is to see that the plan is successfully carried out and to report to the Board of Supervisors and the public on the status of Plan implementation and mitigation opportunities in Nevada County. Other duties will include reviewing and promoting mitigation proposals, hearing stakeholder concerns about hazard mitigation, passing concerns on to appropriate entities and posting relevant information on the County website.

## **7.2 PLAN MAINTENANCE**

Plan maintenance implies an on-going effort to monitor and evaluate the Plan implementation, and to update the plan as progress, roadblocks, new or changed information emerges, or changing circumstances are recognized.

This monitoring and updating will take place through a semi-annual review by the Nevada County Office of Emergency Services, an annual review by the Nevada County Operational Area Emergency Services Council and a 5 year written update to be submitted to the Governor's Office of Emergency Services and FEMA Region IX, unless disaster or other circumstances (e.g. changing regulations) lead to a different time frame.

Prior to the Emergency Services Council convening for its annual review of the Plan, it will coordinate with all stakeholders participating in the planning process to update and revise the plan. Public notice will be posted and public participation invited, at a minimum, through available web postings and press releases to the local media outlets, primarily newspapers and AM radio stations. A web address will be made available for citizens to advise the Council of issues of concern.

Evaluation of progress can be achieved by monitoring changes in vulnerabilities identified in the Plan. Changes in vulnerability can be identified by noting:

- ❑ Lessened vulnerability as a result of implementing recommended actions,
- ❑ Increased vulnerability as a result of failed or ineffective mitigation actions,
- ❑ Increased vulnerability as a result of new development without consideration of existing vulnerabilities, capabilities or hazards.

Updating of the plan will be by written changes and submissions, as the Emergency Services Council deems appropriate and necessary, as approved by the jurisdiction's board or council and as approved by the Nevada County Board of Supervisors.

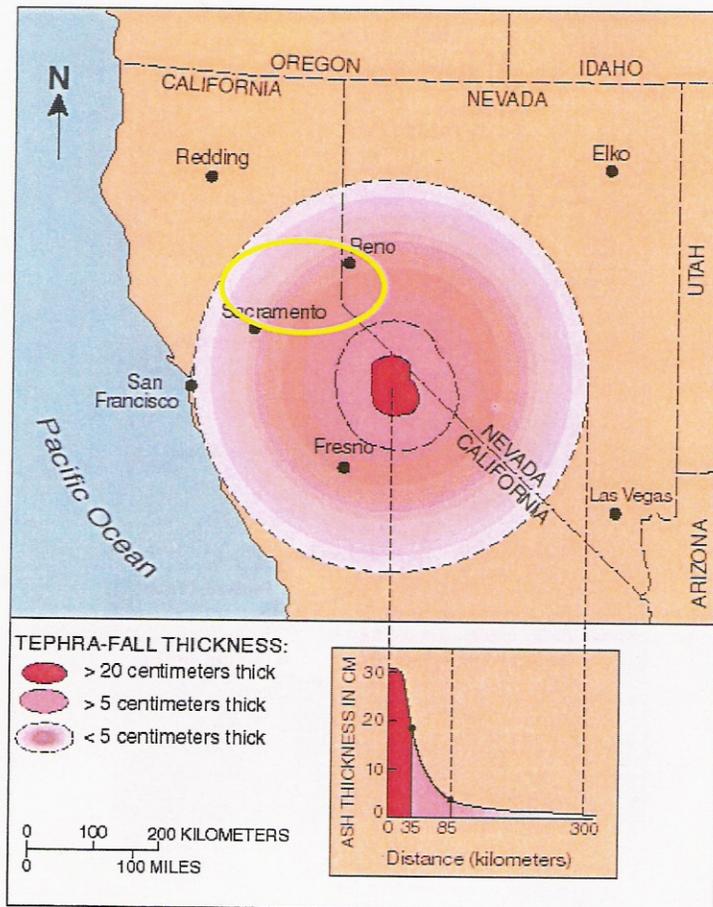
# APPENDIX A:

## Resolutions of Approval and Participation

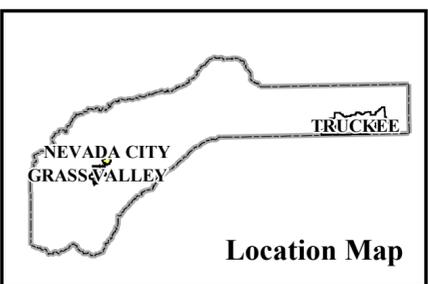
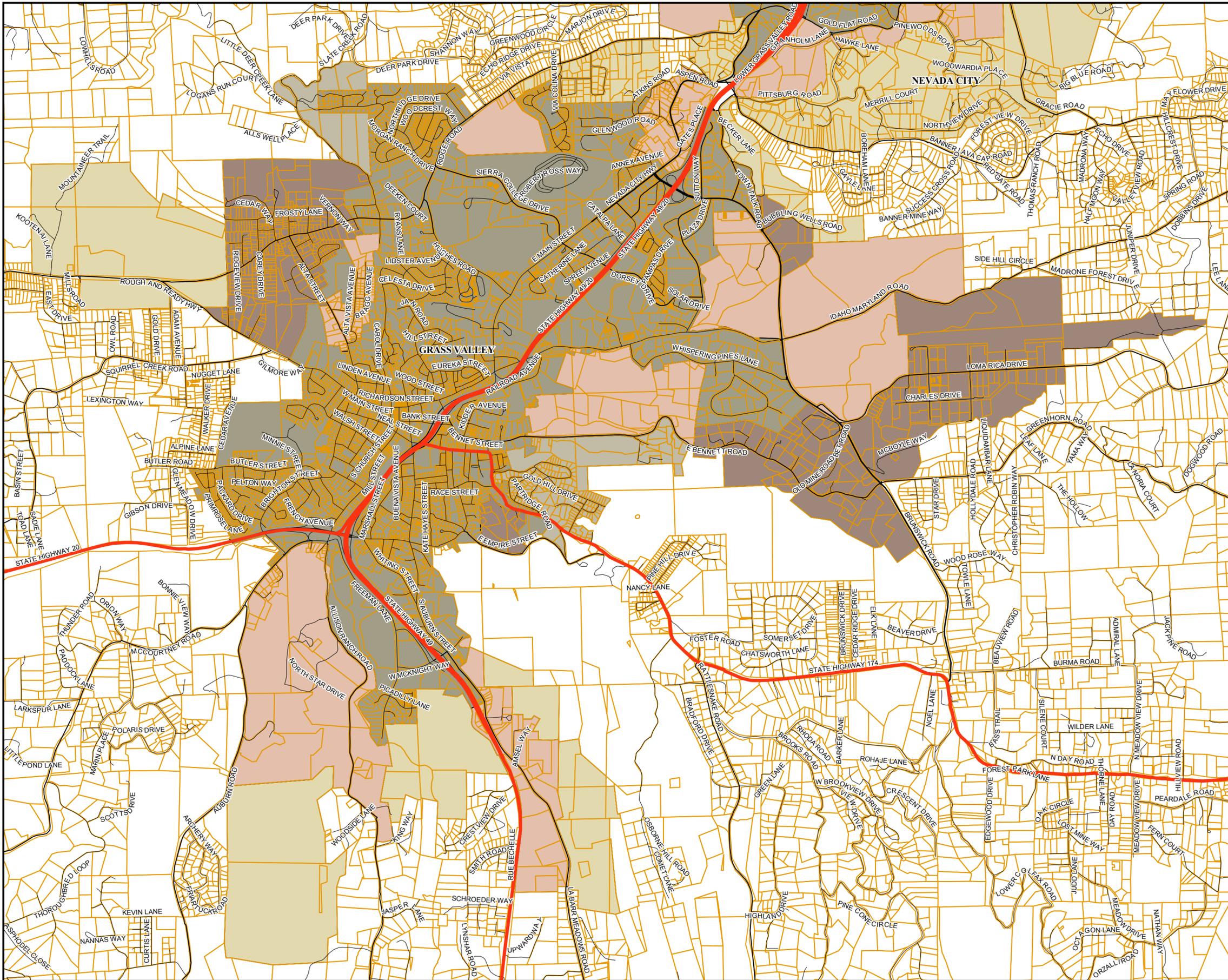
\_X\_ County of Nevada  
\_X\_ City of Nevada City  
\_X\_ City of Grass Valley  
July 27, 2006 Donner Summit Public Utility District/Fire Protection District  
\_X\_ Town of Truckee  
\_X\_ Nevada Irrigation District  
\_X\_ Nevada Cemetery District  
\_X\_ Truckee Cemetery District  
\_X\_ Tahoe National Forest  
\_X\_ CA. Department of Forestry and Fire Protection  
\_X\_ Sierra Nevada Memorial Hospital  
\_X\_ Nevada County Resource Conservation District (USDA)  
\_X\_ Sierra Community College District  
\_X\_ Tahoe Forest Hospital  
August 17, 2006 Truckee Donner Public Utility District  
August 10, 2006 Tahoe-Truckee Unified School District  
\_X\_ Truckee Sanitary District  
August 17, 2006 Truckee Recreation and Park District  
\_X\_ Nevada County Fire Safe Council  
\_X\_ Nevada County Consolidated Fire District  
July 28, 2006 Truckee Fire Protection District  
\_X\_ Penn Valley Fire Protection District  
\_X\_ Higgins Fire Protection District  
\_X\_ Peardale-Chicago Park Fire Protection District  
\_X\_ North San Juan Fire Protection District  
\_X\_ Rough and Ready Fire Protection District  
August 17, 2006 Ophir Hill Fire Protection District  
\_X\_ Washington County Water District/Washington Volunteer Fire Department  
July 17, 2006 Western Gateway Recreation and Park District  
\_X\_ Bear River Recreation and Park District  
Pending U. S. Bureau of Land Management

Agencies with dates above are expected to pass ratifying resolutions on the date indicated. If the formal review processes of the Governor's Office of Emergency Services and FEMA Region IX have not already been concluded, these resolutions will be forwarded to the appropriate reviewing agency for inclusion. The decision was made not to delay further the review process into August 2006 waiting for the final 7 resolutions. The final 7 expect to participate but their formal Board meeting dates were after the date selected for submission. The US Bureau of Land Management will be included when they complete their plan review.

## VOLCANIC HAZARDS ASH DISPERSION MAP

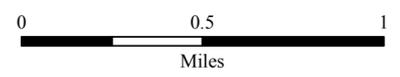


# City of Grass Valley and Spheres of Influence



### Legend

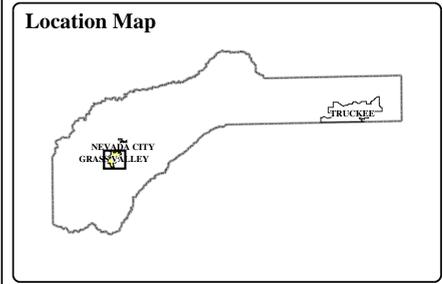
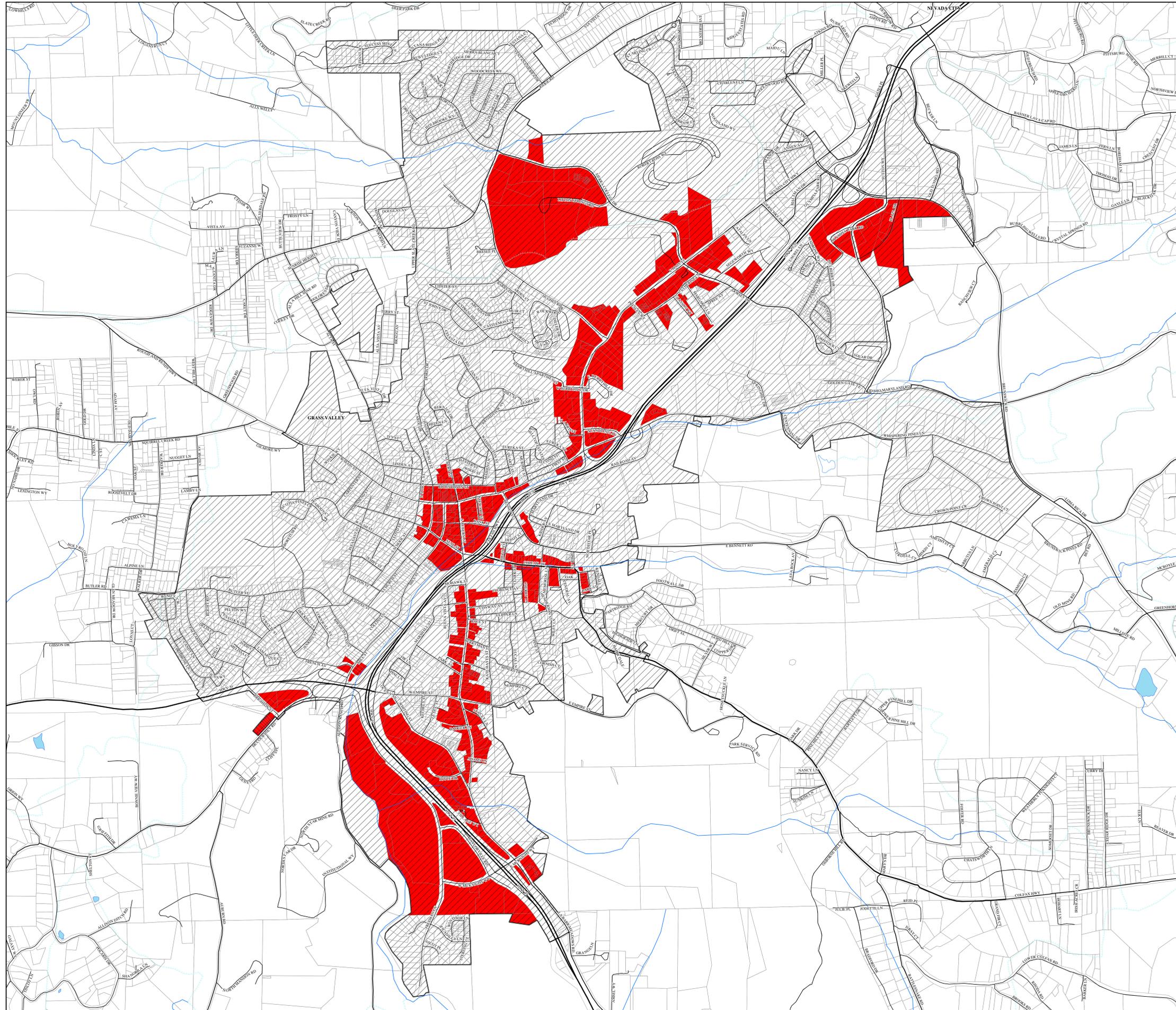
- Highways
- Highway/Freeway
- Arterials
- Collectors
- Local Roads
- Parcels
- Grass Valley
- Current
- 2006 (to 2010)
- 2011 (to 2015)
- 2016 (to 2020)



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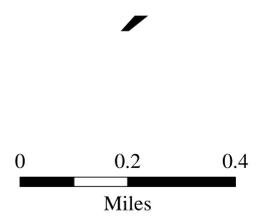
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# Grass Valley Business/Commercial Area



**Legend**

- Highway/Freeway
- Collector
- Arterials
- River
- Canal
- Lakes
- Parcels
- Grass Valley
- Grass Valley Zoning Business/Commercial

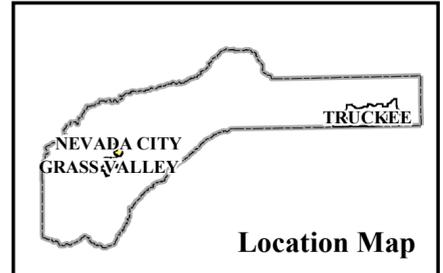
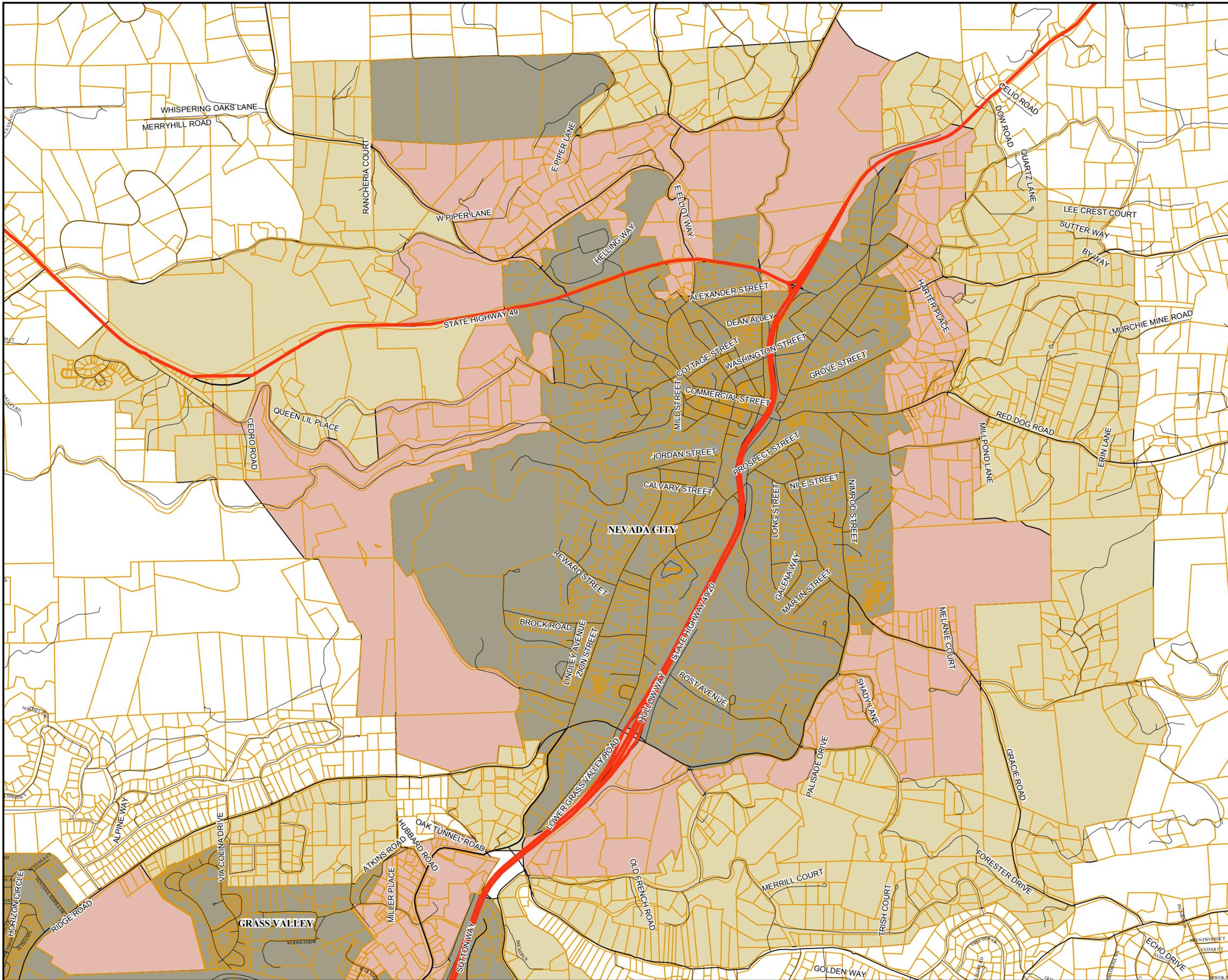


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 City\_of\_Grass\_ValleyBusinessCommercial.mxd

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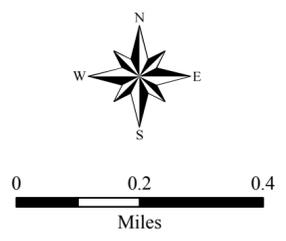


# City of Nevada City and Spheres of Influence



## Legend

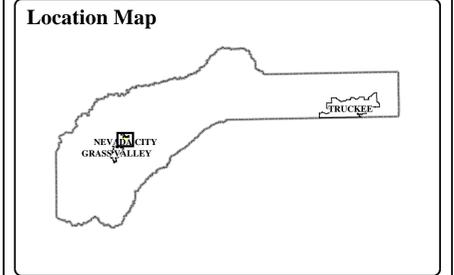
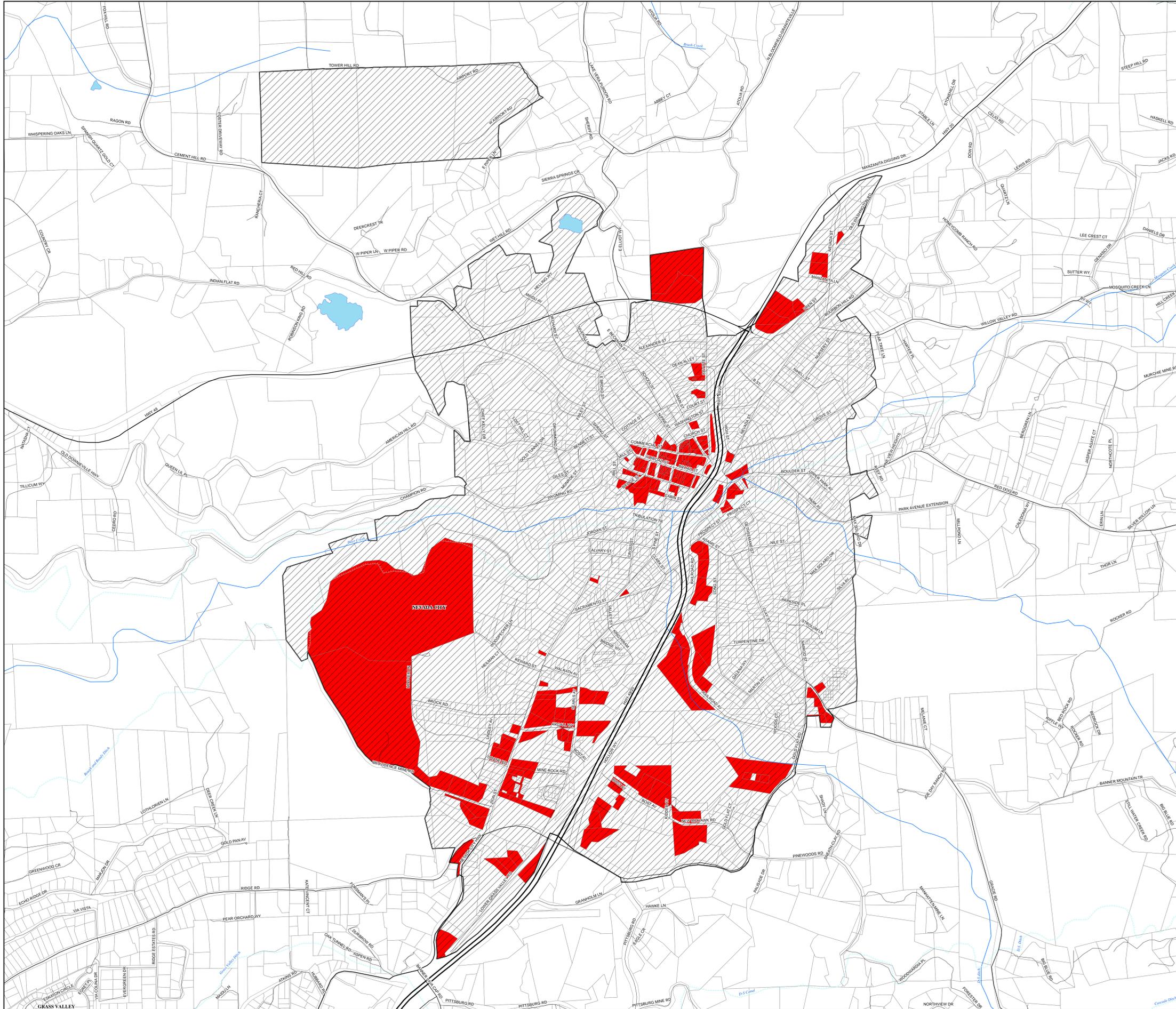
- Highways
- Highway/Freeway
- Arterials
- Collectors
- Local Roads
- Parcels
- Nevada City
- Current
- Undesignated Sphere



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 \ArcMapProjects\Departmental\GIS\Cities\_Towns

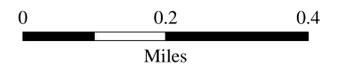
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# Nevada City Business/Commercial Area



**Legend**

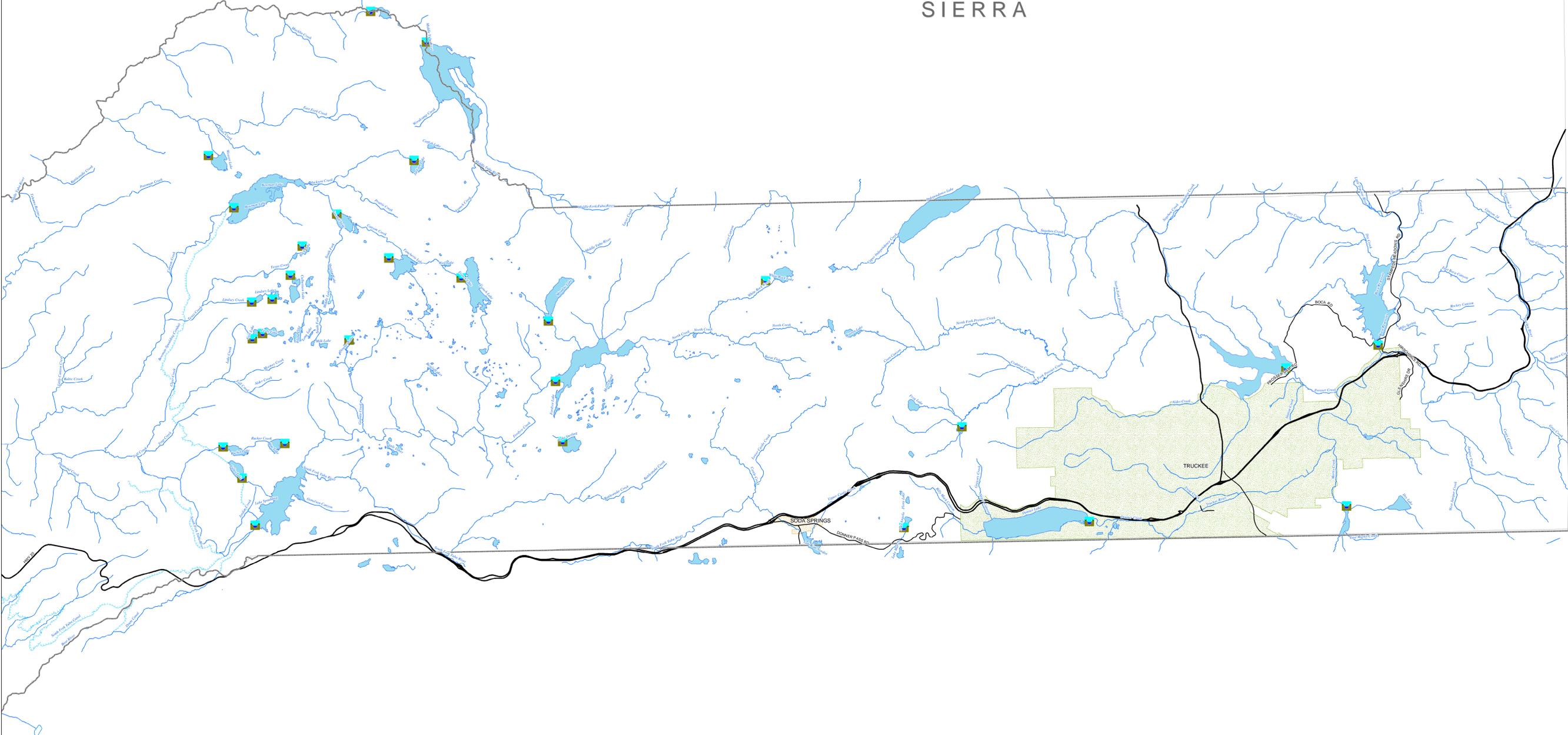
- Highway/Freeway
- Collector
- Arterials
- River
- Canal
- Lakes
- Parcels
- Nevada City
- Nevada County Use Code Nevada City Business/Commercial



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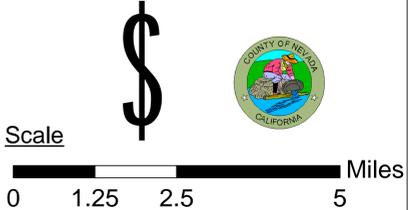


PLACER

**Dam Locations  
Eastern Nevada County**

Legend

-  Dams
-  River
-  Canal
-  Lakes
-  County Boundary
-  Highway/Freeway
-  Arterial
-  Soda Springs
-  Truckee
-  Surrounding County Boundaries



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Map created by Nevada County GIS Division 3/24/05  
DamsEasternNC.mxd

SIERRA

PLACER

### Dams and Inundation Areas Eastern Nevada County

#### Legend

-  Dams
-  County Boundary
-  River
-  Lake
-  Canal
-  Lakes
-  Inundation Areas\*
-  Soda Springs
-  Town of Truckee
-  Surrounding County Boundaries



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Map created by Nevada County GIS Division 4/19/05  
DamsInundationAreasEasternNC.mxd



BUTTE

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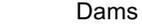
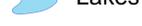
YUBA

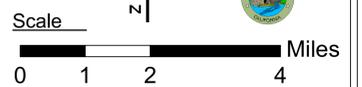
PLACER

SUTTER

### Dams and Inundation Areas Western Nevada County

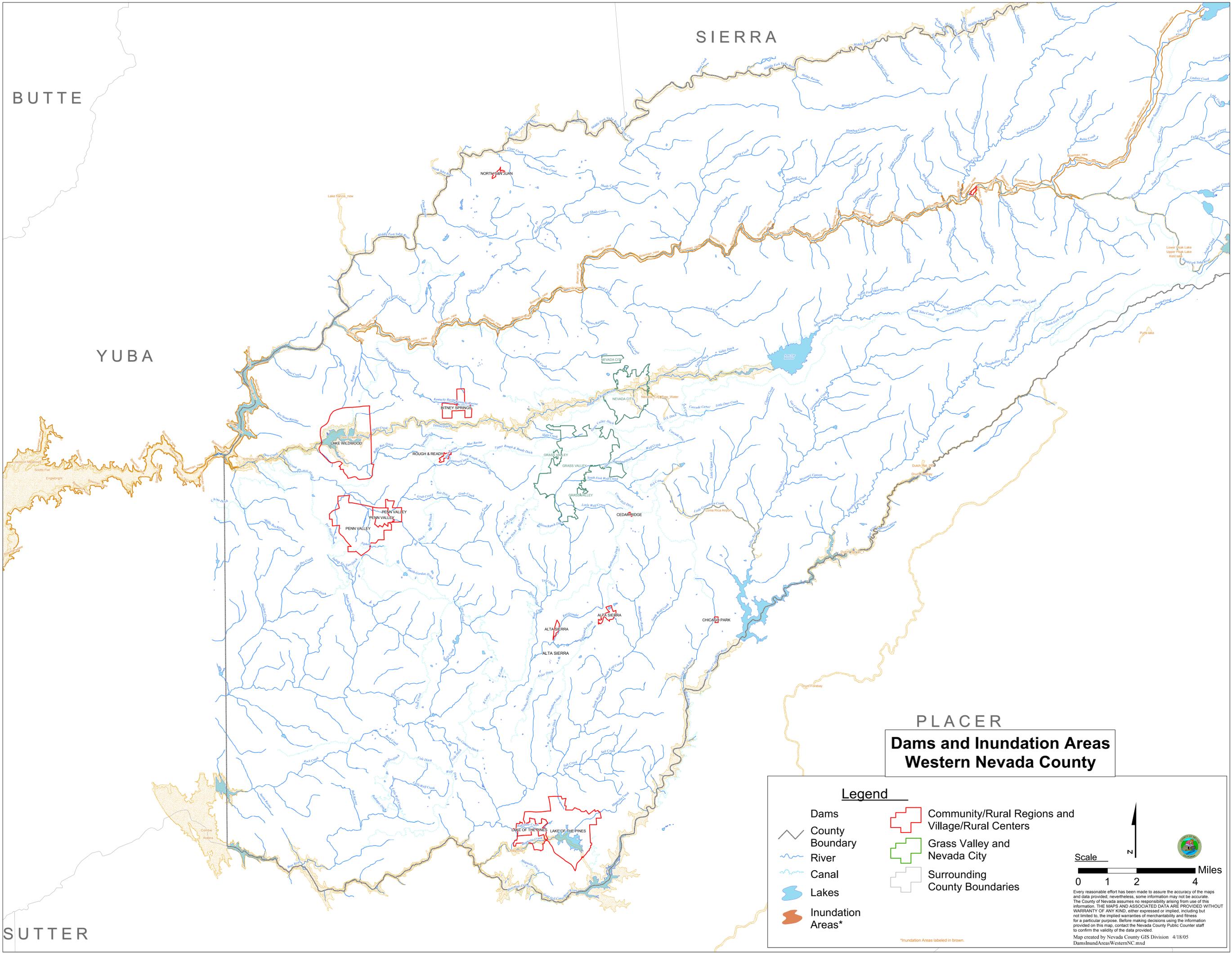
#### Legend

-  Dams
-  County Boundary
-  River
-  Canal
-  Lakes
-  Inundation Areas\*
-  Community/Rural Regions and Village/Rural Centers
-  Grass Valley and Nevada City
-  Surrounding County Boundaries



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Map created by Nevada County GIS Division 4/18/05  
DamsInundAreasWesternNC.mxd



BUTTE

SIERRA

YUBA

PLACER

### Dam Locations Western Nevada County

#### Legend

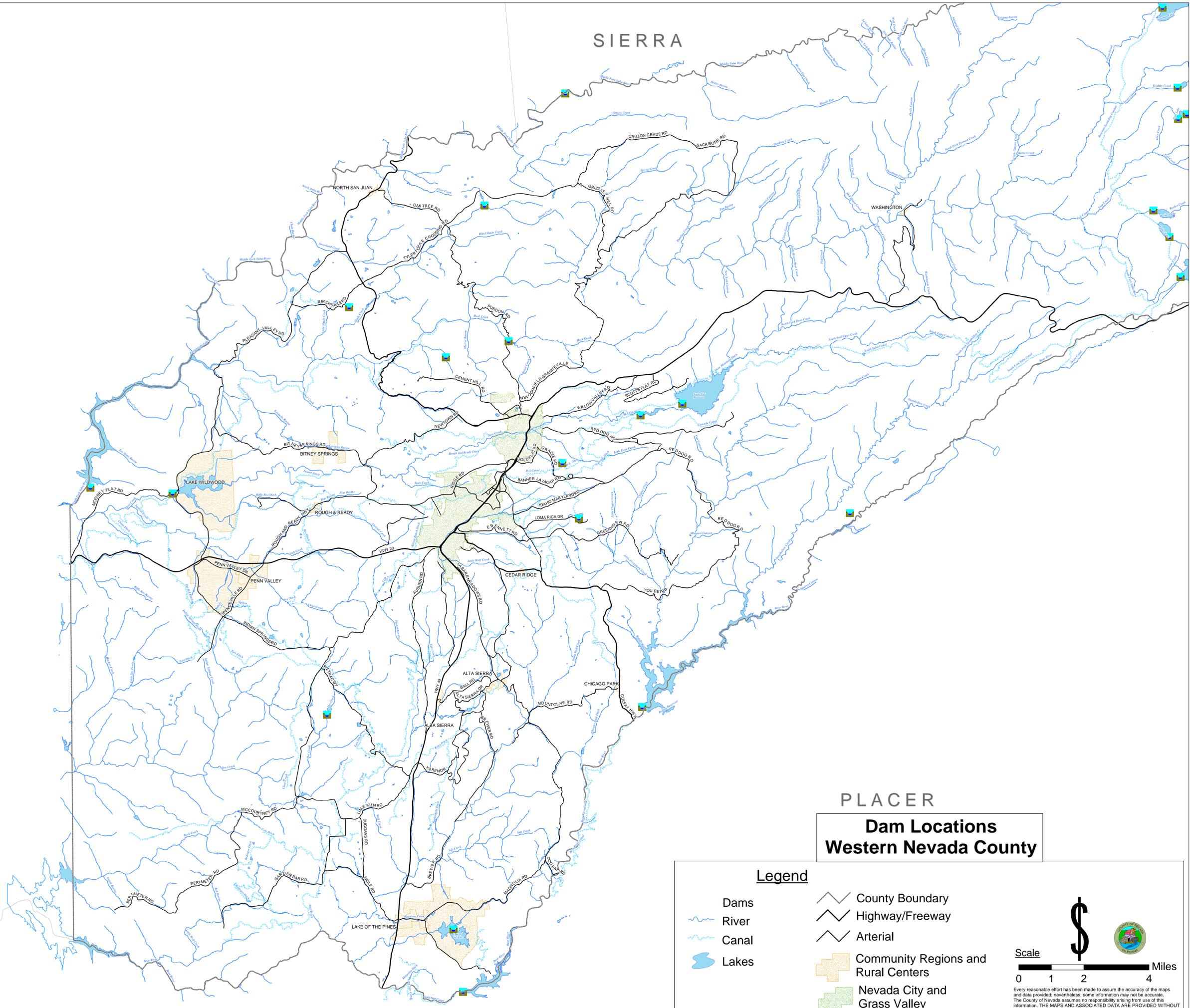
-  Dams
-  River
-  Canal
-  Lakes
-  County Boundary
-  Highway/Freeway
-  Arterial
-  Community Regions and Rural Centers
-  Nevada City and Grass Valley
-  Surrounding County Boundaries



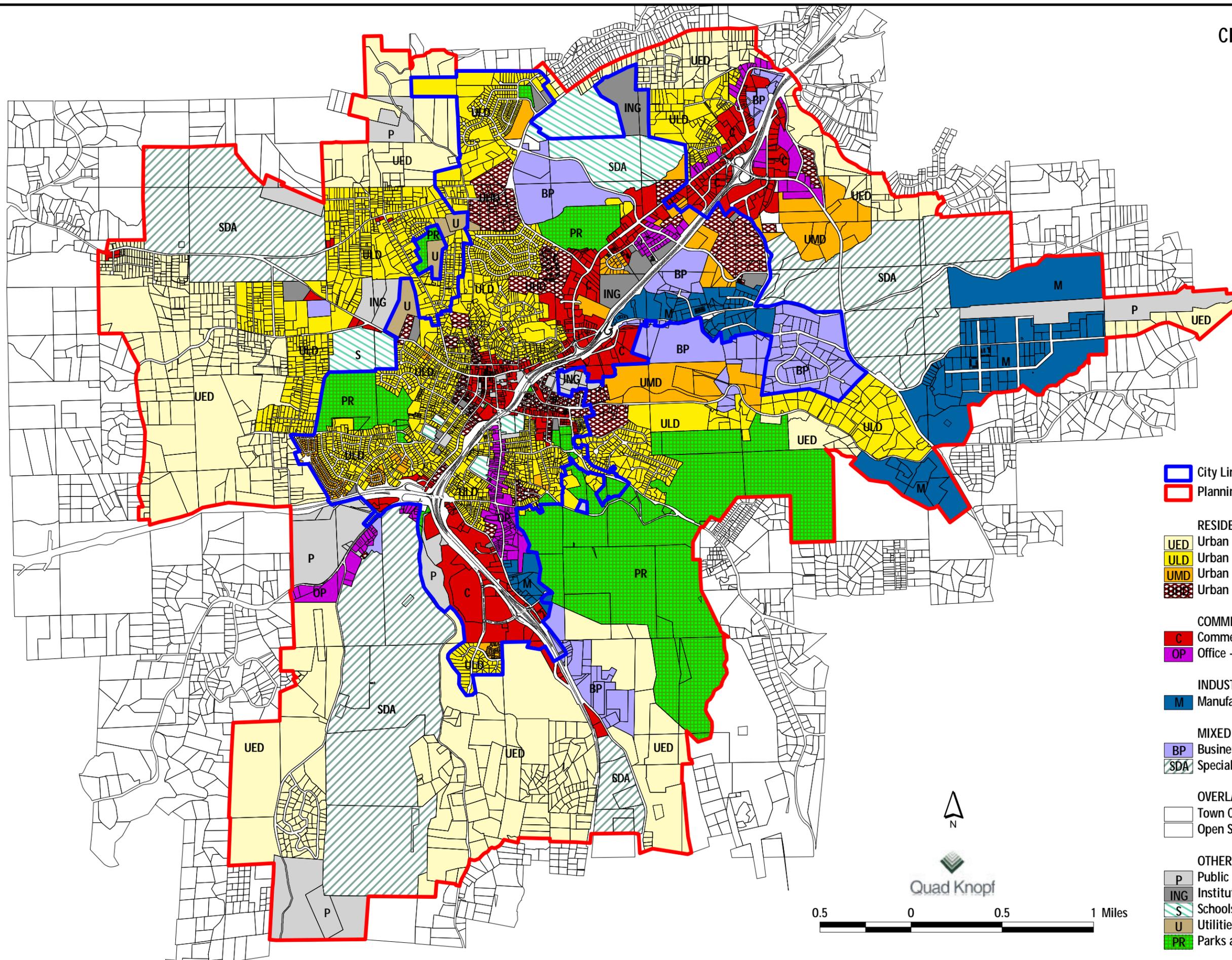
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Map created by Nevada County GIS Division 3/24/05  
DamsWesternNC.mxd

SUTTER



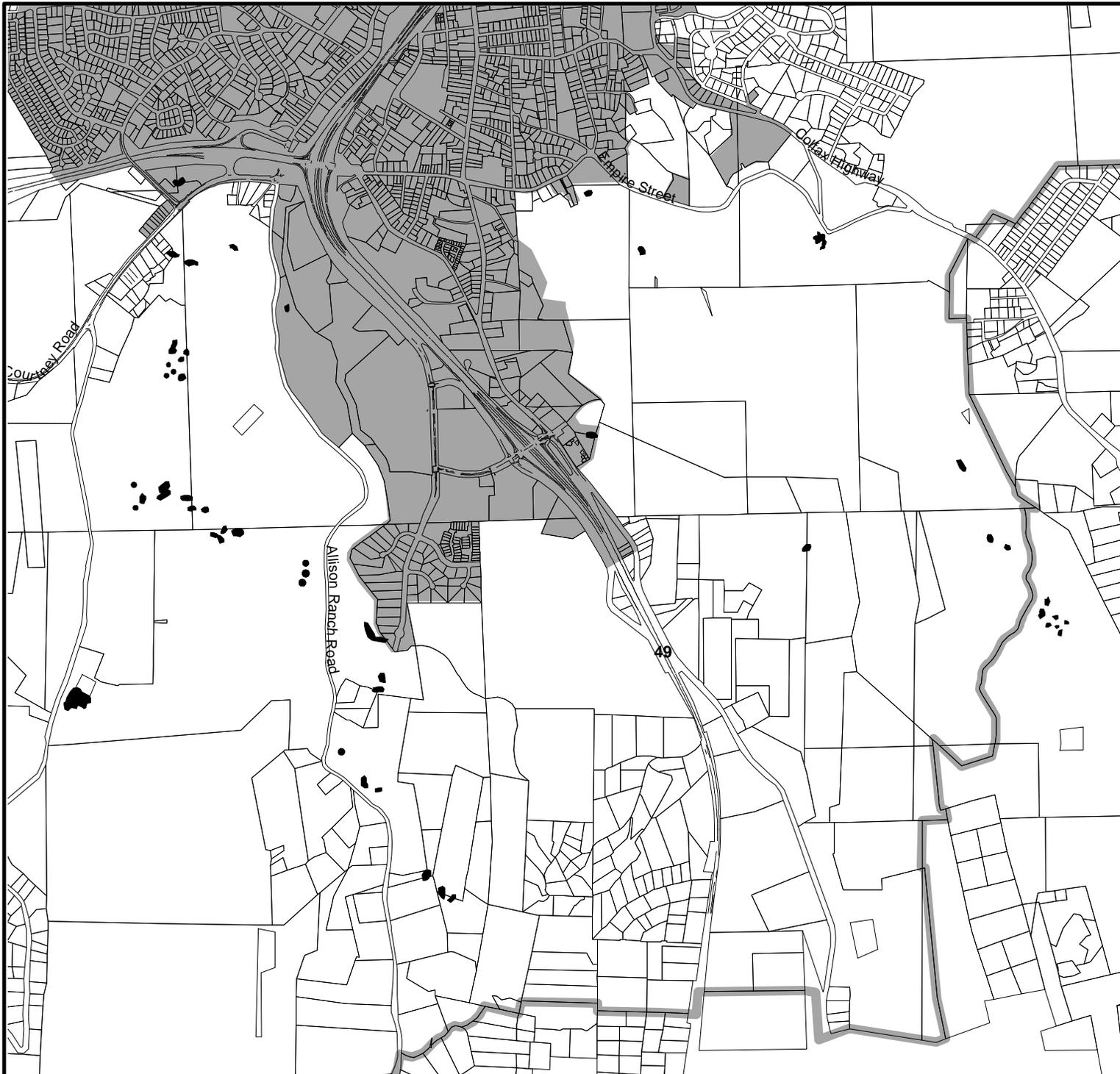
CITY OF GRASS VALLEY  
 2020 GENERAL PLAN  
 Land Use Plan Map  
 Figure 3-2



# CITY OF GRASS VALLEY 2020 GENERAL PLAN

## Mine Tailings Heaps (or piles)

Figure 7-1



-  Mine Tailings
-  Planning Area
-  City Limits

Source: California Division of Mines and Geology  
Geologic Atlas of the U.S., Nevada City  
Special Folio 29, CA, USGS, 1896



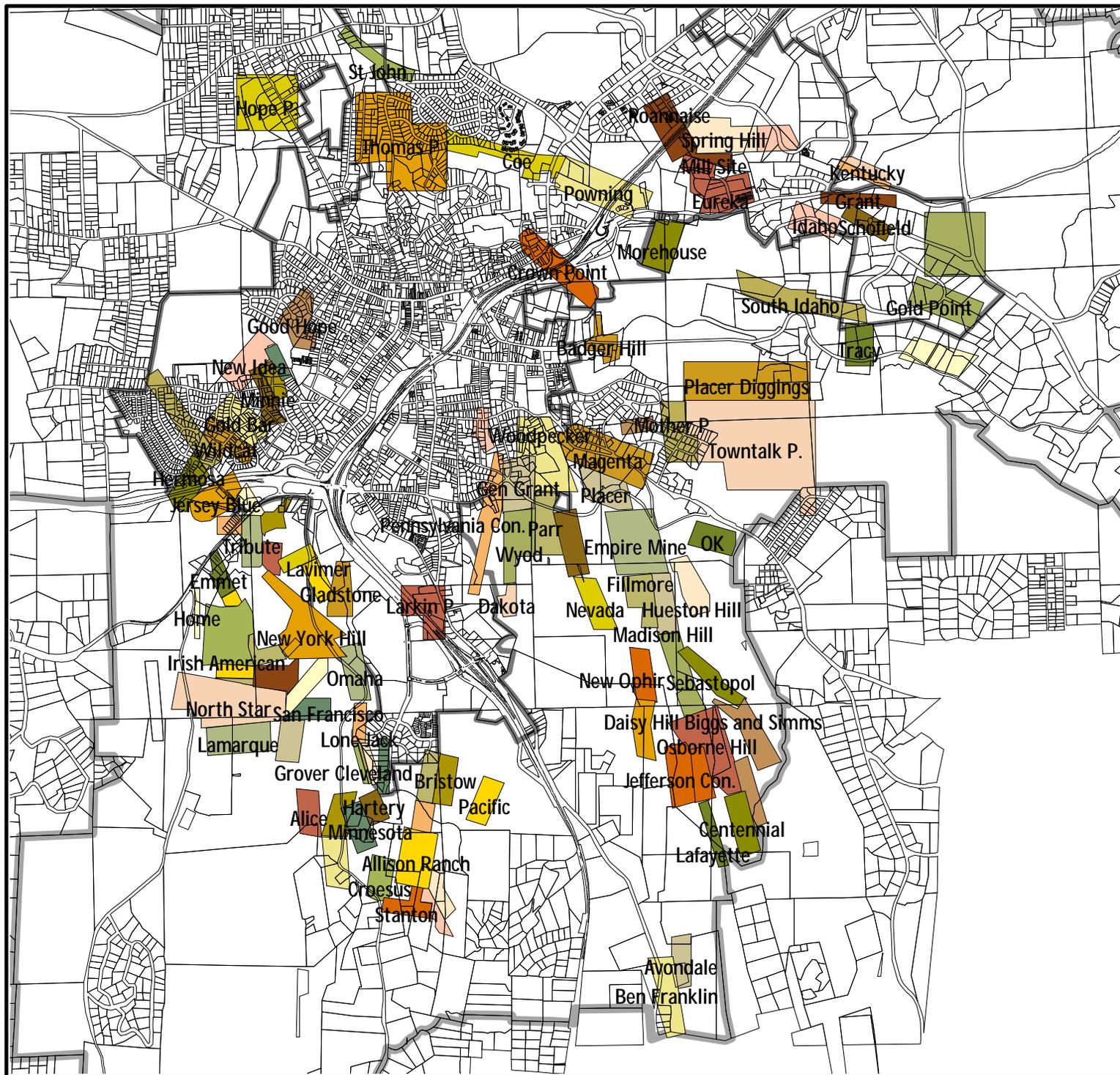
Quad Knopf

700 0 700 1400 Feet



# CITY OF GRASS VALLEY 2020 GENERAL PLAN Mining Claim Boundaries

Figure 7-2

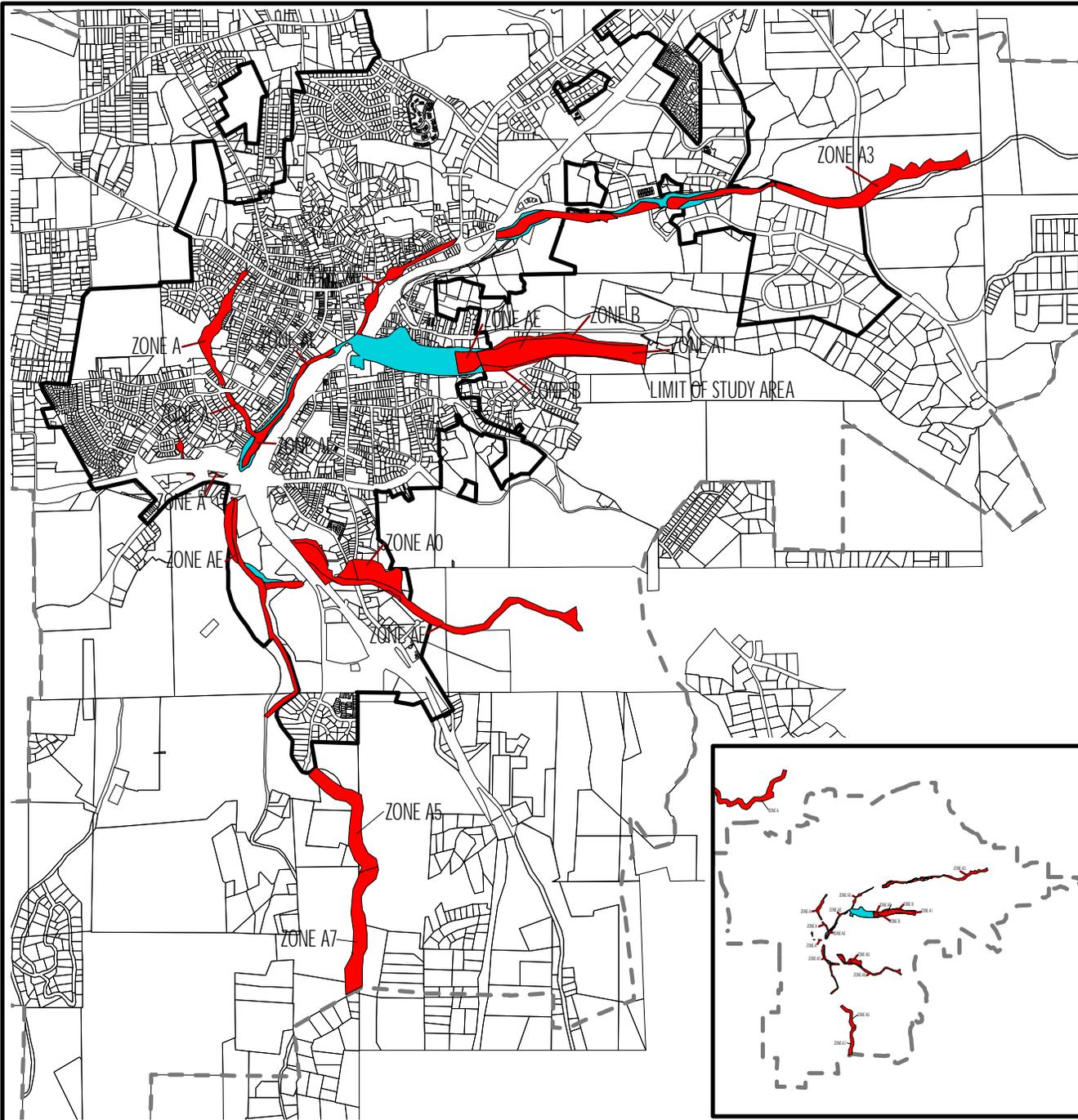


Source: California Division of Mines and Geology  
Geologic Atlas of the U.S., Nevada City  
Special Folio 29, CA, USGS, 1896

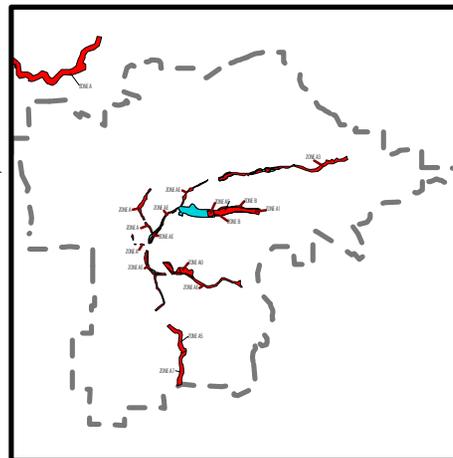


# CITY OF GRASS VALLEY 2020 GENERAL PLAN

Flood Zones  
Figure 7-3

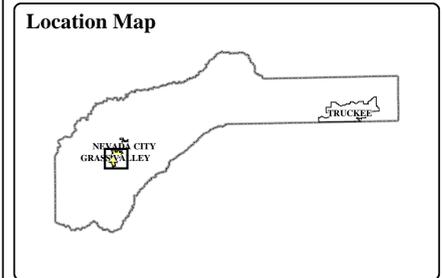
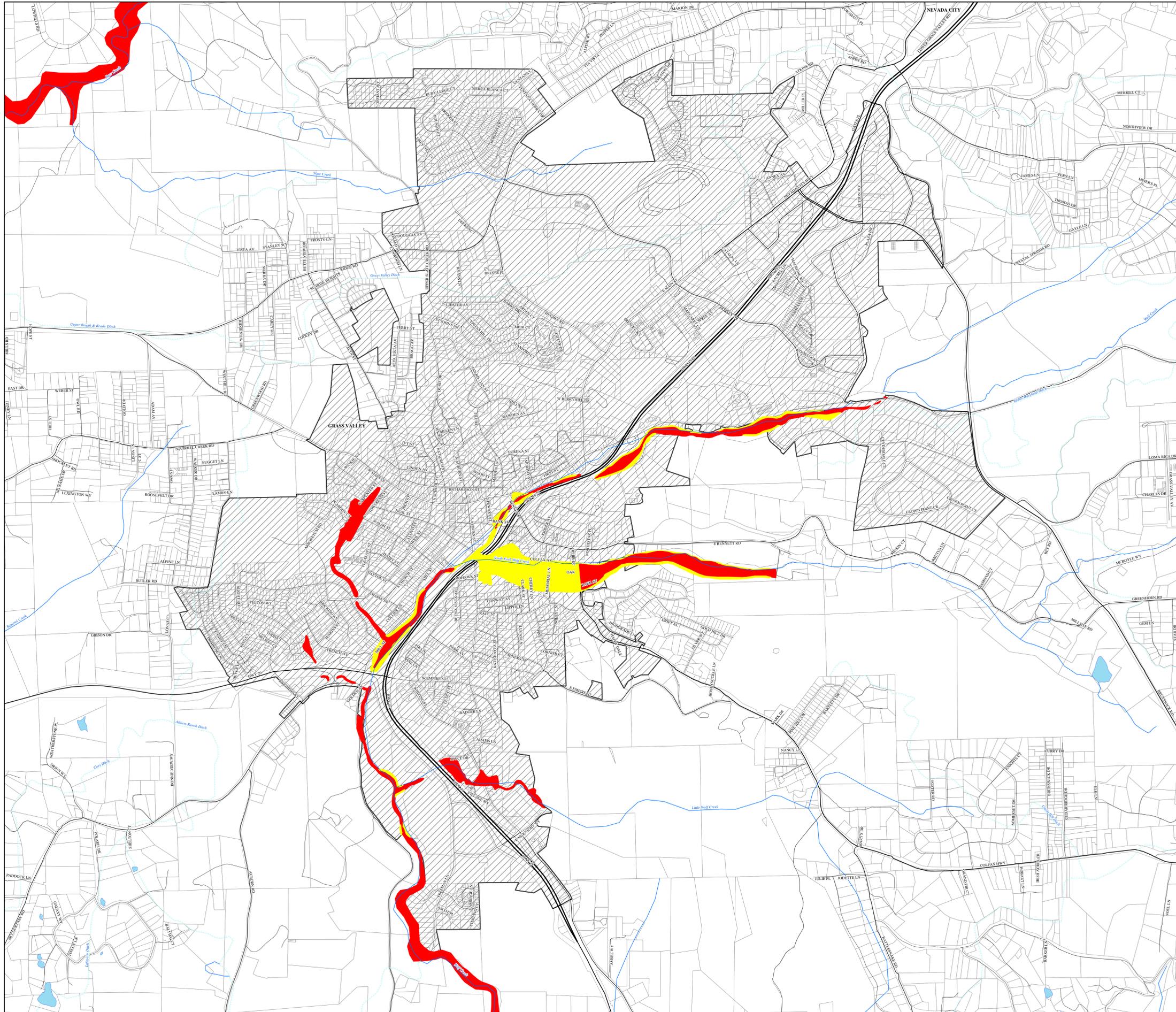


- Flood Inundation Zone**
- █ SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD
    - A - No base flood elevations determined
    - AE - Base flood elevations determined
    - AO - Flood depths of 1 to 3 feet
    - A1 to A30 - Areas of 100 year flood
    - B - Areas between 100 and 500 year flood
  - █ OTHER FLOOD AREAS
    - X - Areas of 500 year Flood
    - OTHER AREAS
    - X - Areas outside 500 year flood plain
  - Planning Area
  - City Limits



Source: Flood Insurance Rate Map, Feb 5, 1997

# Grass Valley Flood Hazards



- Legend**
- Highway/Freeway
  - Arterials
  - Collector
  - Local Roads
  - River
  - Canal
  - Lakes
  - Parcels
  - Grass Valley City Limits
  - FEMA Flood Plain
    - 100-Year Flood Boundary
    - 500-Year Flood Boundary



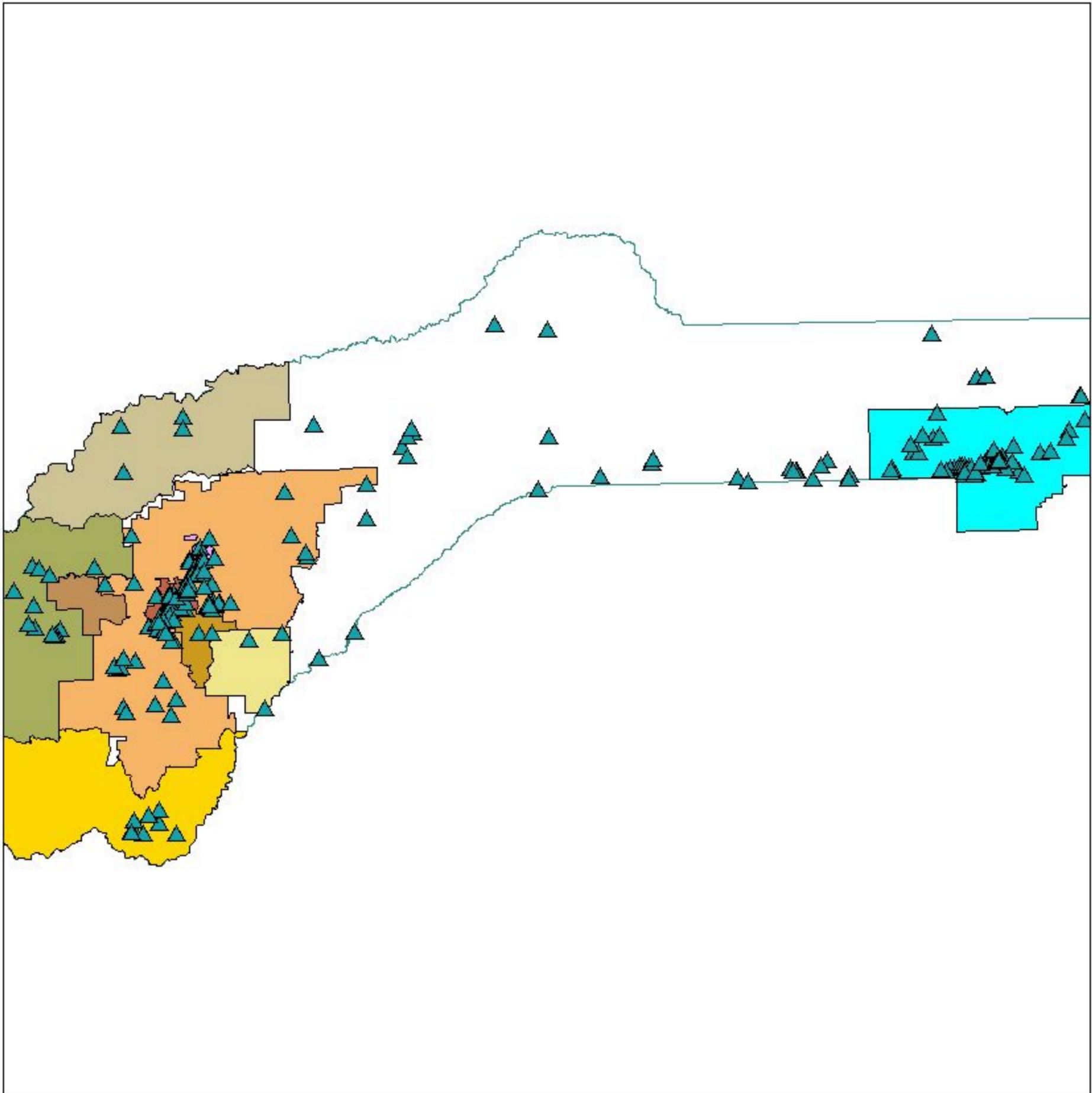
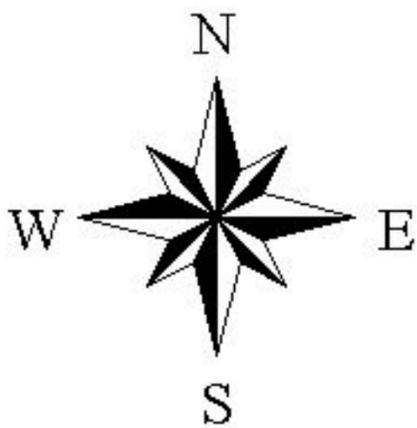
Created by Nevada County GIS Division 3/25/05  
GrassValleyFloodHazards.mxd

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- ▲ Program 22 - haz mat stor.shp
- Firedist.shp
- GRASS VALLEY
- HIGGINS
- NEVADA CITY
- NEVADA COUNTY CONSOL.
- NORTH SAN JUAN
- OPHIR HILL
- PEARDALE-CHICAGO PARK
- PENN VALLEY
- ROUGH & READY
- TRUCKEE
- Co\_boundary.shp

Hazardous Material Storage Facilities  
 That store 55 gallons, 500 # or 200 cu.ft.  
 of a compressed gas at STP.

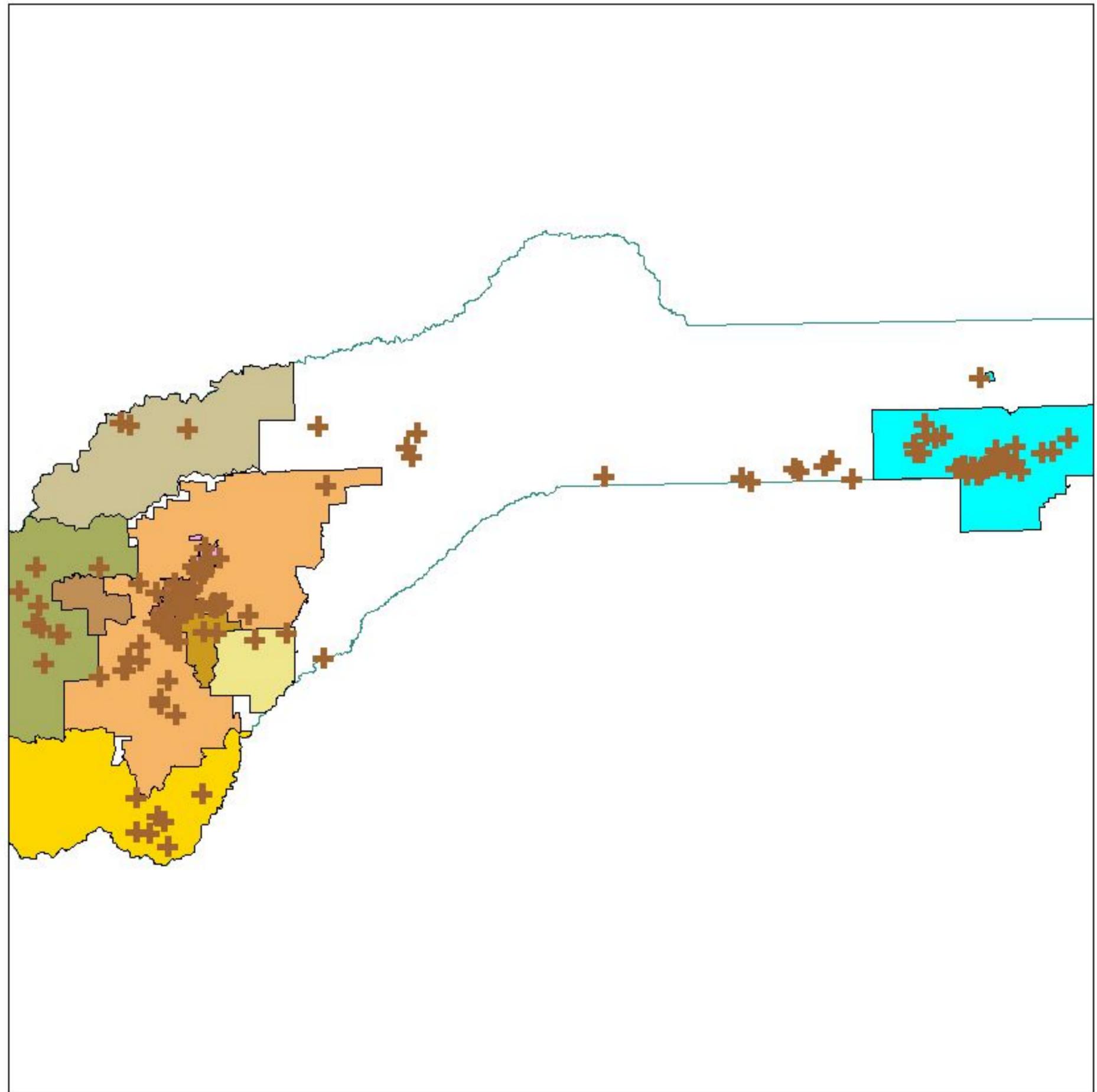


# Environmental Health Hazardous Material Storage Inventory

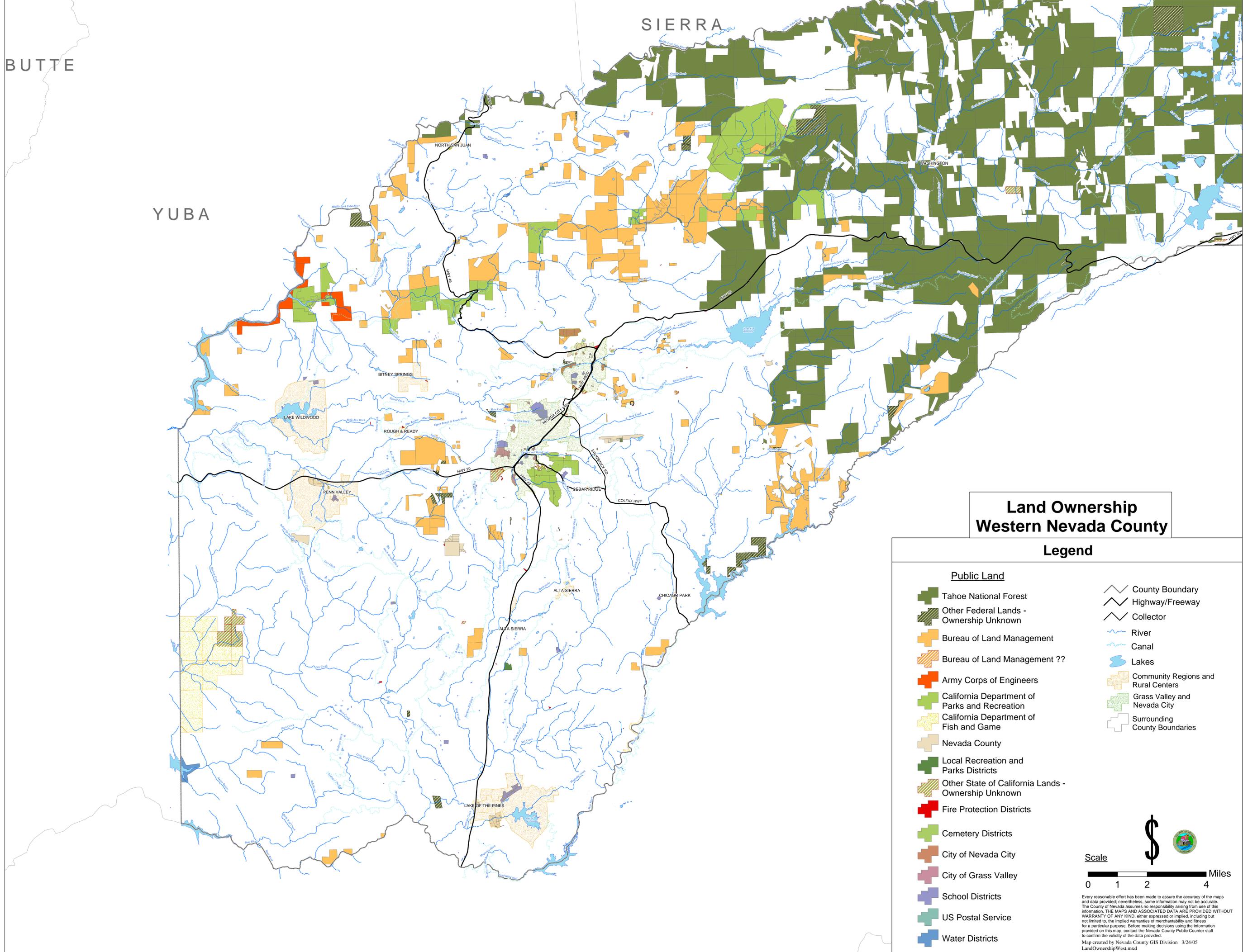
**+ Program 25 - haz waste gen sites.shp**

**Firedist.shp**

-  GRASS VALLEY
-  HIGGINS
-  NEVADA CITY
-  NEVADA COUNTY CONSOL.
-  NORTH SAN JUAN
-  OPHIR HILL
-  PEARDALE-CHICAGO PARK
-  PENN VALLEY
-  ROUGH & READY
-  TRUCKEE
-  Co\_boundary.shp



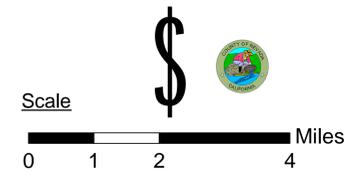
Hazardous Waste Generators: Facilities that generate hazardous waste as defined in the California Code of Regulations, Division 4.5, Article 3 beginning with Section 66261.20.



## Land Ownership Western Nevada County

### Legend

- |  |   |
|--|---|
| <u>Public Land</u>   |   |
| <ul style="list-style-type: none"> <li> Tahoe National Forest</li> <li> Other Federal Lands - Ownership Unknown</li> <li> Bureau of Land Management</li> <li> Bureau of Land Management ??</li> <li> Army Corps of Engineers</li> <li> California Department of Parks and Recreation</li> <li> California Department of Fish and Game</li> <li> Nevada County</li> <li> Local Recreation and Parks Districts</li> <li> Other State of California Lands - Ownership Unknown</li> <li> Fire Protection Districts</li> <li> Cemetery Districts</li> <li> City of Nevada City</li> <li> City of Grass Valley</li> <li> School Districts</li> <li> US Postal Service</li> <li> Water Districts</li> </ul> | <ul style="list-style-type: none"> <li> County Boundary</li> <li> Highway/Freeway</li> <li> Collector</li> <li> River</li> <li> Canal</li> <li> Lakes</li> <li> Community Regions and Rural Centers</li> <li> Grass Valley and Nevada City</li> <li> Surrounding County Boundaries</li> </ul> |



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Map created by Nevada County GIS Division 3/24/05  
LandOwnershipWest.mxd

# West Coast Volcanoes



# Nevada County Economic Forecast

Nevada County is located on the California-Nevada state border. The county is north of Placer County, east of Yuba County, and south of Sierra County. Nevada County has a population of 98,955 people and 28,890 wage and salary jobs. The per capita income in Nevada County is \$32,360, and the average salary per worker is \$35,610. The median household income was \$63,600 in 2005.

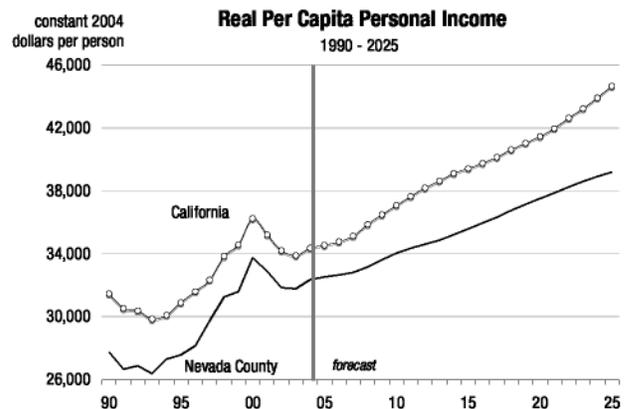
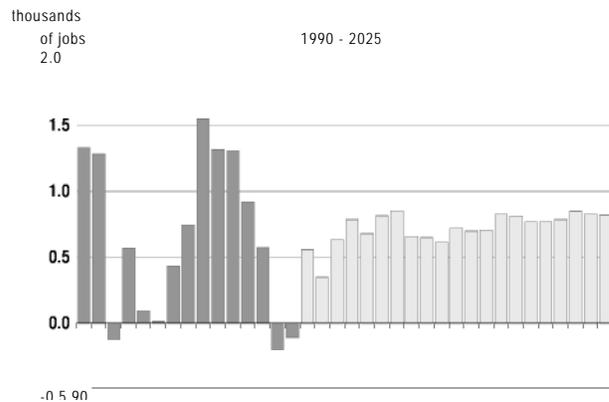
In 2004, 109 total wage and salary jobs were lost in Nevada County, representing a decline in employment of 0.4 percent. Non-farm employment, which accounts for over 99 percent of total employment in the county, lost 102 jobs last year. The unemployment rate declined however, to 5.2 percent in 2004.

The principal sectors that are producing jobs in Nevada County are leisure services, manufacturing, and construction. Each of these sectors created 130 or more jobs in 2004. Several sectors lost a significant number of jobs last year. Employment in professional services and government declined 250 and 220 jobs respectively. The largest employment sectors in the county are retail, leisure services, education and healthcare services, and government. Many of the largest employers in the county are related to tourism, including Soda Springs Ski Area, Sugar Bowl Ski Resort, and Boreal Mountain Resort.

The population grew in Nevada County at a rate of 1.7 percent in 2004. The fastest growing cities in the county are Grass Valley and Truckee, which grew 6.0 and 2.4 percent respectively from January 2004 to January 2005. Truckee is the largest city in the county with 15,657 residents. Net migration was positive last year, with an estimated total of 1,730 migrants entering the county.

## Forecast Highlights

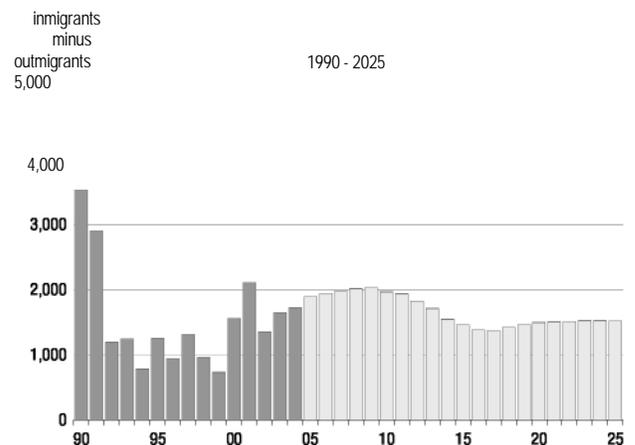
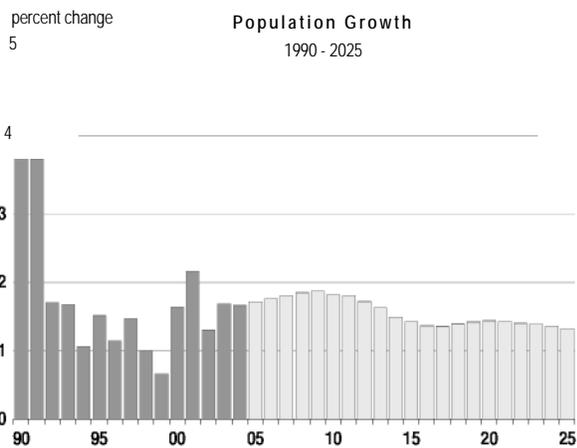
- Non-farm employment growth is forecast to turn positive in 2005, rising 1.9 percent. Job growth is expected to continue to rise over the next five years, and will average 2.1 percent per year over that time period.
- Average salaries adjusted for inflation are currently below the California state average, and will remain so over the forecast period. Inflation adjusted salaries are expected to rise an average of 0.3 percent per year over the next 5 years.
- Between 2005 and 2010, the momentum for employment growth is in professional services, leisure services, and government. These sectors account for over 60 percent of all jobs created in the county over the next five years.
- The population in the county will continue to grow, and at a faster rate than the state average. Annual growth in the 2005 to 2010 period averages 1.8 percent per year. The growth rate in the state over that same time period averages 1.5 percent per year.
- Net migration is expected to reach 1,900 net migrants entering the county in 2005. Over the next five years average net migration will increase slightly to approximately 2,000 net migrants per year.
- Real per capita income is forecast to increase 0.5 percent in 2005. Over the next five years real per capita incomes are expected to increase an average of 0.9 percent per year.
- Total taxable sales, adjusted for inflation, are forecast to increase 0.3 percent in 2005. Over the next five years real taxable sales are forecast to increase at a rate of 3.2 percent per year.
- Industrial production is forecast to increase 5.2 percent in 2005. Over the next five years the growth rate of industrial production will increase, with total production rising 4.8 percent per year. Total crop production is expected to decline an average of 1.0 percent per year between 2005 and 2010.



# Nevada County Economic Forecast

## 1995-2004 History, 2005-2025 Forecast

	Population (people)	Net Migration (people)	Registered Vehicles (thousands)	Households (thousands)		Personal Income (billions)	Real Per Capita Income (dollars)	Inflation Rate (% change in CPI)	Real Farm Crop Value (millions)	Real Industrial Production (millions)	Unemploy- ment Rate (percent)	
1995	87,100	1,250	96.1	34.1	730	\$0.7	\$1.8	\$27,565	2.0	8.1	215.3	7.6
1996	88,100	946	98.5	34.5	599	\$0.7	\$1.9	\$28,152	2.3	8.4	216.3	7.0
1997	89,400	1,318	95.1	35.0	645	\$0.8	\$2.1	\$29,733	3.4	8.7	236.3	6.2
1998	90,300	958	102.0	35.4	668	\$0.8	\$2.3	\$31,247	3.2	7.2	272.4	5.5
1999	90,900	729	106.1	36.0	815	\$0.9	\$2.5	\$31,588	4.2	7.7	249.2	4.1
2000	92,393	1,564	112.4	36.9	847	\$1.0	\$2.8	\$33,749	4.5	7.9	261.9	4.0
2001	94,393	2,114	118.0	37.4	680	\$1.0	\$3.0	\$32,886	5.4	7.5	249.1	4.3
2002	95,623	1,352	120.1	38.0	912	\$1.0	\$3.0	\$31,852	1.6	7.7	229.9	5.2
2003	97,239	1,646	119.3	38.6	912	\$1.1	\$3.1	\$31,777	1.8	8.0	245.9	5.5
2004	98,857	1,726	128.2	39.4	979	\$1.2	\$3.2	\$32,358	1.2	7.8	266.7	5.2
2005	100,553	1,898	132.4	40.2	771	\$1.2	\$3.3	\$32,525	1.7	8.2	280.5	4.8
2006	102,325	1,945	134.7	40.9	939	\$1.2	\$3.5	\$32,659	2.7	8.2	291.5	4.8
2007	104,173	1,983	137.2	41.6	944	\$1.3	\$3.7	\$32,807	2.6	8.1	308.3	4.7
2008	106,102	2,017	140.4	42.4	794	\$1.4	\$3.9	\$33,167	2.6	8.0	324.4	4.6
2009	108,089	2,031	143.5	43.1	705	\$1.5	\$4.1	\$33,609	2.5	7.8	339.6	4.6
2010	110,058	1,973	147.0	43.7	841	\$1.6	\$4.4	\$34,038	2.7	7.8	354.9	4.6
2011	112,047	1,941	150.9	44.4	912	\$1.7	\$4.6	\$34,344	2.7	7.7	371.0	4.6
2012	113,977	1,829	154.4	45.1	781	\$1.8	\$4.8	\$34,599	2.8	7.6	386.9	4.6
2013	115,837	1,716	157.8	45.8	724	\$1.9	\$5.1	\$34,864	2.9	7.5	402.6	4.4
2014	117,567	1,548	161.1	46.4	783	\$2.0	\$5.4	\$35,212	2.9	7.4	417.8	4.4
2015	119,244	1,465	164.6	47.0	693	\$2.1	\$5.7	\$35,579	3.1	7.4	430.7	4.4
2016	120,873	1,390	168.1	47.6	675	\$2.2	\$6.0	\$35,948	3.0	7.4	444.3	4.4
2017	122,514	1,377	171.6	48.1	690	\$2.4	\$6.3	\$36,313	2.9	7.3	458.8	4.6
2018	124,222	1,422	175.3	48.7	705	\$2.5	\$6.7	\$36,751	2.7	7.2	476.1	4.6
2019	125,988	1,462	179.1	49.3	716	\$2.6	\$7.0	\$37,140	2.8	7.2	492.3	4.7
2020	127,803	1,495	182.6	49.9	726	\$2.8	\$7.4	\$37,512	2.7	7.2	506.7	4.7
2021	129,628	1,508	185.9	50.5	726	\$2.9	\$7.7	\$37,866	2.6	7.2	521.7	4.7
2022	131,449	1,516	188.9	51.1	723	\$3.1	\$8.1	\$38,242	2.6	7.3	529.0	4.7
2023	133,274	1,530	192.1	51.7	717	\$3.2	\$8.6	\$38,602	2.7	7.3	543.0	4.7
2024	135,086	1,528	195.2	52.3	713	\$3.4	\$9.0	\$38,912	2.7	7.3	552.1	4.7
2025	136,877	1,522	198.2	52.9	711	\$3.6	\$9.4	\$39,189	2.7	7.3	565.3	4.7



Total Wage  
& Salary

Mining &  
Fami Construction

Manufac-  
turing

Transportation  
& Utilities

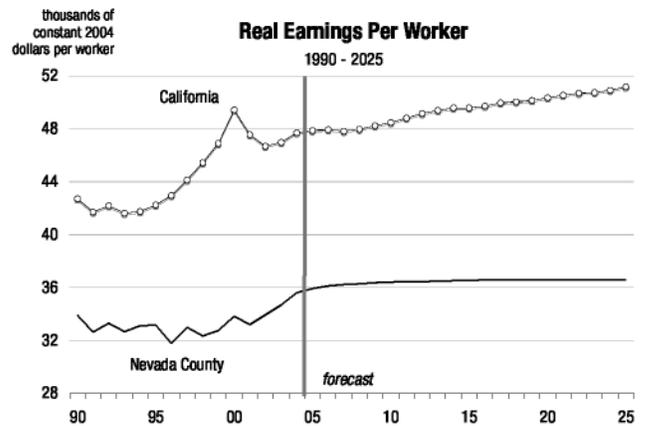
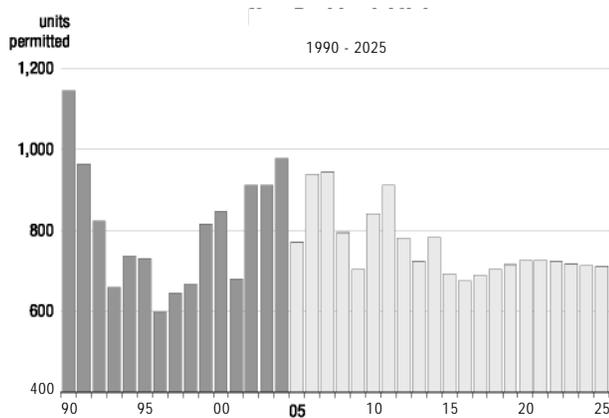
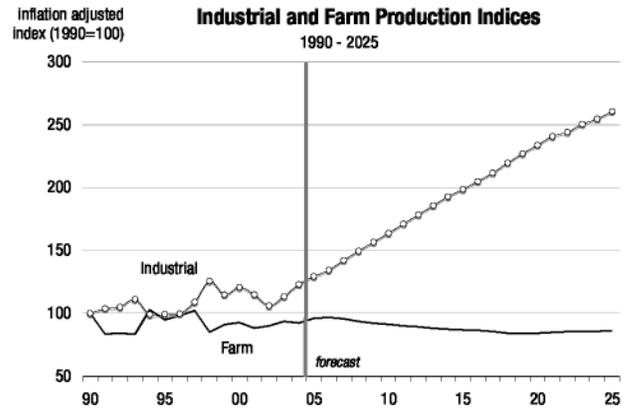
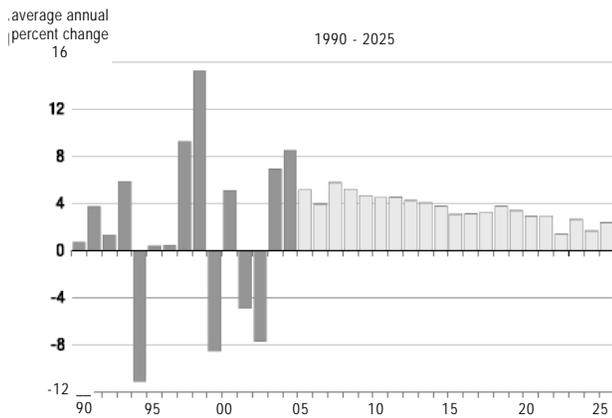
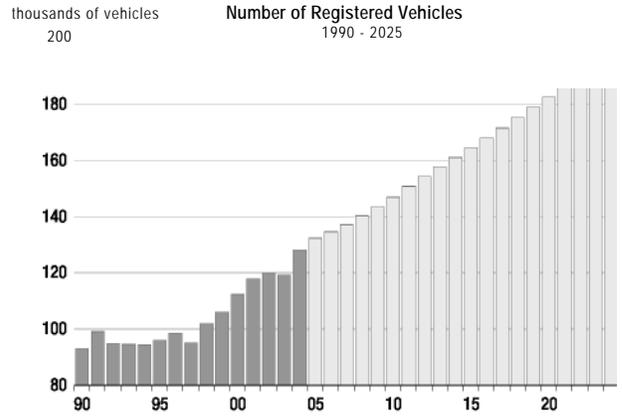
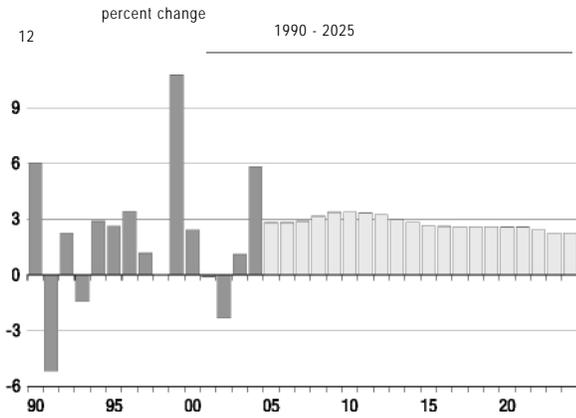
Wholesale & Financial  
Retail Trade Activities

Professional  
Services

Health &  
Infomiation Education

Leisure Government





# Nevada County Economic Forecast

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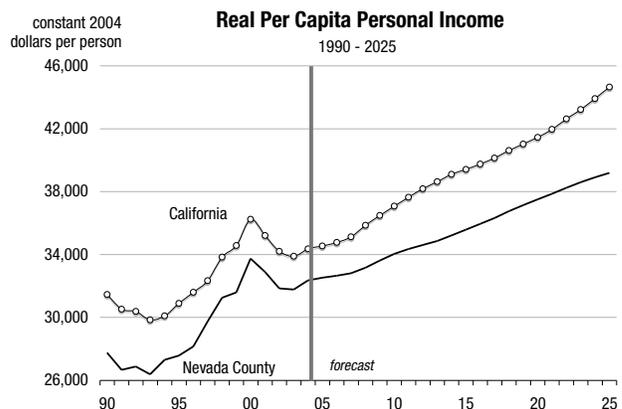
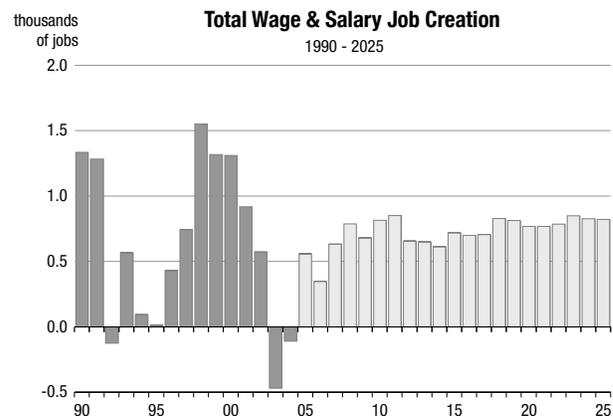
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## Forecast Highlights

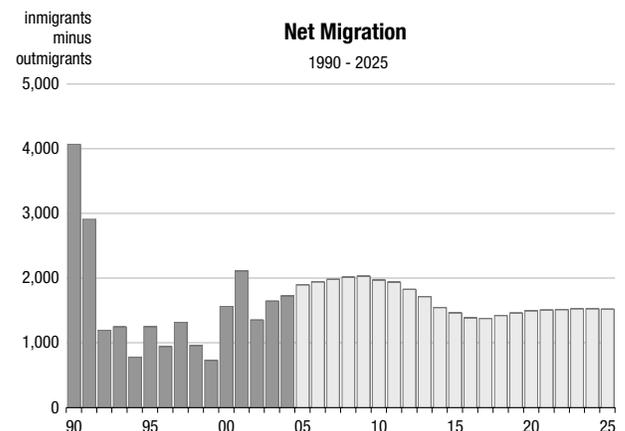
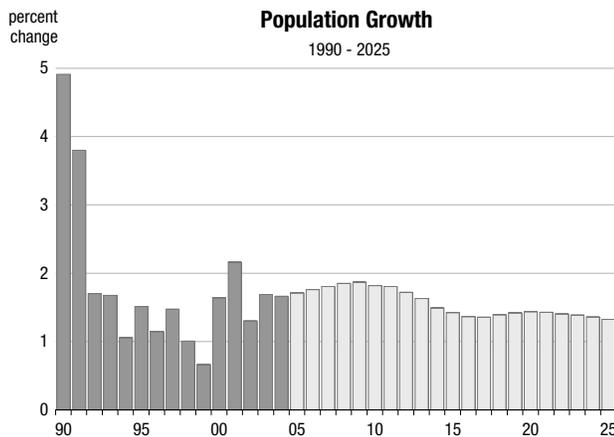
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- Real per capita income is forecast to increase 0.5 percent in 2005. Over the next five years real per capita incomes are expected to increase an average of 0.9 percent per year.
- Total taxable sales, adjusted for inflation, are forecast to increase 0.3 percent in 2005. Over the next five years real taxable sales are forecast to increase at a rate of 3.2 percent per year.
- Industrial production is forecast to increase 5.2 percent in 2005. Over the next five years the growth rate of industrial production will increase, with total production rising 4.8 percent per year. Total crop production is expected to decline an average of 1.0 percent per year between 2005 and 2010.



# Nevada County Economic Forecast

## 1995-2004 History, 2005-2025 Forecast

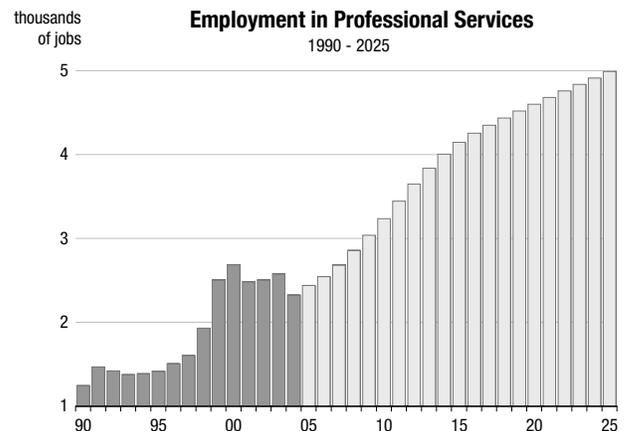
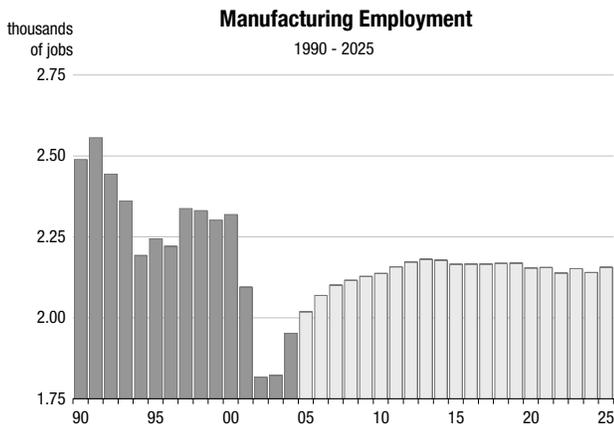
	Population (people)	Net Migration (people)	Registered Vehicles (thousands)	Households (thousands)	New Homes Permitted (homes)	Total Taxable Sales (billions)	Personal Income (billions)	Real Per Capita Income (dollars)	Inflation Rate (% change in CPI)	Real Farm Crop Value (millions)	Real Industrial Production (millions)	Unemploy- ment Rate (percent)
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2002	95,623	1,352	120.1	38.0	912	\$1.0	\$3.0	\$31,852	1.6	7.7	229.9	5.2
2003	97,239	1,646	119.3	38.6	912	\$1.1	\$3.1	\$31,777	1.8	8.0	245.9	5.5
2004	98,857	1,726	128.2	39.4	979	\$1.2	\$3.2	\$32,358	1.2	7.8	266.7	5.2
2005	100,553	1,898	132.4	40.2	771	\$1.2	\$3.3	\$32,525	1.7	8.2	280.5	4.8
2006	102,325	1,945	134.7	40.9	939	\$1.2	\$3.5	\$32,659	2.7	8.2	291.5	4.8
2007	104,173	1,983	137.2	41.6	944	\$1.3	\$3.7	\$32,807	2.6	8.1	308.3	4.7
2008	106,102	2,017	140.4	42.4	794	\$1.4	\$3.9	\$33,167	2.6	8.0	324.4	4.6
2009	108,089	2,031	143.5	43.1	705	\$1.5	\$4.1	\$33,609	2.5	7.8	339.6	4.6
2010	110,058	1,973	147.0	43.7	841	\$1.6	\$4.4	\$34,038	2.7	7.8	354.9	4.6
2011	112,047	1,941	150.9	44.4	912	\$1.7	\$4.6	\$34,344	2.7	7.7	371.0	4.6
2012	113,977	1,829	154.4	45.1	781	\$1.8	\$4.8	\$34,599	2.8	7.6	386.9	4.6
2013	115,837	1,716	157.8	45.8	724	\$1.9	\$5.1	\$34,864	2.9	7.5	402.6	4.4
2014	117,567	1,548	161.1	46.4	783	\$2.0	\$5.4	\$35,212	2.9	7.4	417.8	4.4
2015	119,244	1,465	164.6	47.0	693	\$2.1	\$5.7	\$35,579	3.1	7.4	430.7	4.4
2016	120,873	1,390	168.1	47.6	675	\$2.2	\$6.0	\$35,948	3.0	7.4	444.3	4.4
2017	122,514	1,377	171.6	48.1	690	\$2.4	\$6.3	\$36,313	2.9	7.3	458.8	4.6
2018	124,222	1,422	175.3	48.7	705	\$2.5	\$6.7	\$36,751	2.7	7.2	476.1	4.6
2019	125,988	1,462	179.1	49.3	716	\$2.6	\$7.0	\$37,140	2.8	7.2	492.3	4.7
2020	127,803	1,495	182.6	49.9	726	\$2.8	\$7.4	\$37,512	2.7	7.2	506.7	4.7
2021	129,628	1,508	185.9	50.5	726	\$2.9	\$7.7	\$37,866	2.6	7.2	521.7	4.7
2022	131,449	1,516	188.9	51.1	723	\$3.1	\$8.1	\$38,242	2.6	7.3	529.0	4.7
2023	133,274	1,530	192.1	51.7	717	\$3.2	\$8.6	\$38,602	2.7	7.3	543.0	4.7
2024	135,086	1,528	195.2	52.3	713	\$3.4	\$9.0	\$38,912	2.7	7.3	552.1	4.7
2025	136,877	1,522	198.2	52.9	711	\$3.6	\$9.4	\$39,189	2.7	7.3	565.3	4.7

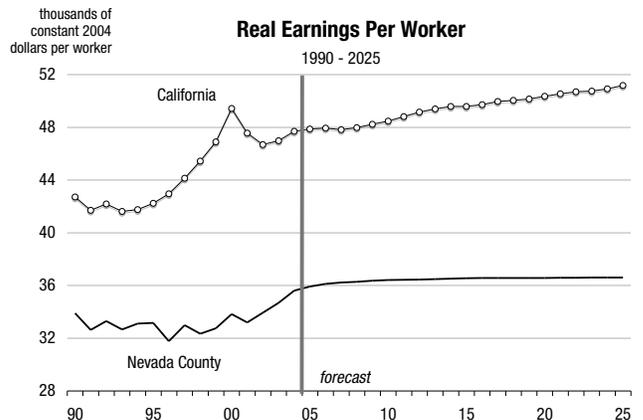
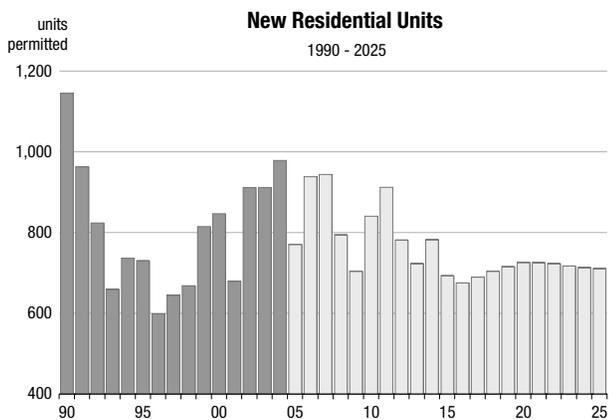
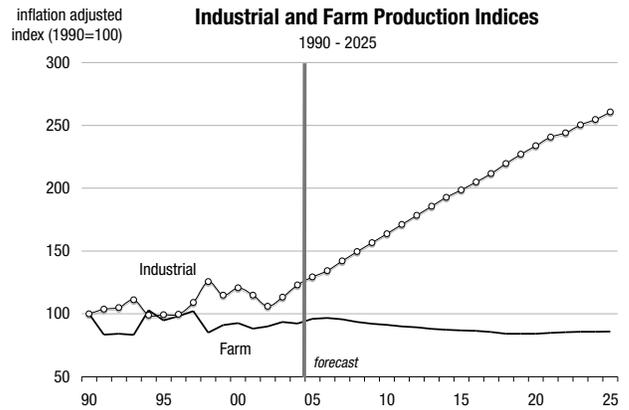
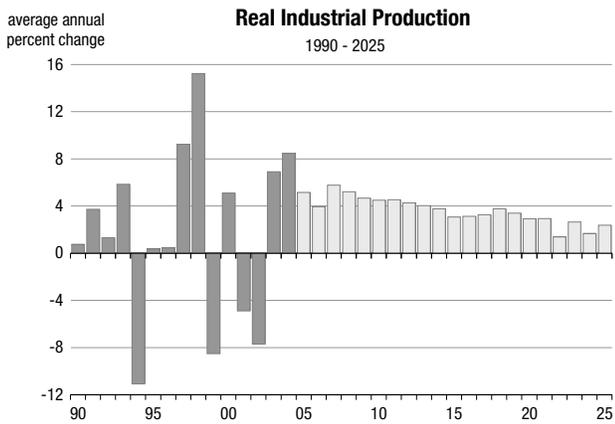
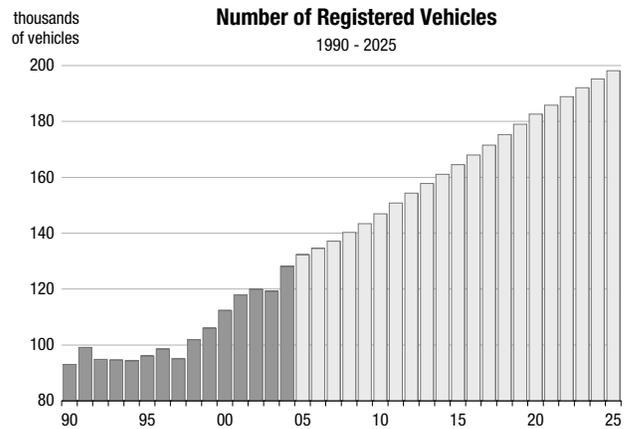
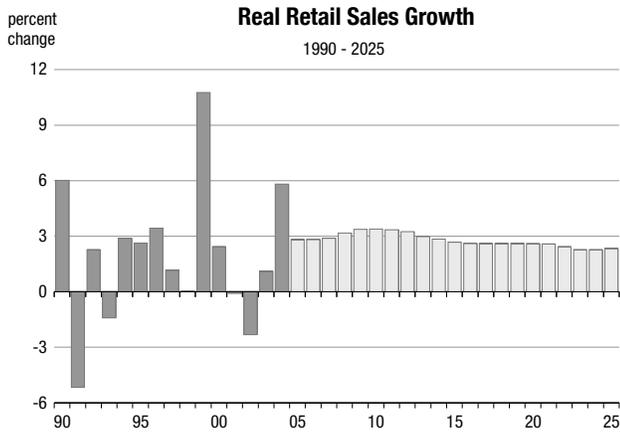


# Nevada County Employment Forecast

## 1995-2004 History, 2005-2025 Forecast

	Total Wage & Salary	Farm	Mining & Construction	Manufacturing	Transportation & Utilities	Wholesale & Retail Trade	Financial Activities	Professional Services	Information	Health & Education	Leisure	Government
1995	22.6	0.08	1.64	2.24	0.44	4.01	1.40	1.42	0.36	2.74	3.16	4.50
1996	23.0	0.10	1.90	2.22	0.43	4.14	1.31	1.51	0.34	2.59	3.13	4.70
1997	23.8	0.11	1.92	2.34	0.47	4.36	1.31	1.61	0.39	2.59	3.11	4.89
1998	25.3	0.13	2.34	2.33	0.71	4.44	1.34	1.93	0.38	2.65	3.41	4.95
1999	26.7	0.15	2.66	2.30	0.48	4.62	1.42	2.51	0.40	2.82	3.49	5.06
2000	28.0	0.09	2.92	2.32	0.46	4.86	1.46	2.69	0.37	3.01	3.65	5.33
2001	28.9	0.10	3.29	2.10	0.54	4.66	1.61	2.49	0.38	3.43	3.67	5.56
2002	29.5	0.10	3.32	1.82	0.55	4.76	1.73	2.51	0.39	3.58	3.80	5.81
2003	29.0	0.10	3.05	1.82	0.53	4.58	1.66	2.58	0.36	3.82	3.74	5.66
2004	28.9	0.09	3.24	1.95	0.51	4.52	1.65	2.33	0.36	3.84	3.88	5.43
2005	29.4	0.09	3.23	2.02	0.52	4.58	1.64	2.44	0.36	3.91	4.00	5.53
2006	29.8	0.09	3.14	2.07	0.53	4.65	1.64	2.54	0.37	3.97	4.10	5.55
2007	30.4	0.09	3.22	2.10	0.54	4.72	1.63	2.69	0.37	4.00	4.20	5.64
2008	31.2	0.09	3.33	2.12	0.56	4.81	1.62	2.86	0.38	4.03	4.32	5.80
2009	31.9	0.09	3.29	2.13	0.57	4.90	1.62	3.04	0.38	4.05	4.43	5.99
2010	32.7	0.09	3.40	2.14	0.58	5.00	1.62	3.24	0.38	4.06	4.54	6.16
2011	33.6	0.09	3.56	2.16	0.59	5.09	1.61	3.45	0.39	4.09	4.65	6.31
2012	34.2	0.09	3.50	2.17	0.60	5.18	1.62	3.65	0.39	4.14	4.74	6.46
2013	34.9	0.09	3.46	2.18	0.61	5.27	1.63	3.84	0.40	4.22	4.83	6.59
2014	35.5	0.09	3.39	2.18	0.62	5.35	1.67	4.01	0.40	4.33	4.92	6.72
2015	36.2	0.09	3.42	2.17	0.64	5.43	1.70	4.15	0.40	4.46	5.01	6.85
2016	36.9	0.09	3.42	2.17	0.65	5.51	1.73	4.26	0.40	4.63	5.11	6.99
2017	37.6	0.09	3.41	2.17	0.66	5.59	1.77	4.35	0.41	4.82	5.20	7.13
2018	38.4	0.09	3.48	2.17	0.67	5.67	1.79	4.44	0.41	5.03	5.29	7.29
2019	39.3	0.09	3.51	2.17	0.68	5.74	1.81	4.52	0.41	5.27	5.38	7.47
2020	40.0	0.09	3.53	2.15	0.69	5.82	1.83	4.60	0.41	5.53	5.45	7.63
2021	40.8	0.09	3.53	2.16	0.70	5.90	1.86	4.68	0.42	5.79	5.50	7.79
2022	41.6	0.09	3.53	2.14	0.71	5.98	1.89	4.76	0.42	6.05	5.56	7.97
2023	42.4	0.09	3.60	2.15	0.72	6.05	1.91	4.84	0.42	6.32	5.60	8.14
2024	43.3	0.09	3.66	2.14	0.73	6.12	1.94	4.91	0.42	6.59	5.64	8.32
2025	44.1	0.09	3.73	2.16	0.74	6.20	1.96	4.99	0.43	6.85	5.68	8.48





# Nevada County Economic Forecast

Nevada County is located on the California-Nevada state border. The county is north of Placer County, east of Yuba County, and south of Sierra County. Nevada County has a population of 98,955 people and 28,890 wage and salary jobs. The per capita income in Nevada County is \$32,360, and the average salary per worker is \$35,610. The median household income was \$63,600 in 2005.

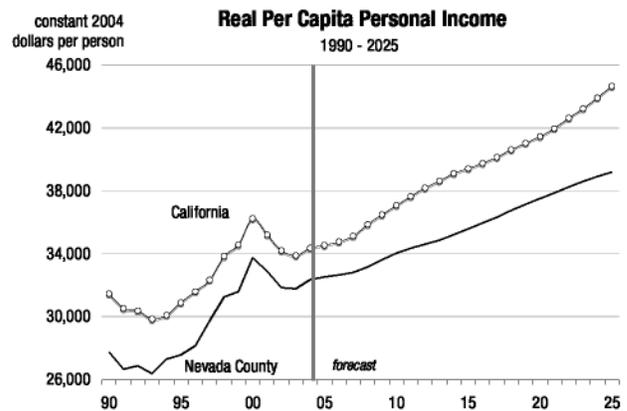
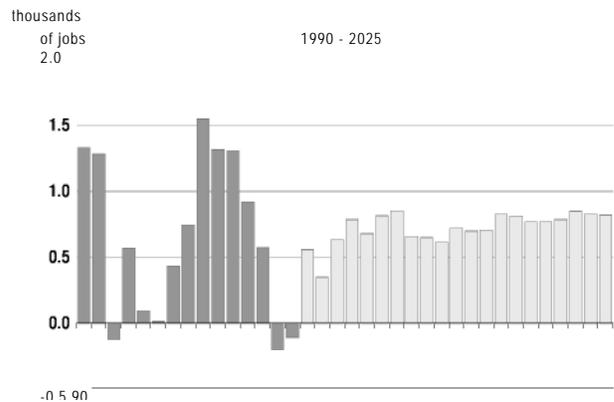
In 2004, 109 total wage and salary jobs were lost in Nevada County, representing a decline in employment of 0.4 percent. Non-farm employment, which accounts for over 99 percent of total employment in the county, lost 102 jobs last year. The unemployment rate declined however, to 5.2 percent in 2004.

The principal sectors that are producing jobs in Nevada County are leisure services, manufacturing, and construction. Each of these sectors created 130 or more jobs in 2004. Several sectors lost a significant number of jobs last year. Employment in professional services and government declined 250 and 220 jobs respectively. The largest employment sectors in the county are retail, leisure services, education and healthcare services, and government. Many of the largest employers in the county are related to tourism, including Soda Springs Ski Area, Sugar Bowl Ski Resort, and Boreal Mountain Resort.

The population grew in Nevada County at a rate of 1.7 percent in 2004. The fastest growing cities in the county are Grass Valley and Truckee, which grew 6.0 and 2.4 percent respectively from January 2004 to January 2005. Truckee is the largest city in the county with 15,657 residents. Net migration was positive last year, with an estimated total of 1,730 migrants entering the county.

## Forecast Highlights

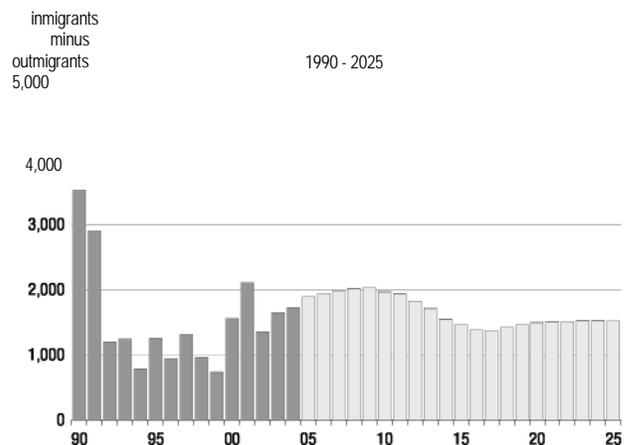
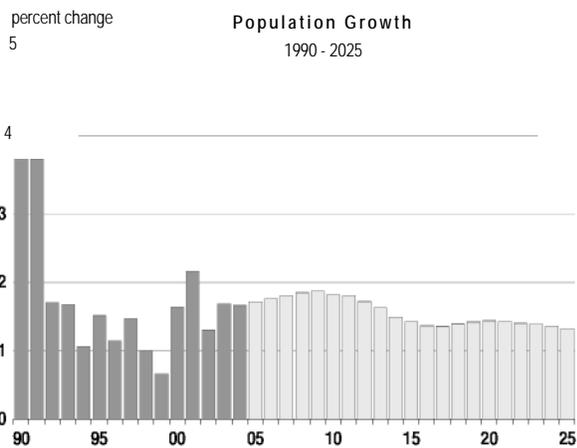
- Non-farm employment growth is forecast to turn positive in 2005, rising 1.9 percent. Job growth is expected to continue to rise over the next five years, and will average 2.1 percent per year over that time period.
- Average salaries adjusted for inflation are currently below the California state average, and will remain so over the forecast period. Inflation adjusted salaries are expected to rise an average of 0.3 percent per year over the next 5 years.
- Between 2005 and 2010, the momentum for employment growth is in professional services, leisure services, and government. These sectors account for over 60 percent of all jobs created in the county over the next five years.
- The population in the county will continue to grow, and at a faster rate than the state average. Annual growth in the 2005 to 2010 period averages 1.8 percent per year. The growth rate in the state over that same time period averages 1.5 percent per year.
- Net migration is expected to reach 1,900 net migrants entering the county in 2005. Over the next five years average net migration will increase slightly to approximately 2,000 net migrants per year.
- Real per capita income is forecast to increase 0.5 percent in 2005. Over the next five years real per capita incomes are expected to increase an average of 0.9 percent per year.
- Total taxable sales, adjusted for inflation, are forecast to increase 0.3 percent in 2005. Over the next five years real taxable sales are forecast to increase at a rate of 3.2 percent per year.
- Industrial production is forecast to increase 5.2 percent in 2005. Over the next five years the growth rate of industrial production will increase, with total production rising 4.8 percent per year. Total crop production is expected to decline an average of 1.0 percent per year between 2005 and 2010.



# Nevada County Economic Forecast

## 1995-2004 History, 2005-2025 Forecast

	Population (people)	Net Migration (people)	Registered Vehicles (thousands)	Households (thousands)		Personal Income (billions)	Real Per Capita Income (dollars)	Inflation Rate (% change in CPI)	Real Farm Crop Value (millions)	Real Industrial Production (millions)	Unemploy- ment Rate (percent)	
1995	87,100	1,250	96.1	34.1	730	\$0.7	\$1.8	\$27,565	2.0	8.1	215.3	7.6
1996	88,100	946	98.5	34.5	599	\$0.7	\$1.9	\$28,152	2.3	8.4	216.3	7.0
1997	89,400	1,318	95.1	35.0	645	\$0.8	\$2.1	\$29,733	3.4	8.7	236.3	6.2
1998	90,300	958	102.0	35.4	668	\$0.8	\$2.3	\$31,247	3.2	7.2	272.4	5.5
1999	90,900	729	106.1	36.0	815	\$0.9	\$2.5	\$31,588	4.2	7.7	249.2	4.1
2000	92,393	1,564	112.4	36.9	847	\$1.0	\$2.8	\$33,749	4.5	7.9	261.9	4.0
2001	94,393	2,114	118.0	37.4	680	\$1.0	\$3.0	\$32,886	5.4	7.5	249.1	4.3
2002	95,623	1,352	120.1	38.0	912	\$1.0	\$3.0	\$31,852	1.6	7.7	229.9	5.2
2003	97,239	1,646	119.3	38.6	912	\$1.1	\$3.1	\$31,777	1.8	8.0	245.9	5.5
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Total Wage  
& Salary

Mining &  
Fami Construction

Manufac-  
turing

Transportation  
& Utilities

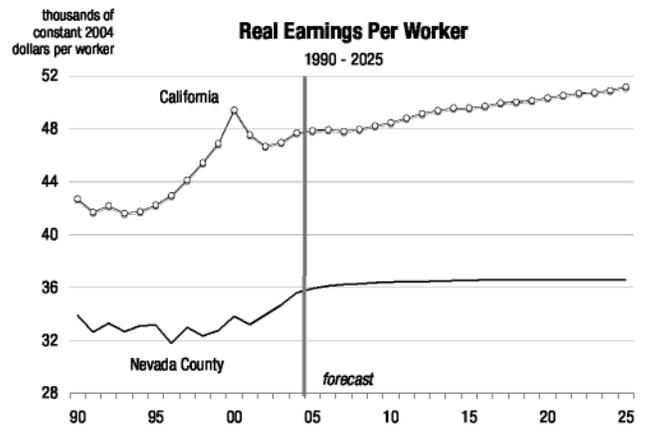
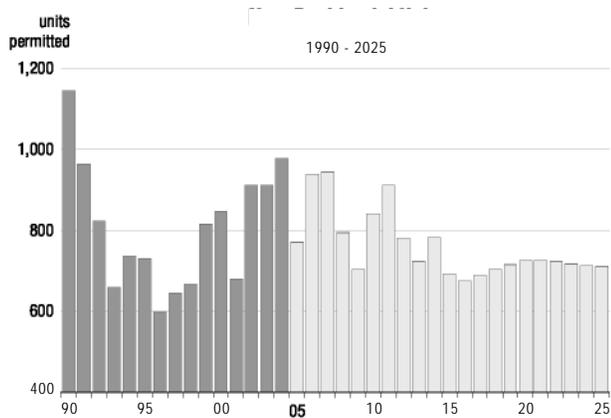
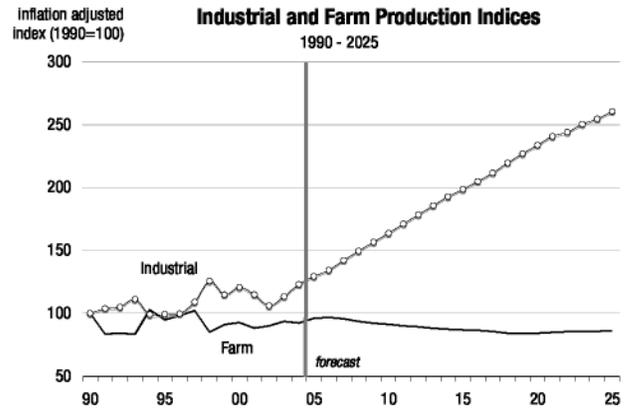
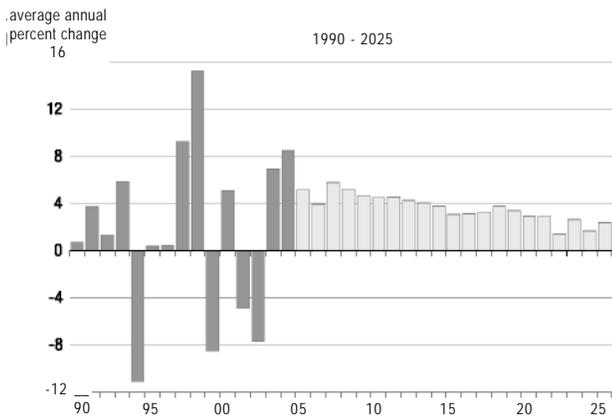
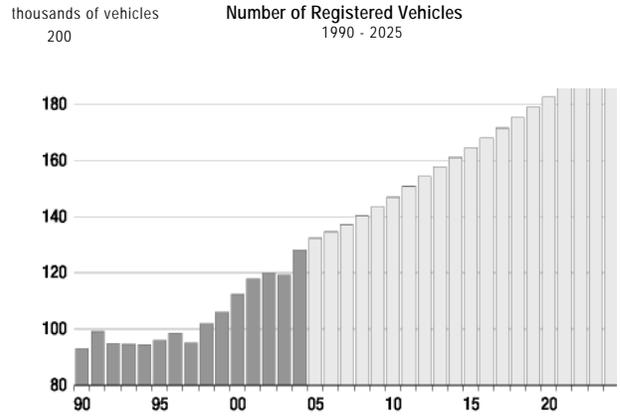
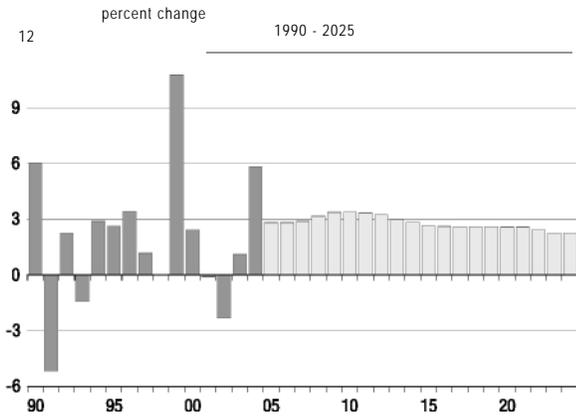
Wholesale & Financial  
Retail Trade Activities

Professional  
Services

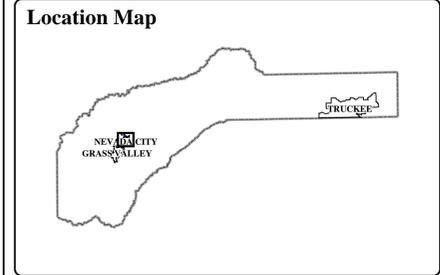
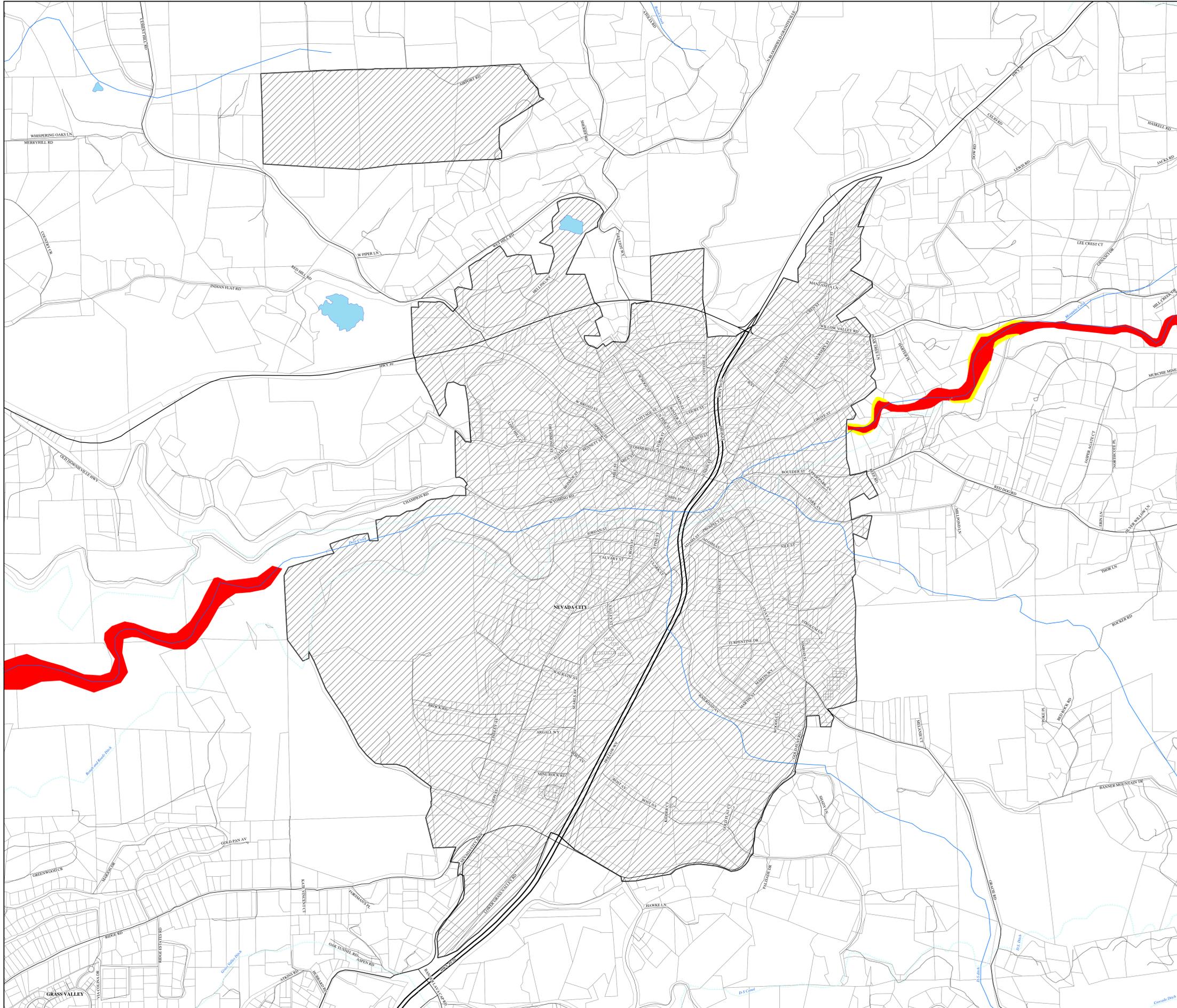
Health &  
Infomiation Education

Leisure Government





# Nevada City Flood Hazards



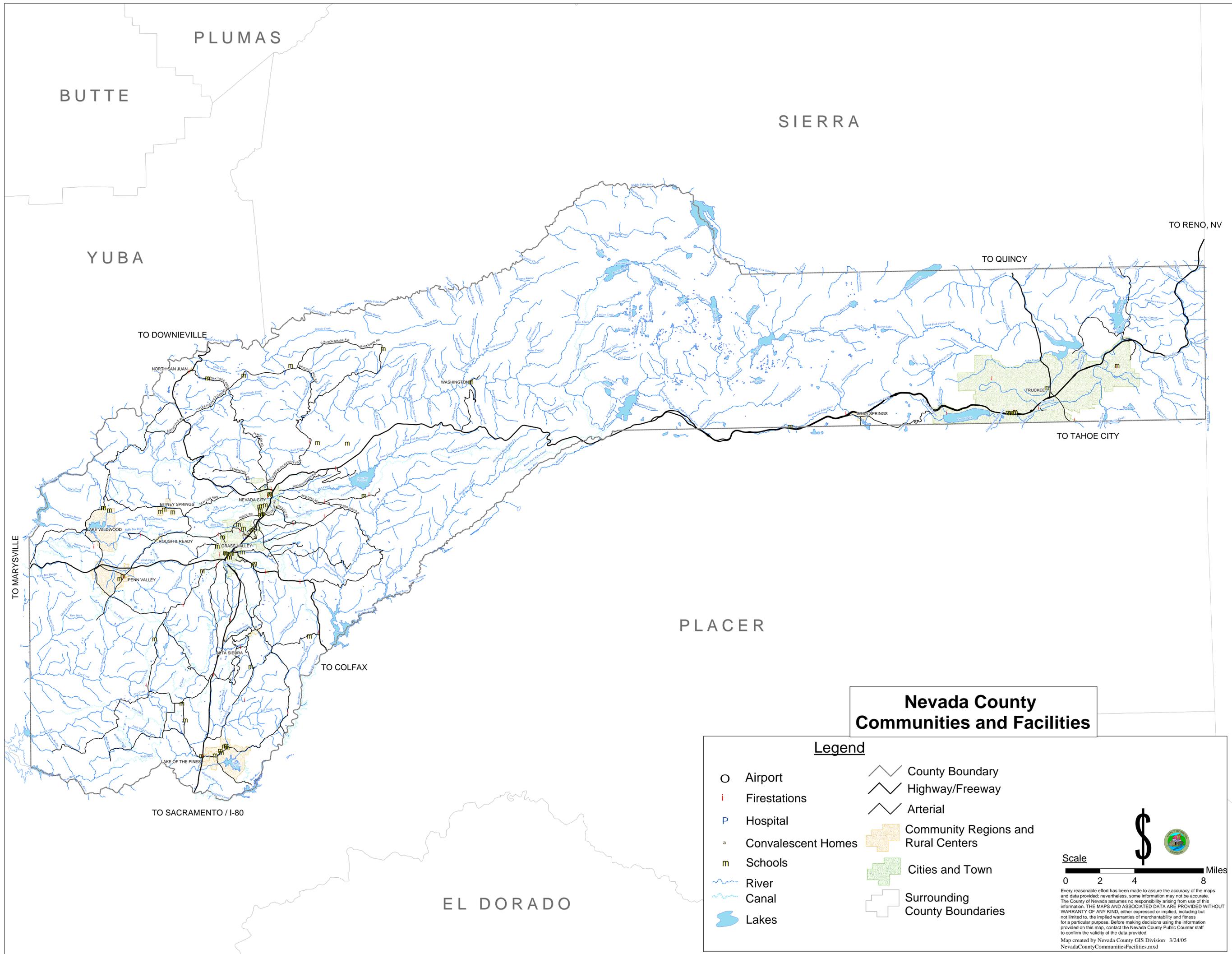
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- Highway/Freeway
  - Arterials
  - Collector
  - Local Road
  - River
  - Canal
  - Lakes
  - Parcels
  - NEVADA CITY
  - FEMA Flood Plain
    - 100-Year Flood Boundary
    - 500-Year Flood Boundary



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NevadaCityFloodHazards.mxd

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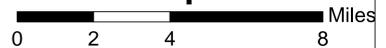


## Nevada County Communities and Facilities

### Legend

- |   |                    |  |                                     |
|---|--------------------|--|-------------------------------------|
| ○ | Airport            |  | County Boundary                     |
| i | Firestations       |  | Highway/Freeway                     |
| P | Hospital           |  | Arterial                            |
| ⋄ | Convalescent Homes |  | Community Regions and Rural Centers |
| m | Schools            |  | Cities and Town                     |
|   | River              |  | Surrounding County Boundaries       |
|   | Canal              |  |                                     |
|   | Lakes              |  |                                     |

### Scale



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NevadaCountyCommunitiesFacilities.mxd

SIERRA

PLACER

### Nevada County Communities and Facilities Eastern County

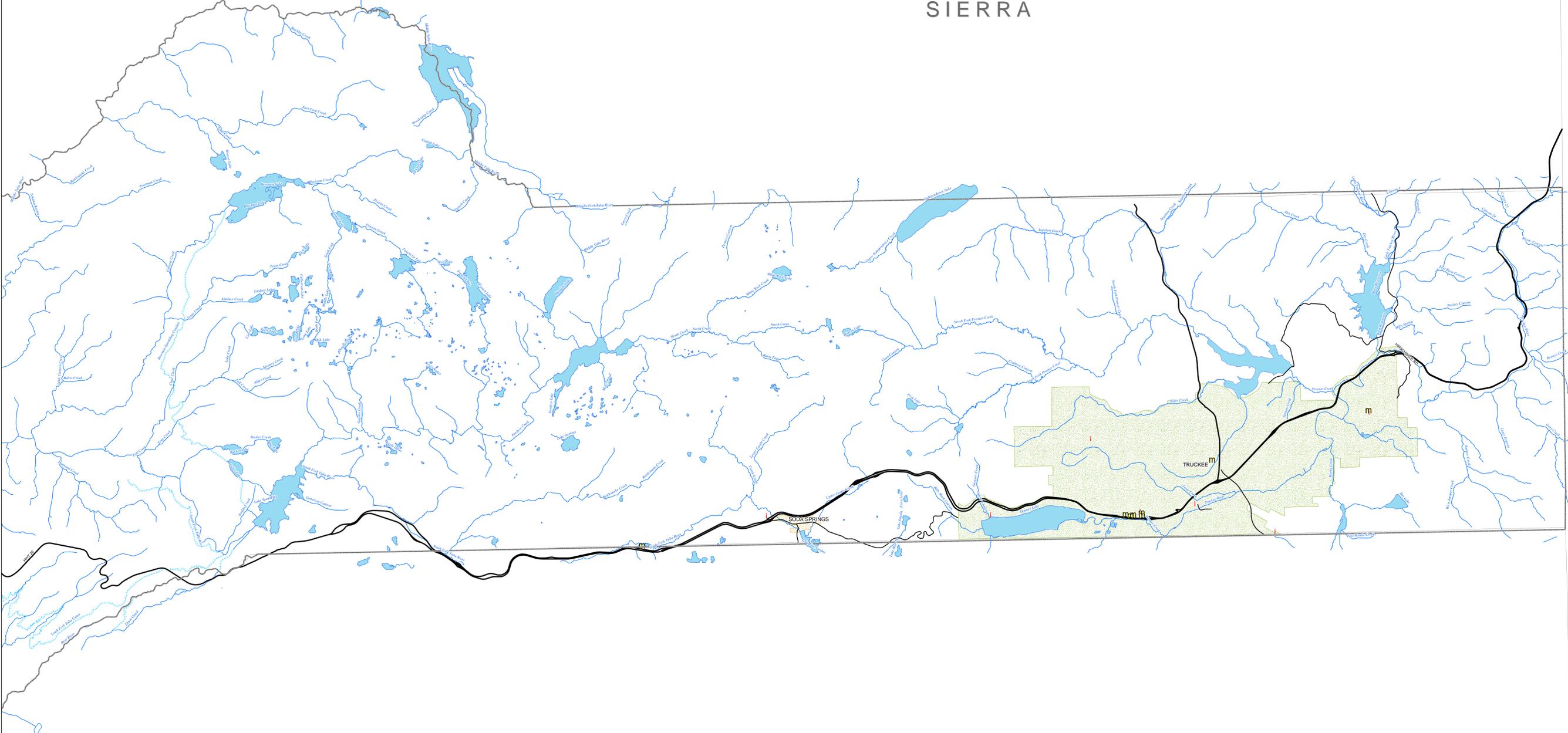
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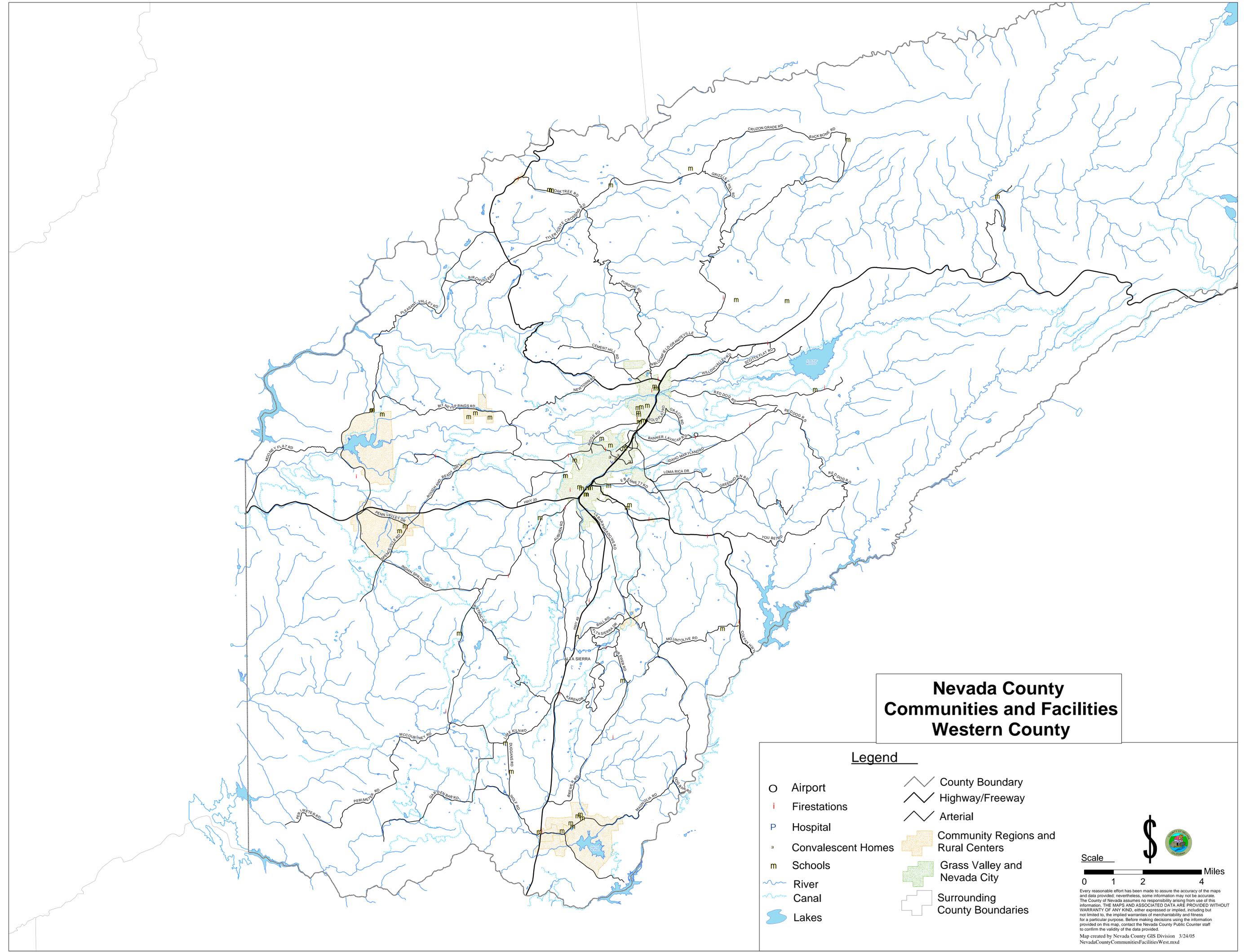
- i Firestations
- P Hospital
- \* Convalescent Homes
- m Schools
- ~ River
- ~ Canal
- Lakes
- County Boundary
- Highway/Freeway
- Arterial
- Community Regions and Rural Centers
- Town of Truckee
- Surrounding County Boundaries



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NevadaCountyCommunitiesFacilitiesEast.mxd





## Nevada County Communities and Facilities Western County

### Legend

- |                    |                                     |
|--------------------|-------------------------------------|
| Airport            | County Boundary                     |
| Firestations       | Highway/Freeway                     |
| Hospital           | Arterial                            |
| Convalescent Homes | Community Regions and Rural Centers |
| Schools            | Grass Valley and Nevada City        |
| River              | Surrounding County Boundaries       |
| Canal              |                                     |
| Lakes              |                                     |



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Map created by Nevada County GIS Division 3/24/05  
NevadaCountyCommunitiesFacilitiesWest.mxd

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### Watershed Hydrology Eastern Nevada County

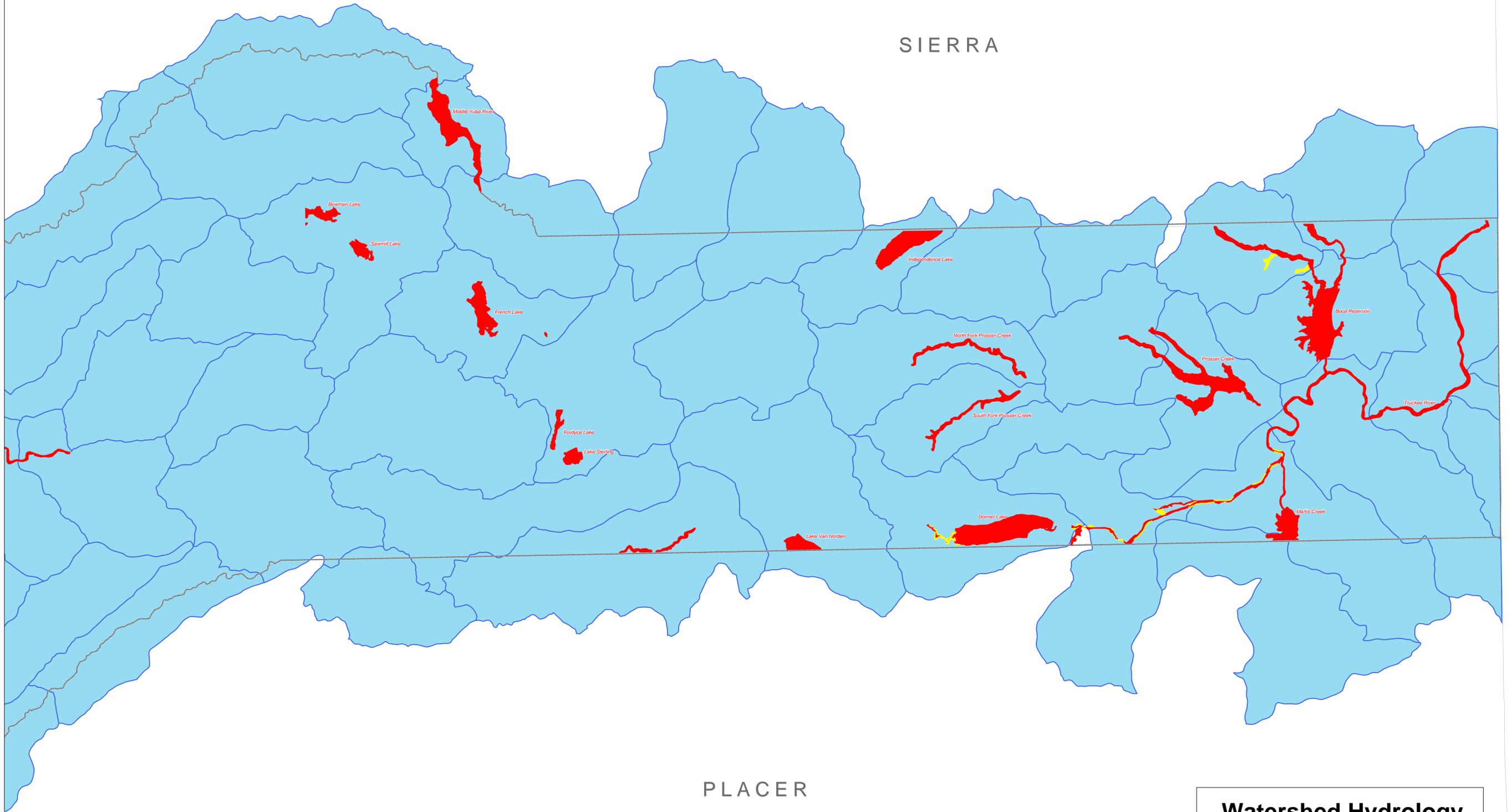
**Legend**

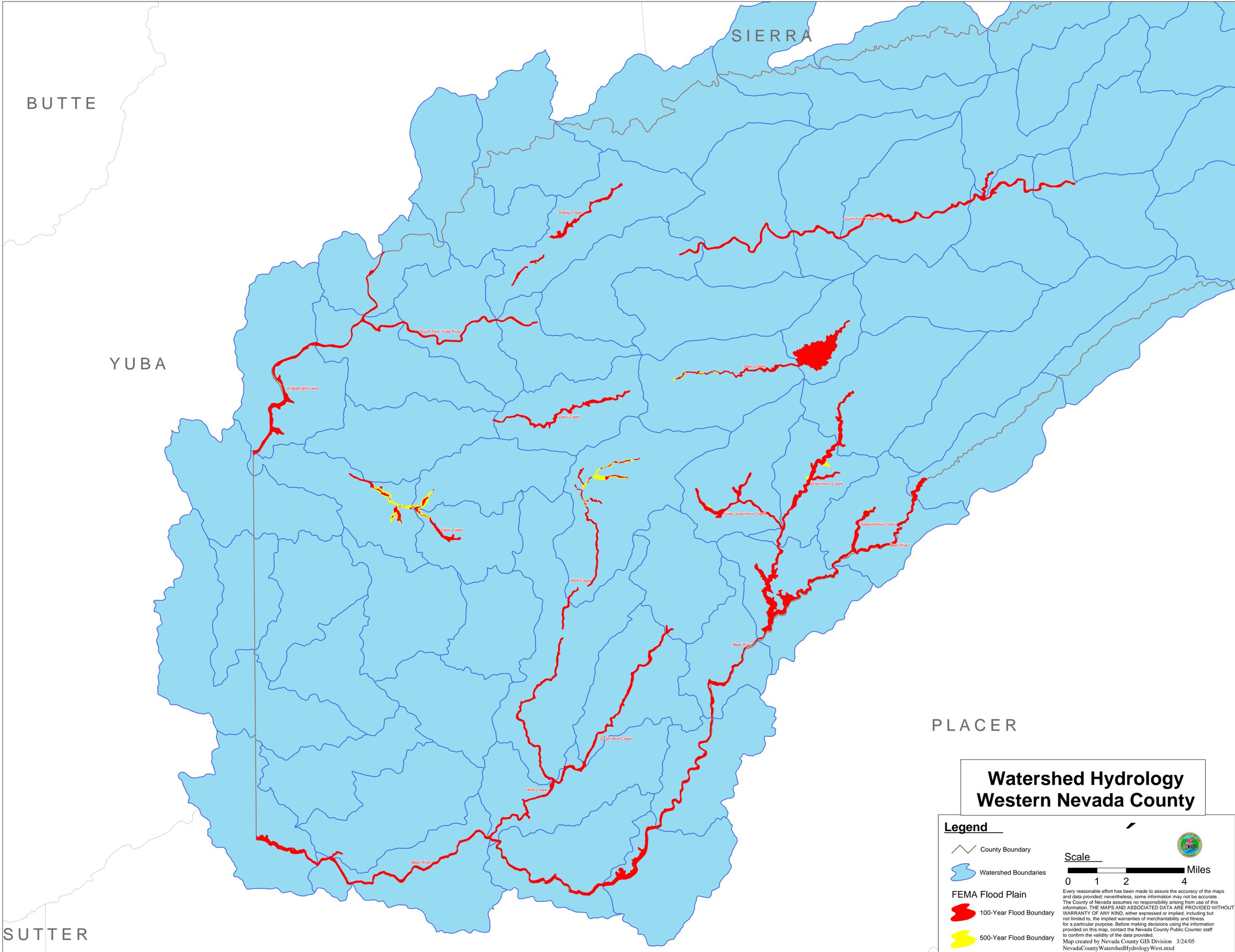
- County Boundary
- Watershed Boundaries
- FEMA Flood Plain**
  - 100-Year Flood Boundary
  - 500-Year Flood Boundary

**Scale**

0 1 2 4 Miles

Every reasonable effort has been made to assure the accuracy of the maps and data provided; nevertheless, some information may not be accurate. The County of Nevada assumes no responsibility arising from use of this information. THE MAPS AND ASSOCIATED DATA ARE PROVIDED WITHOUT WARRANTY OF ANY KIND, either expressed or implied, including but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Before making decisions using the information provided on this map, contact the Nevada County Public Counter staff to confirm the validity of the data provided.  
Map created by Nevada County GIS Division 3/24/05  
NevadaCountyWatershedHydrologyEast.mxd





## Watershed Hydrology Western Nevada County

### Legend

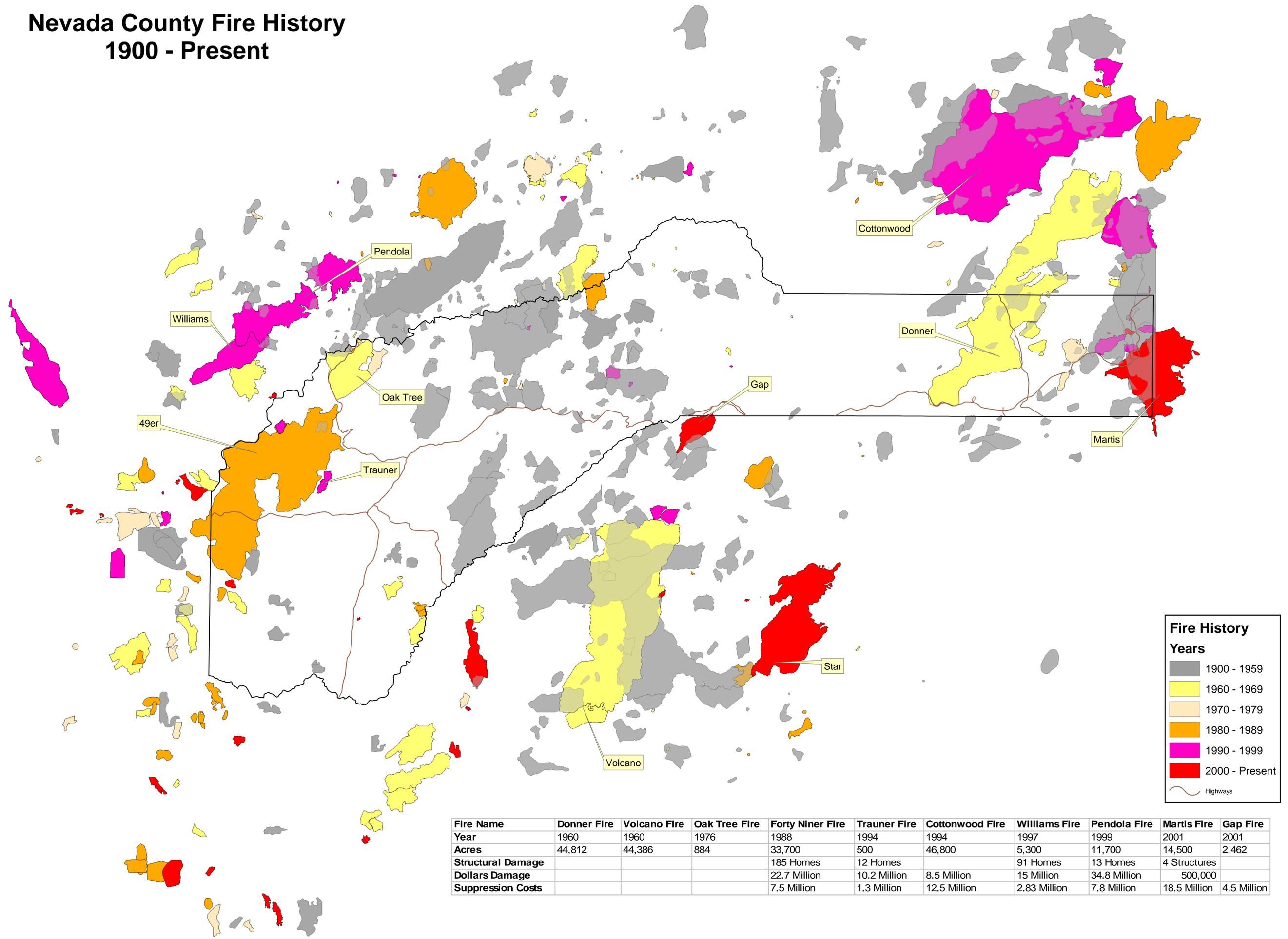
-  County Boundary
-  Watershed Boundaries
- FEMA Flood Plain**
-  100-Year Flood Boundary
-  500-Year Flood Boundary



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Map created by Nevada County GIS Division 3/24/05  
NevadaCountyWatershedHydrologyWest.mxd



# Nevada County Fire History 1900 - Present



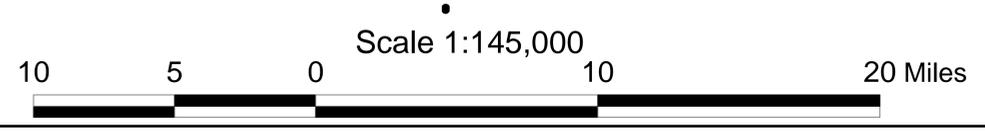
**Fire History**

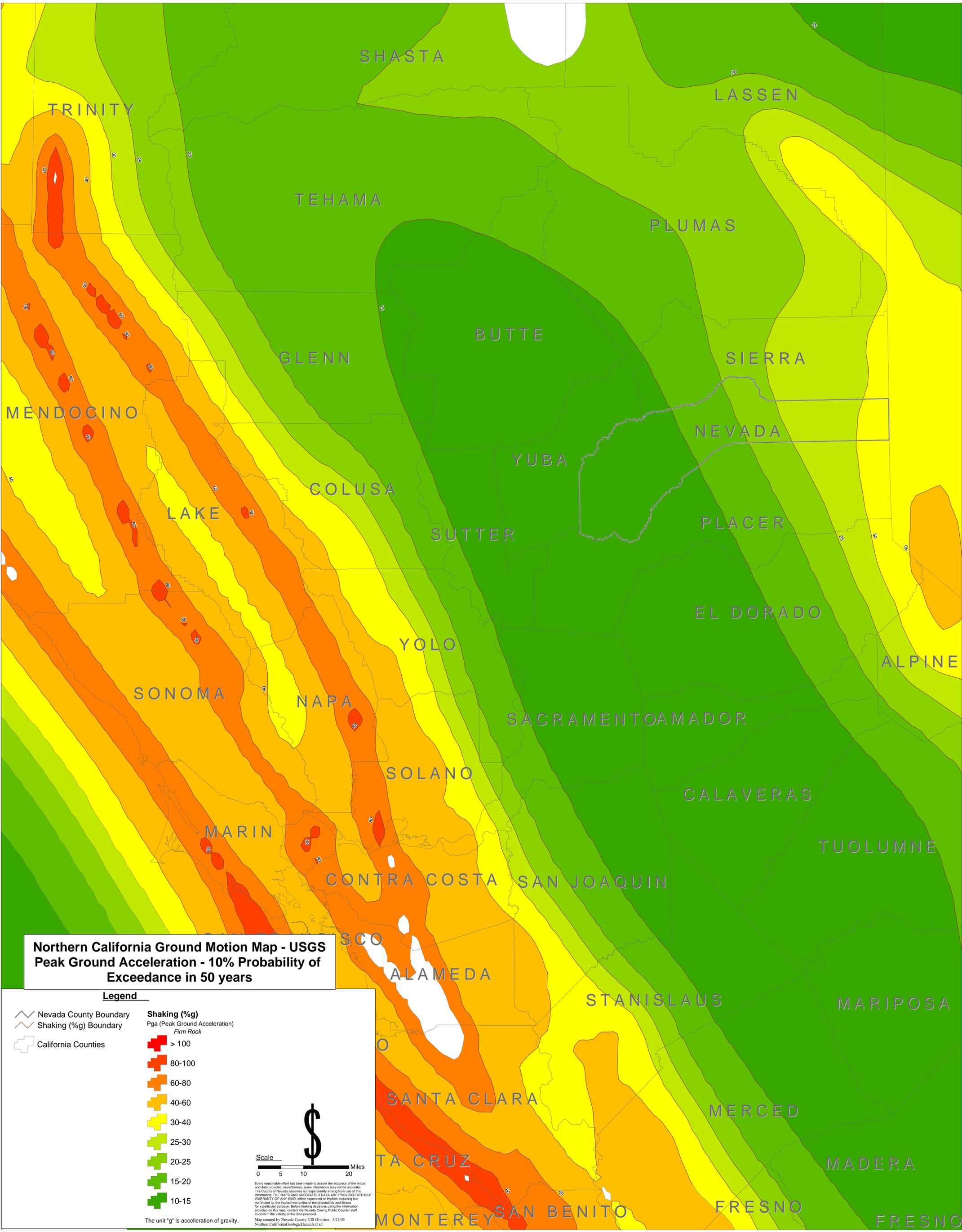
**Years**

- 1900 - 1959
- 1960 - 1969
- 1970 - 1979
- 1980 - 1989
- 1990 - 1999
- 2000 - Present

Highways

Fire Name	Donner Fire	Volcano Fire	Oak Tree Fire	Forty Niner Fire	Trauner Fire	Cottonwood Fire	Williams Fire	Pendola Fire	Martis Fire	Gap Fire
Year	1960	1960	1976	1988	1994	1994	1997	1999	2001	2001
Acres	44,812	44,386	884	33,700	500	46,800	5,300	11,700	14,500	2,462
Structural Damage				185 Homes	12 Homes		91 Homes	13 Homes	4 Structures	
Dollars Damage				22.7 Million	10.2 Million	8.5 Million	15 Million	34.8 Million	500,000	
Suppression Costs				7.5 Million	1.3 Million	12.5 Million	2.83 Million	7.8 Million	18.5 Million	4.5 Million





**Northern California Ground Motion Map - USGS  
Peak Ground Acceleration - 10% Probability of  
Exceedance in 50 years**

**Legend**

- Nevada County Boundary
- Shaking (%g) Boundary
- California Counties

**Shaking (%g)**  
Pga (Peak Ground Acceleration)  
Firm Rock

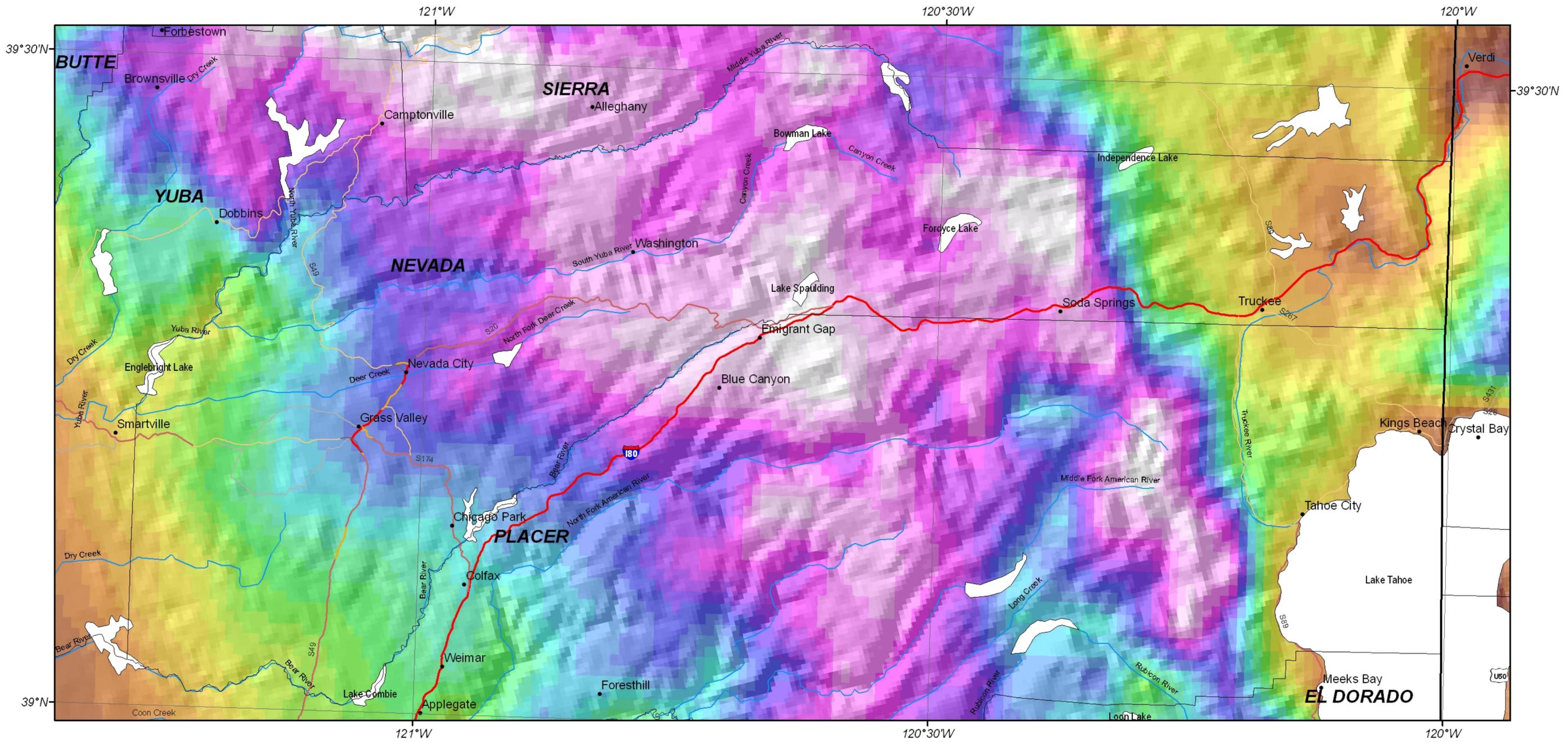
- > 100
- 80-100
- 60-80
- 40-60
- 30-40
- 25-30
- 20-25
- 15-20
- 10-15

The unit "g" is acceleration of gravity.

**Scale**  
0 5 10 20 Miles

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Map created by Nevada County GIS Division 3/24/05  
NorthernCaliforniaGeologicHazards.mxd

# 1971-2000 Mean Annual Precipitation Nevada County, California



**Precipitation (inches)**

≤ 20.0	26.1 - 28.0	34.1 - 36.0	42.1 - 44.0	50.1 - 52.0	58.1 - 60.0	66.1 - 68.0
20.1 - 22.0	28.1 - 30.0	36.1 - 38.0	44.1 - 46.0	52.1 - 54.0	60.1 - 62.0	68.1 - 70.0
22.1 - 24.0	30.1 - 32.0	38.1 - 40.0	46.1 - 48.0	54.1 - 56.0	62.1 - 64.0	70.1 - 72.0
24.1 - 26.0	32.1 - 34.0	40.1 - 42.0	48.1 - 50.0	56.1 - 58.0	64.1 - 66.0	> 72.0



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### Potential Urban and Rural Growth Eastern Nevada County

#### Legend

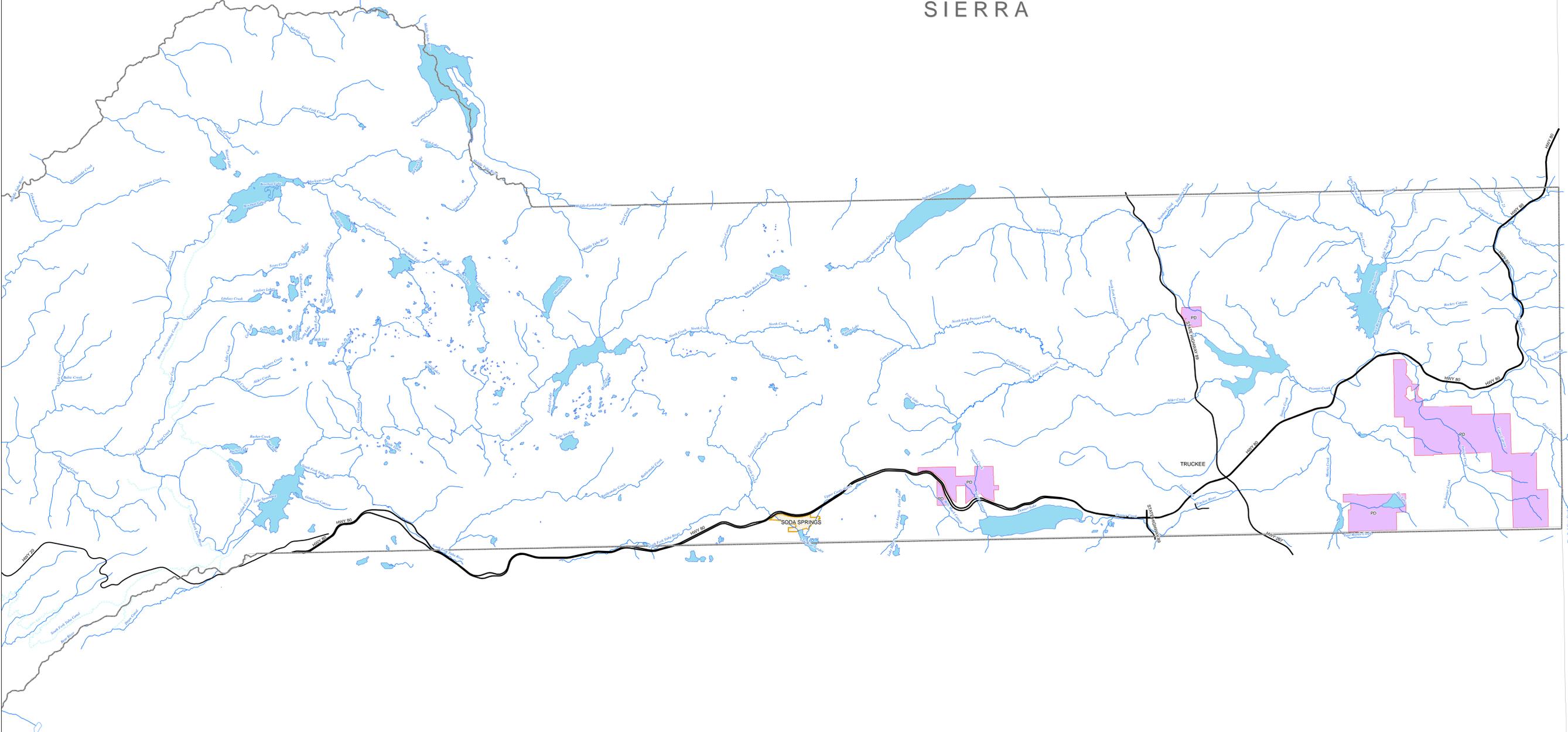
-  County Boundary
-  Highway/Freeway
-  Arterial
-  River
-  Canal
-  Lakes

- Nevada County  
General Plan Designation
-  PD - Planned Development
-  Community Regions and Rural Centers
-  Town of Truckee
-  Surrounding County Boundaries

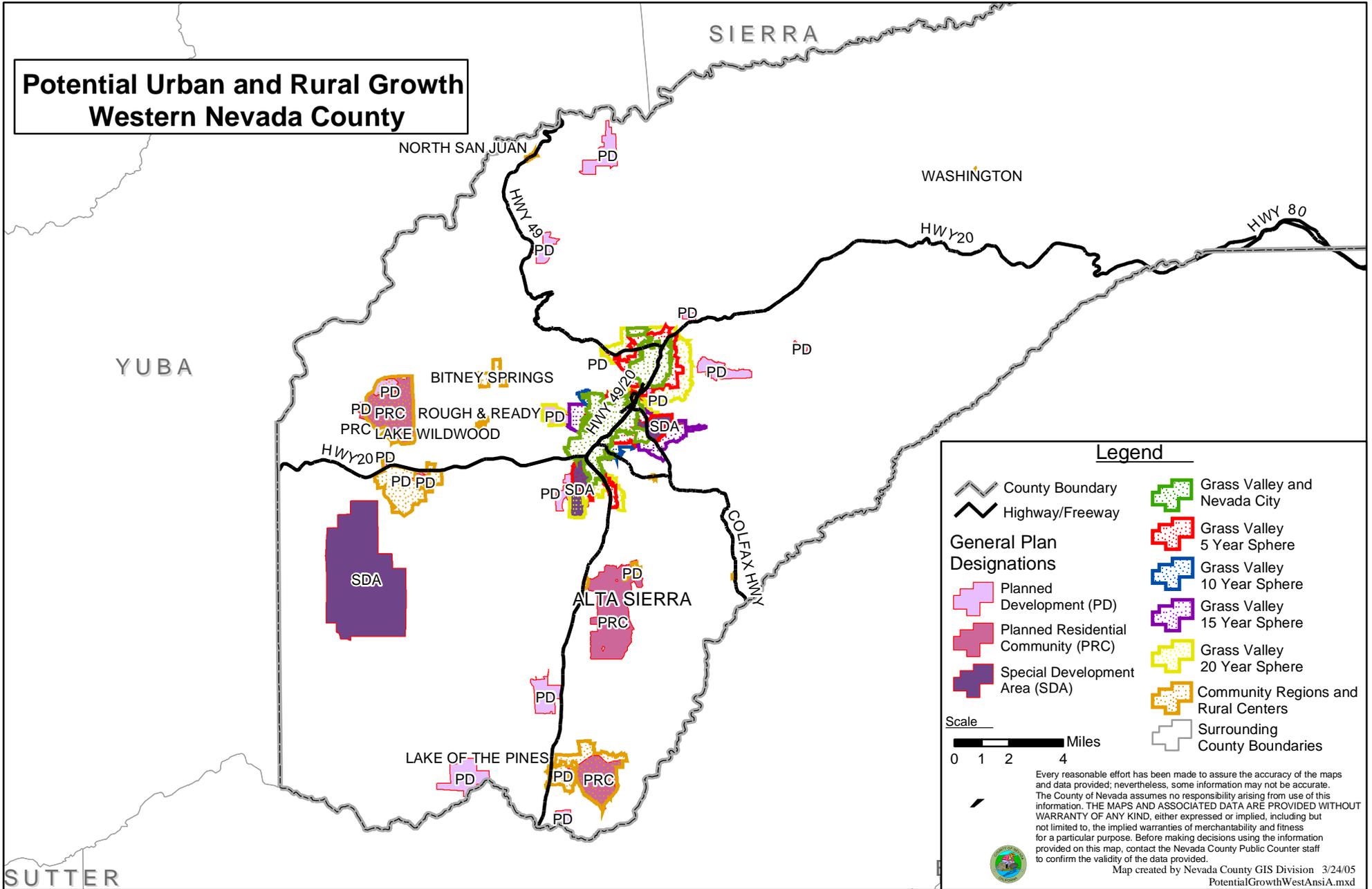


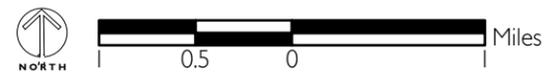
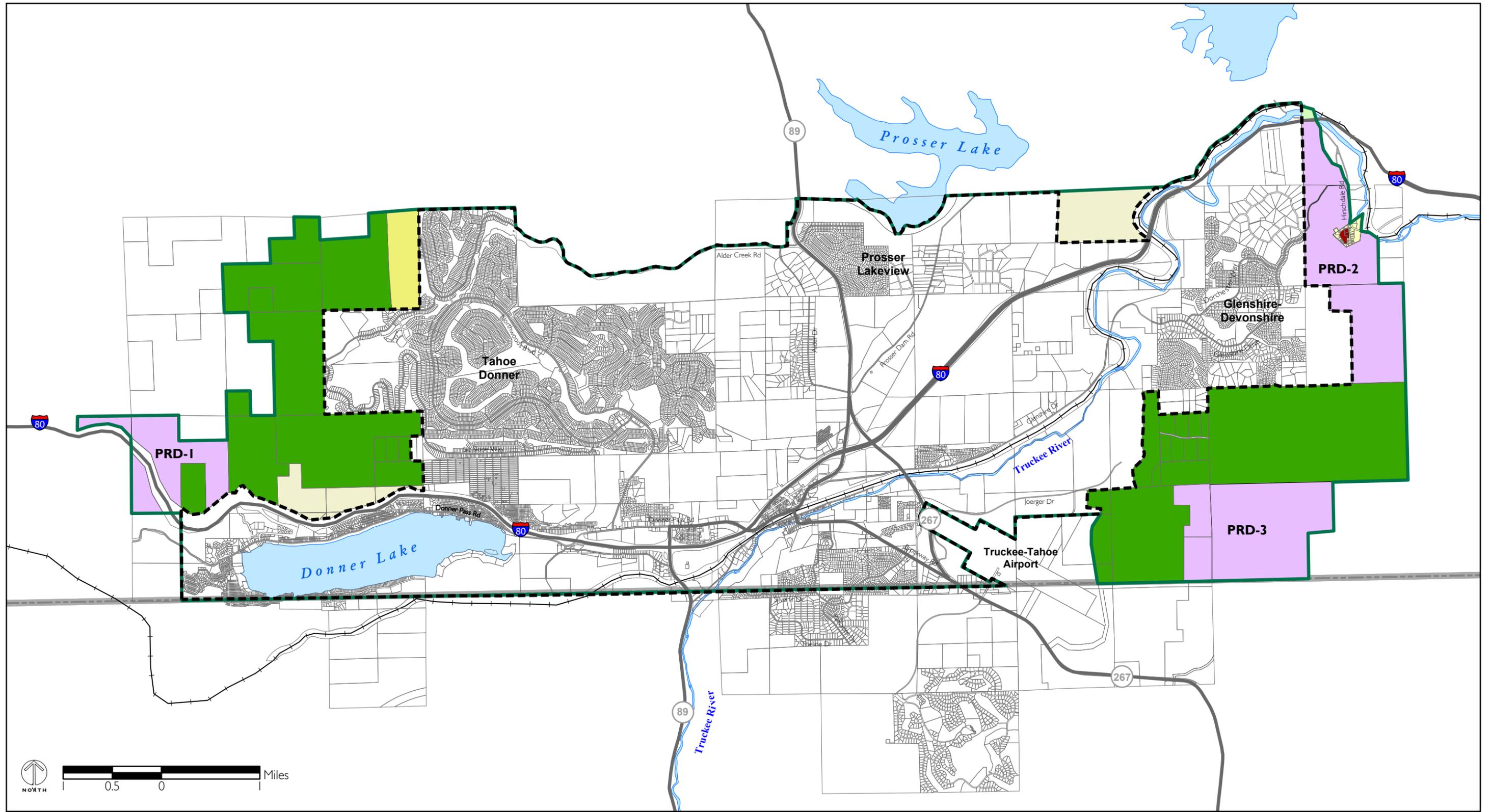
Every reasonable effort has been made to assure the accuracy of the maps and data provided; nevertheless, some information may not be accurate. The County of Nevada assumes no responsibility arising from use of this information. THE MAPS AND ASSOCIATED DATA ARE PROVIDED WITHOUT WARRANTY OF ANY KIND, either expressed or implied, including but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Before making decisions using the information provided on this map, contact the Nevada County Public Counter staff to confirm the validity of the data provided.

Map created by Nevada County GIS Division 3/24/05  
PotentialGrowthEast.mxd



# Potential Urban and Rural Growth Western Nevada County

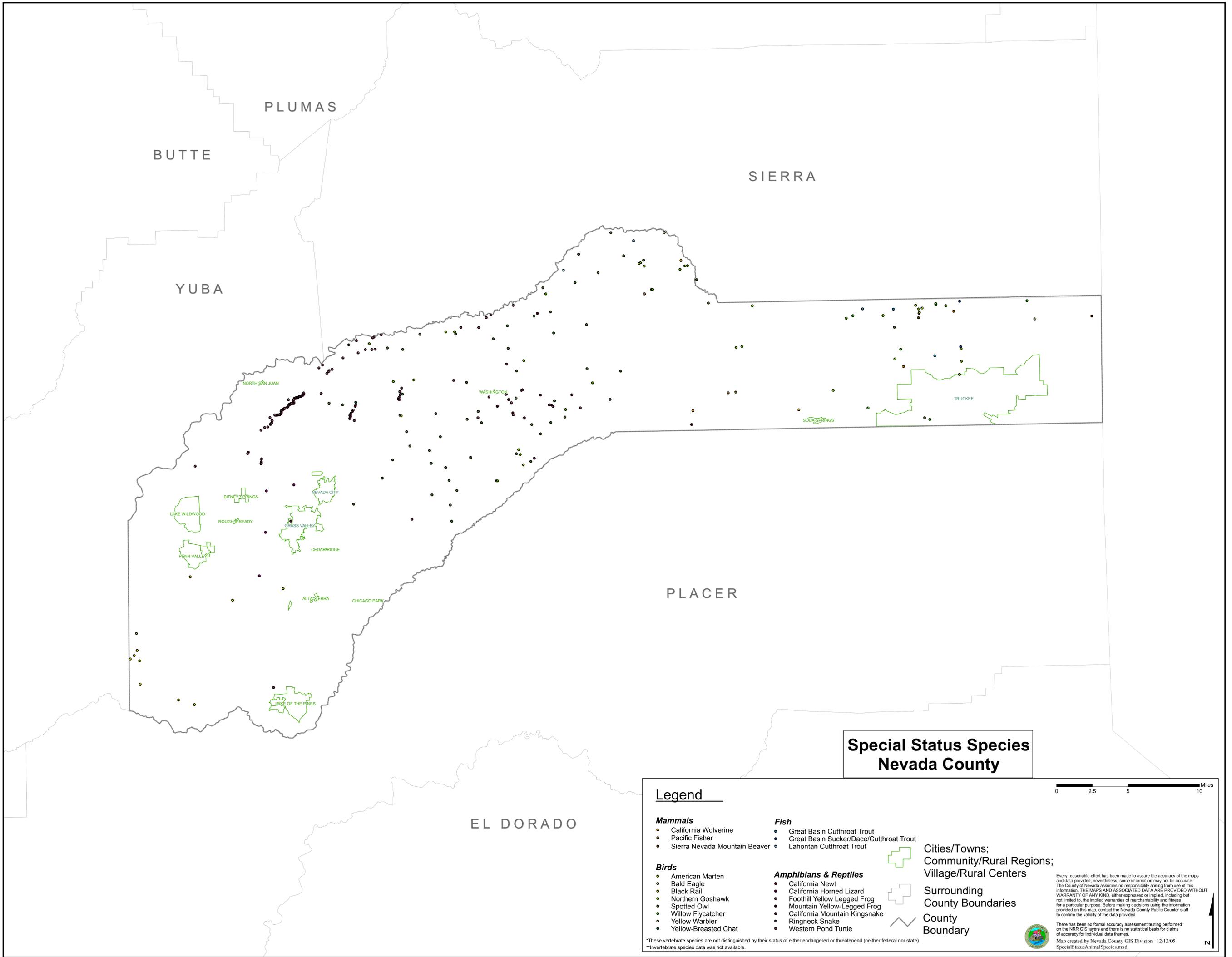




- |  |                                |   |                                  |
|--|--------------------------------|---|----------------------------------|
|  | Truckee Town Limits            |  | Residential (0.5 du/acre)        |
|  | Proposed Sphere of Influence   |  | High Density Residential         |
| <b>General Plan Land Use Designations</b>  |                                |  | Planned Residential Development  |
|  | Residential Cluster (10 Acres) |  | Open Space Recreation            |
|  | Residential (0.33 du/acre)     |  | Resource Conservation/Open Space |

FIGURE LU-3

**LAND USE DESIGNATIONS IN THE PROPOSED SPHERE OF INFLUENCE**



### Special Status Species Nevada County

#### Legend

- |   |   |
|---|---|
| <p><b>Mammals</b></p> <ul style="list-style-type: none"> <li>● California Wolverine</li> <li>● Pacific Fisher</li> <li>● Sierra Nevada Mountain Beaver</li> </ul> <p><b>Birds</b></p> <ul style="list-style-type: none"> <li>● American Marten</li> <li>● Bald Eagle</li> <li>● Black Rail</li> <li>● Northern Goshawk</li> <li>● Spotted Owl</li> <li>● Willow Flycatcher</li> <li>● Yellow Warbler</li> <li>● Yellow-Breasted Chat</li> </ul> | <p><b>Fish</b></p> <ul style="list-style-type: none"> <li>● Great Basin Cutthroat Trout</li> <li>● Great Basin Sucker/Dace/Cutthroat Trout</li> <li>● Lahontan Cutthroat Trout</li> </ul> <p><b>Amphibians &amp; Reptiles</b></p> <ul style="list-style-type: none"> <li>● California Newt</li> <li>● California Horned Lizard</li> <li>● Foothill Yellow Legged Frog</li> <li>● Mountain Yellow-Legged Frog</li> <li>● California Mountain Kingsnake</li> <li>● Ringneck Snake</li> <li>● Western Pond Turtle</li> </ul> |
|---|---|

- Cities/Towns; Community/Rural Regions; Village/Rural Centers
- Surrounding County Boundaries
- County Boundary



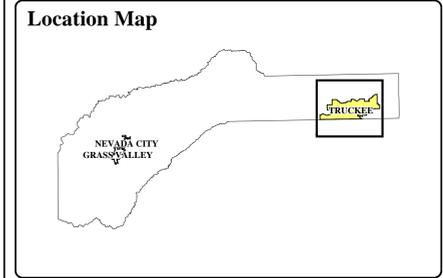
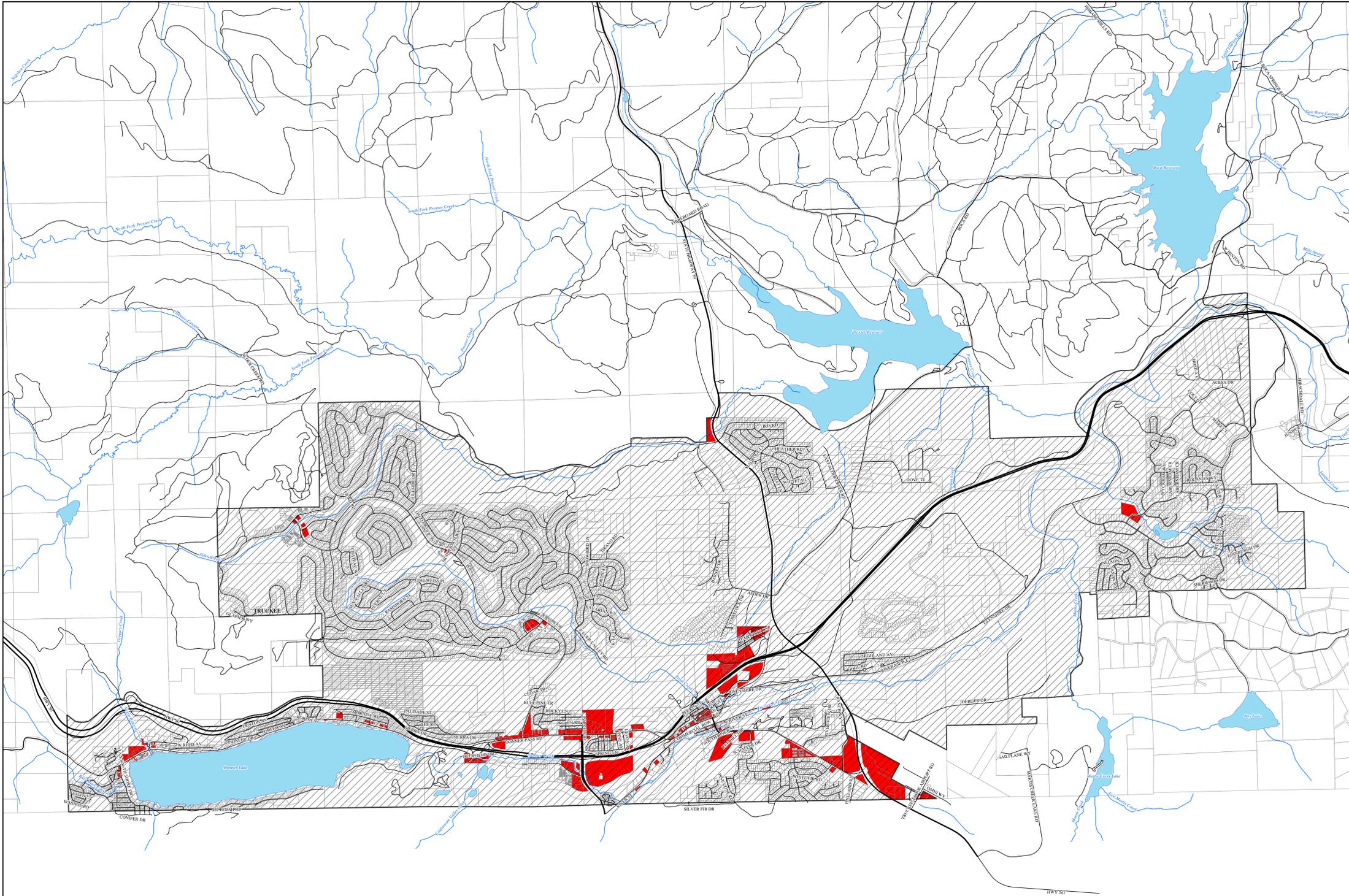
Every reasonable effort has been made to assure the accuracy of the maps and data provided; nevertheless, some information may not be accurate. The County of Nevada assumes no responsibility arising from use of this information. THE MAPS AND ASSOCIATED DATA ARE PROVIDED WITHOUT WARRANTY OF ANY KIND, either expressed or implied, including but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Before making decisions using the information provided on this map, contact the Nevada County Public Counter staff to confirm the validity of the data provided.



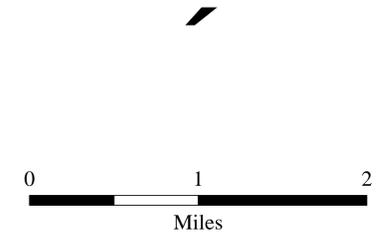
There has been no formal accuracy assessment testing performed on the NRR GIS layers and there is no statistical basis for claims of accuracy for individual data themes.  
Map created by Nevada County GIS Division 12/13/05  
SpecialStatusAnimalSpecies.mxd

\*These vertebrate species are not distinguished by their status of either endangered or threatened (neither federal nor state).  
\*\*Invertebrate species data was not available.

# Truckee Business/Commercial Area



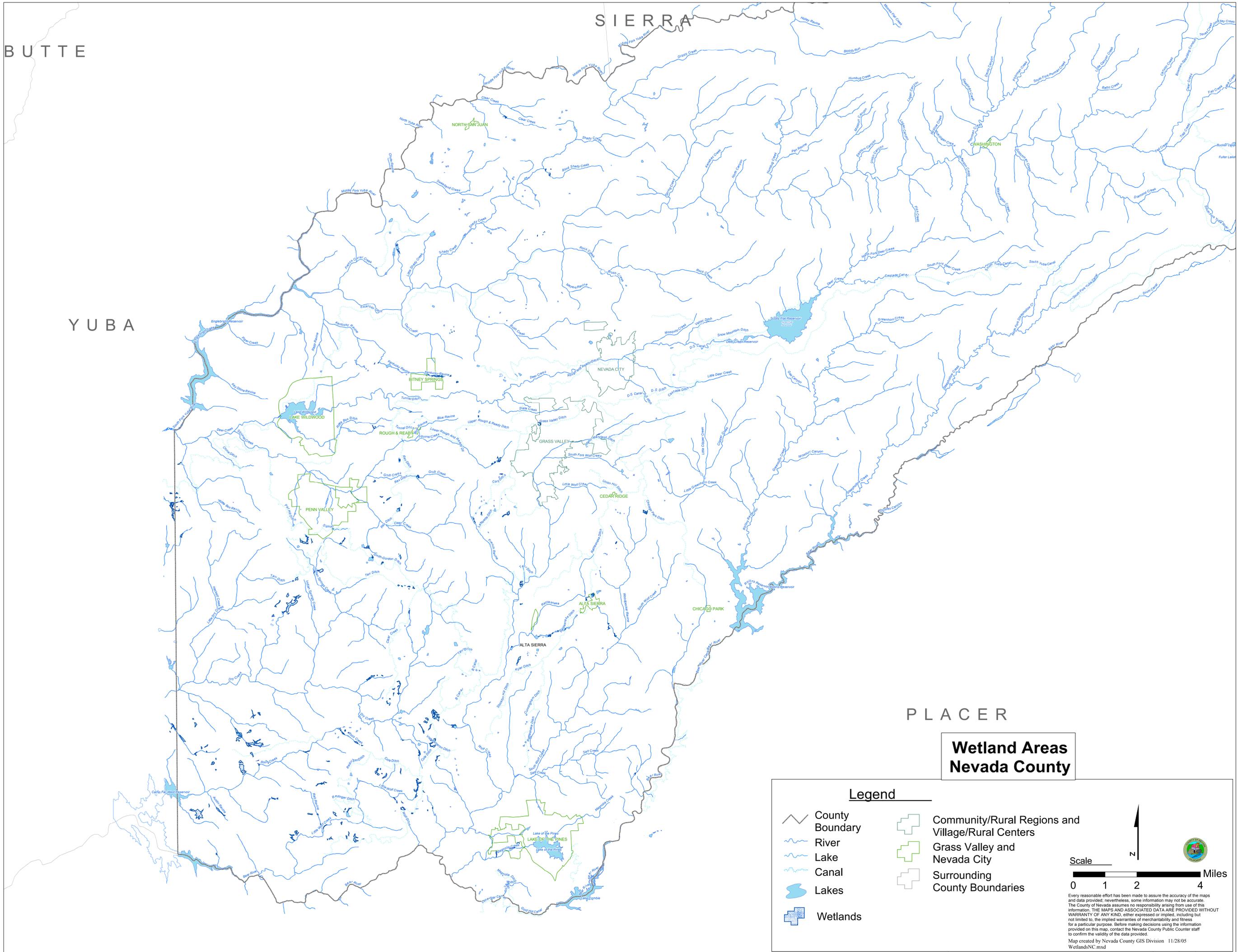
- Legend**
- Highway/Freeway
  - Collector
  - Arterials
  - River
  - Canal
  - Lakes
  - Parcels
  - Truckee
  - Nevada County Use Code Truckee Commercial/Business Area



Created by Nevada County GIS Division 3/25/05  
 Town\_of\_TruckeeBusinessCommercial.mxd

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**Wetland Areas  
Nevada County**

**Legend**

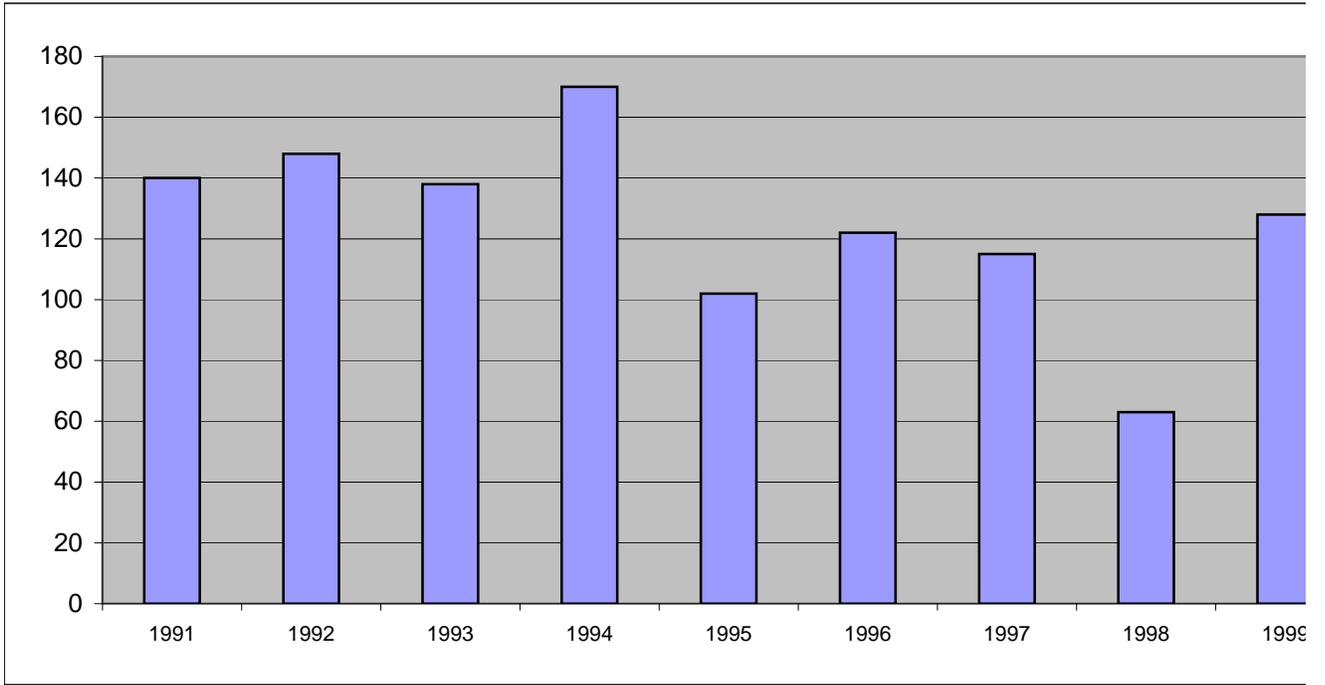
	County Boundary		Community/Rural Regions and Village/Rural Centers
	River		Grass Valley and Nevada City
	Lake		Surrounding County Boundaries
	Canal		
	Lakes		
	Wetlands		

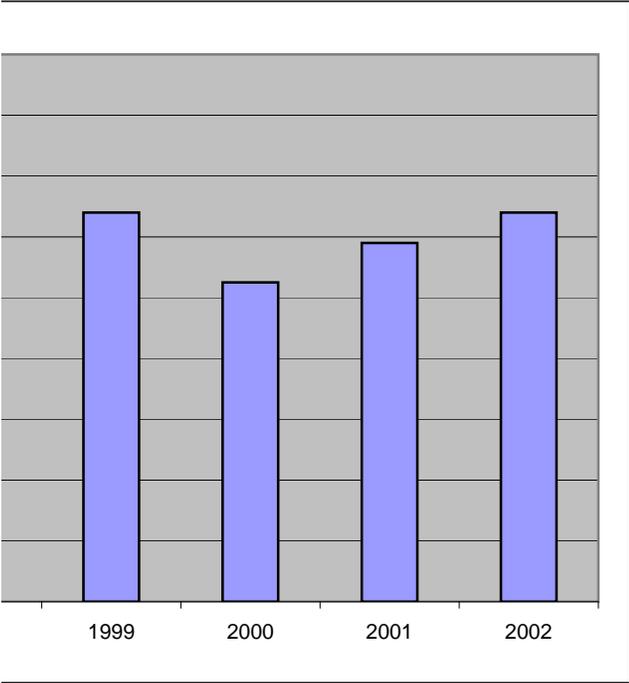
Scale 0 1 2 4 Miles

North arrow pointing up.

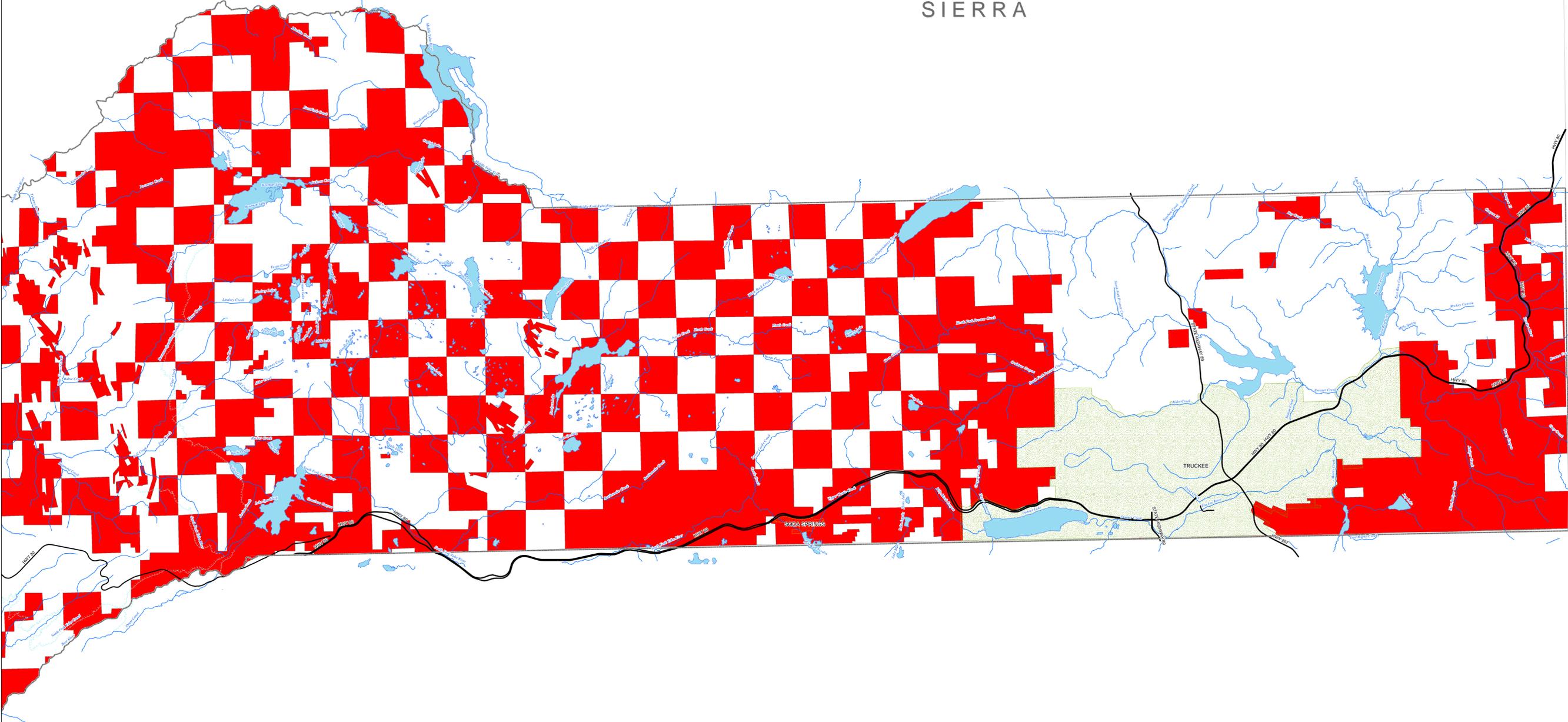
Logo of Nevada County, California.

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Map created by Nevada County GIS Division 11/28/05  
WetlandsNC.mxd





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### Wildland Fire Risk Eastern Nevada County

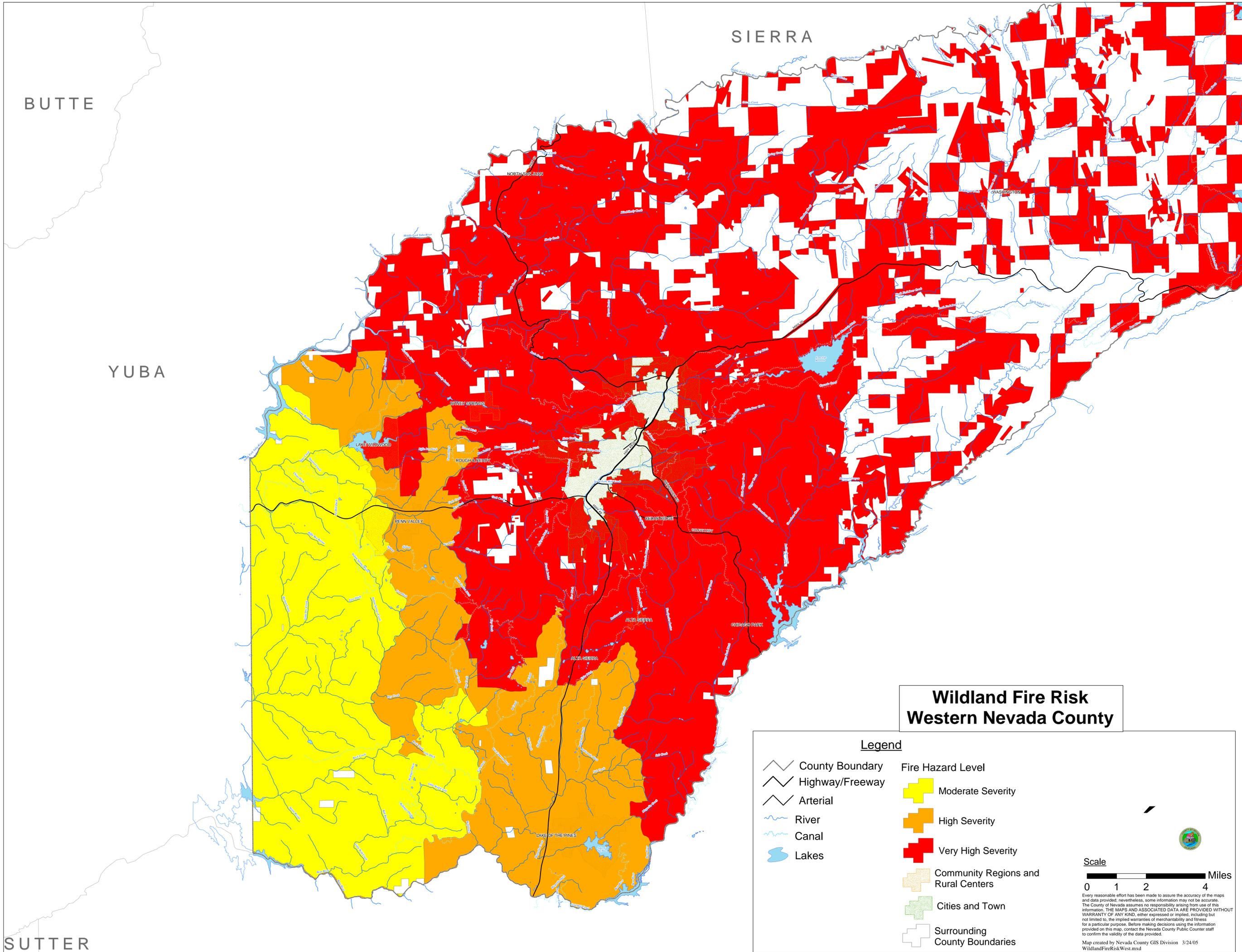
**Legend**

- County Boundary
- Highway/Freeway
- Arterial
- River
- Canal
- Lakes
- Fire Hazard Level**
- Moderate Severity
- High Severity
- Very High Severity
- Community Regions and Rural Centers
- Town of Truckee
- Surrounding County Boundaries



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Map created by Nevada County GIS Division 3/24/05  
WildlandFireRiskEast.mxd



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YUBA

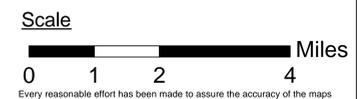
SUTTER

### Wildland Fire Risk Western Nevada County

**Legend**

- County Boundary
- Highway/Freeway
- Arterial
- River
- Canal
- Lakes

- Fire Hazard Level**
- Moderate Severity
  - High Severity
  - Very High Severity
- Community Regions and Rural Centers
- Cities and Town
- Surrounding County Boundaries



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Map created by Nevada County GIS Division 3/24/05  
WildlandFireRiskWest.mxd

# THE NEVADA COUNTY FIRE PLAN



A FRAMEWORK FOR REDUCING THREATS TO PUBLIC  
SAFETY AND REDUCING COSTS AND LOSSES AS A  
RESULT OF WILDFIRE IN NEVADA COUNTY

August 2004

NEVADA COUNTY FIRE PLAN

**ACKNOWLEDGEMENTS**

This Fire Plan was prepared with the assistance of numerous individuals who contributed immeasurably to what the Fire Plan Committee believes to be one of the most comprehensive fire plans in the state. Without this group of individuals bringing their broad range of backgrounds and interests to the discussion table, the effectiveness and overall acceptability of the Fire Plan would not be what it is today.

Although many people contributed at various points along the way, a group of individuals were a part of the process from start to finish. The Fire Plan Committee extends their thanks and appreciation to the following people for their interest and contributions:

- Barbara Bashall, Nevada County Contractor's Association**
- Nate Beason, Property Owner**
- Keith and Ellyn Cook, Property Owners**
- Judy Dadigan, CDF Administrative Secretary**
- Rich Johansen, Agricultural Advisory Commission**
- Fire Captain Sean Griffis, CDF Pre-Fire Engineer**
- Division Chief Kelly Keenan, CDF Unit Forester and Pre-Fire Program Manager**
- Charly Price, USFS Graphic Artist**
- Barbara and Don Rivenes, Sierra Nevada Forest Protection Campaign**
- Battalion Chief Chuck Thomas, Truckee Fire Protection District**
- Margaret Urke, California Assn. of Business, Property and Resource Owners**
- Marcel Verdooner, Property Owner**

**NEVADA COUNTY FIRE PLAN COMMITTEE**

- Tony Clarabut, Chairman, CDF Unit Chief/Nevada County Fire Marshal**
- Tim Fike, Fire Chief, Nevada County Consolidated Fire District (NCCFD)**
- Gary Fildes, Division Chief, United States Forest Service (USFS)**
- Rich Reader, Nevada County Office of Emergency Services (OES)**
- Jeff Dunning, Nevada County Fire Safe Council (FSC)**

**Assisted by**

- 911 Consulting Group, Inc**
- William F. Maxfield, Chief Consultant**
- Jim McFadden, Senior Consultant**

# MISSION STATEMENT

PROVIDE RECOMMENDATIONS  
TO THE BOARD OF  
SUPERVISORS OF MEASURES  
TO REDUCE THE IMPACTS OF  
WILDLAND FIRES TO LIFE,  
PROPERTY AND NATURAL  
RESOURCES IN NEVADA  
COUNTY.



NEVADA COUNTY FIRE PLAN

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## NEVADA COUNTY FIRE PLAN

### **FIRE PLAN SUMMARY**

On September 23, 2003, faced with a history of large and damaging wildland fires in California and clear indications the trend would continue, the Nevada County Board of Supervisors appointed a five member Fire Plan Committee (FPC) and charged it with developing the Nevada County Fire Plan (NCFP) that would reduce the risk from wildland fires in the County and that would comply with the Disaster Management Act of 2000 and the Healthy Forest Restoration Act of 2003.

The committee, consisting of local, state and federal fire service professionals, as well as representatives from the Nevada County Office of Emergency Services and the Fire Safe Council of Nevada County, provided direction for the Fire Plan development. Committee members were principal advisors and planners for this project and identified key interface issues, which were then refined and validated by a series of focus groups held throughout the County; resulting in a county fire plan designed to reduce the impacts of high intensity, large damaging wildland fires.

Over nine months, the Fire Plan Committee held eighteen public meetings and received public comment on the draft plan in 15 workshops which ultimately led to the Nevada County Fire Plan. This effort was based on an understanding that a century old public policy of fire exclusion in an ecosystem dependent upon fire as a natural fuels management tool has led to the current situation of a tremendous over accumulation of fuels and a predictable likelihood of continued high intensity, large and damaging fires in Nevada County.

These predictable fire dangers are compounded by the increasing number of homes and people living within the wildland urban interface of the County. As a result of four major fires in Nevada County in the last 16 years, nearly 200 structures have been destroyed, with costs of over 33 million dollars in damages and almost \$40 million in suppression costs.

## NEVADA COUNTY FIRE PLAN

With the experience of the fire professionals on the committee, input from the public and community stakeholders, and a survey of priorities from the public attendees, as well as research of existing local and state codes and regulations, a long term plan focusing on wildland fuels reduction in Nevada County was developed. This plan is based on recognition of the danger brought about by the vast accumulation of wildland fuels in Nevada County, a problem that is compounded by a human desire to live in an environment where fire has historically been a part of the ecosystem.

The plan focuses on reducing the impacts of large and damaging wildland fires through 42 specific recommendations.<sup>1</sup> These recommendations were agreed upon through a formal prioritization process by the FPC as well as stakeholder input from the public meetings. Those dealing with fuels management and the continuation of fuels reduction assistance programs were determined to be of highest priority by both the public and the FPC.

The efforts of this committee were guided by the premise that the plan needed to present reasonable and achievable recommendations that would directly and positively impact our ability to reside in Nevada County with significantly reduced risk from wildland fire. With the implementation of this plan and the acknowledgement of property owners of their stewardship responsibilities on their own land, the contributors to this plan feel that goal can be reached. Even though we can not be completely assured that losses from wildland fire can ever be fully eliminated, we do know that without significant intervention, the likelihood of large and damaging fires is not only inevitable but will be repeated time and time again.

The Fire Plan Committee developed a collaborative approach for reducing wildland fire risks to communities and the environment in Nevada County. This collaborative approach reflects the views of a broad cross-section of governmental and nongovernmental stakeholders. It outlines a comprehensive approach to the

---

<sup>1</sup> See Table in Appendix - A

## NEVADA COUNTY FIRE PLAN

management of wildland fire, hazardous fuels, and ecosystem restoration and rehabilitation on public and private forest and range lands in Nevada County. The Fire Plan emphasizes measures to reduce the risk to communities and the environment and provides an effective framework for collaboration to accomplish this.

The end results sought by all stakeholders are healthier watersheds, enhanced community protection, and diminished risk and consequences of severe wildland fires.

The primary goals of the Fire Plan are to:

- 1. Reduce Fire Severity and Intensity through Fuels Management*
- 2. Enhance Public Safety and Improve Effectiveness of Emergency Services through Infrastructure Improvements*
- 3. Reduce Risk to Life and Property through New or Revised Codes, Ordinances and Compliance Programs*
- 4. Increase Community Awareness and Involvement to Promote Participation and Voluntary Compliance*
- 5. Involve Fire Agencies, County Departments, Public and Private Land Managers, and the Fire Safe Council in Collaborating on County-Wide Goals and Plans to Consistently and Efficiently Implement Mitigation Measures*

New management practices, skills, and tools and the acceptance of stewardship responsibilities are needed to address the changing environment of the wildland-urban interface. New fuels management and fuels reduction programs were determined by the FPC to be of greatest importance towards addressing wildland-urban interface challenges, opportunities, and needs in Nevada County.

## NEVADA COUNTY FIRE PLAN

### **THE ROLE OF LOCAL GOVERNMENT**

Large areas of once primarily contiguous forestland in Nevada County are increasingly influenced by humans and are surrounded by or intermixed with urban development. These areas of increased human influence and land use conversion make up the wildland-urban interface. Historically, severe wildfires throughout California have demonstrated the complex challenges that the wildland-urban interface presents for the diverse group of people that live and work there. The result of four major fires in Nevada County in the last 16 years brought the wildland-urban interface fire problem to the forefront for the Nevada County Board of Supervisors, spurring the development of this Fire Plan.

How, when and where land can be used, and who makes that determination is one of the most contentious questions faced by any community that is in the wildland-urban interface. Conflicts can arise between newcomers and long-term residents; between private and public land management needs; and between Federal, State, and local governments. Current land-related public policies at all levels of government are contributing to the severity of these conflicts by failing to provide a way for communities to direct and control the increasing demand for land development that results when large numbers of people move into the interface. As long as people have the ability and desire to live in rural and undeveloped areas, land use policies should be designed to minimize the negative impacts such movement has on natural resources in the interface.

Local governments have traditionally held the authority to make land use decisions because, in addition to being seen as more sensitive and responsive to local concerns, they are perceived as having more expertise in implementing fair and efficient land use policy. These local land use policies, however, often have the effect of increasing development and expanding the wildland-urban interface.

## NEVADA COUNTY FIRE PLAN

### The Planning Process

The success of the FPC is a direct result of stakeholders' involvement in the development of the Nevada County Fire Plan. This Fire Plan is the result of a collaborative effort of the FPC and the primary stakeholders in Nevada County. The comments and contributions obtained through the public workshops, as well as several individual Fire Plan presentations to special interest groups, contributed to the goals, objectives and recommendations in this Plan.



Over nine months, the Fire Plan Committee scheduled meetings twice a month which the public attended and contributed valuable input to the process. In addition, the FPC hosted workshops throughout the County including Truckee, Grass Valley and North San Juan.

Observations were compared with industry standards of “best practice”. These sources include:

- California Public Resources Code (PRC 4290, 4291)
- Urban-Wildland Interface Code
- California Fire Plan
- Uniform Fire Code
- California Department of Forestry and Fire Protection
- United States Forest Service
- National Fire Protection Association

The FPC reviewed the following components:

- Overview of the Community
- Stakeholders
- Geographic Setting
- Fuels

## NEVADA COUNTY FIRE PLAN

- New Construction Development
- Weather Conditions
- Fire History
- Roads
- Water Availability
- Community Fire Safe Plans Templates

This information was used to develop specific recommendations for the Fire Plan. The recommendations represent opportunities to minimize potential loss of life and property from wildfire and improve the quality of service provided to the citizens of Nevada County.

While reduction of major destruction of property and loss of life can be achieved partly through proper implementation and enforcement of fire hazard zoning and mitigation laws, it should be noted that there can be no guarantee that a major fire can be prevented from causing major destruction of property or loss of life.

## NEVADA COUNTY FIRE PLAN

### **INTENT OF THE FIRE PLAN**

The intent of the NCFP is to provide to the Board of Supervisors recommendations to reduce the impacts of wildland fires to life, property and natural resources in Nevada County. Secondary to the intent of reducing the impact of wildland fires, this plan is intended to meet the requirements of the Disaster Management Act of 2000 and the Healthy Forests Restoration Act of 2003 in order to maintain grant eligibility for wildland fire mitigation projects.

### **The purpose of the Disaster Mitigation Act of 2000:**

- (1) Establishes a National Pre-Disaster Mitigation Fund for a 3-year period
- (2) Governors may recommend 5 or more local communities annually for assistance
- (3) Funds are provided for technical assistance to communities
- (4) "Small impoverished communities" may receive increased federal shares
- (5) Federal Emergency Management Agency (FEMA) to establish an interagency task force to coordinate Federal pre-disaster mitigation

### **The purpose of the Healthy Forest Restoration Act of 2003:**

- (1) To reduce wildfire risk to communities, municipal water supplies, and other at-risk Federal land through a collaborative process of planning, prioritizing, and implementing hazardous fuel reduction projects;
- (2) To authorize grant programs to improve the commercial value of forest biomass (that otherwise contributes to the risk of catastrophic fire or insect or disease infestation) for producing electric energy, useful heat, transportation fuel, and petroleum based product substitutes, and for other commercial purposes;
- (3) To enhance efforts to protect watersheds and address threats to forest and rangeland health, including catastrophic wildfire, across the landscape;
- (4) To promote systematic gathering of information to address the impact of insect and disease infestations and other damaging agents on forest and rangeland health;
- (5) To improve the capacity to detect insect and disease infestations at an early stage, particularly with respect to hardwood forests; and
- (6) To protect, restore, and enhance forest ecosystem components.

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### **WILDLAND FIRE HAZARD MITIGATION**

Nevada County interface challenges are complex, compelling, and shared commonly among a diverse group of people who live and work in the interface. Many of these challenges are due to differences in the number of private landholdings, topography, climate, vegetation type, and culture. However, natural hazards, such as wildland fires, are a part of the world around us. Their occurrence is natural and inevitable; still, there is much we can do to control their force and intensity.

**“Hazard mitigation”** is a technical term for efforts aimed at reducing risks to people and property from natural hazards. It includes both structural measures, such as protecting buildings and infrastructure from the forces of fire, and non-structural measures, such as natural resource protection and wise vegetation management. These activities can target existing development or seek to protect future development by avoiding any new hazardous construction. It is widely accepted that the most effective mitigation measures are implemented at the local government level, where decisions on the regulation and control of development are ultimately made.

The easiest way a community can get serious about hazard mitigation is through the development and adoption of a local hazard mitigation plan. A mitigation plan will ensure that measures to reduce the present and future vulnerability of a community are thoroughly considered before, during, and after the next disaster strikes.

Mitigation planning offers many benefits that include:

- Saving lives and property;
- Saving money;
- Speeding recovery following disasters;
- Reducing future vulnerability through wise development / redevelopment;
- Expediting both pre-disaster and post-disaster grant funding; and
- Demonstrating a firm commitment to improving community health and safety.

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More importantly, mitigation planning has the potential to produce long-term and recurring benefits by breaking the repetitive cycle of disaster loss. A core assumption of mitigation is that current dollars invested in mitigation practices will significantly reduce the demand for future dollars by lessening the amount needed for emergency recovery, repair and reconstruction. Further, these mitigation practices will enable local residents, businesses and industries to re-establish themselves in the wake of a disaster, getting the community economy back on track sooner and with less interruption.

Mitigation planning also leads to benefits that go beyond solely reducing hazard vulnerability. Measures such as the acquisition or regulation of land in known hazard areas can help achieve multiple community goals, such as preserving open space, maintaining environmental health and natural features, and enhancing recreational opportunities.

## NEVADA COUNTY FIRE PLAN

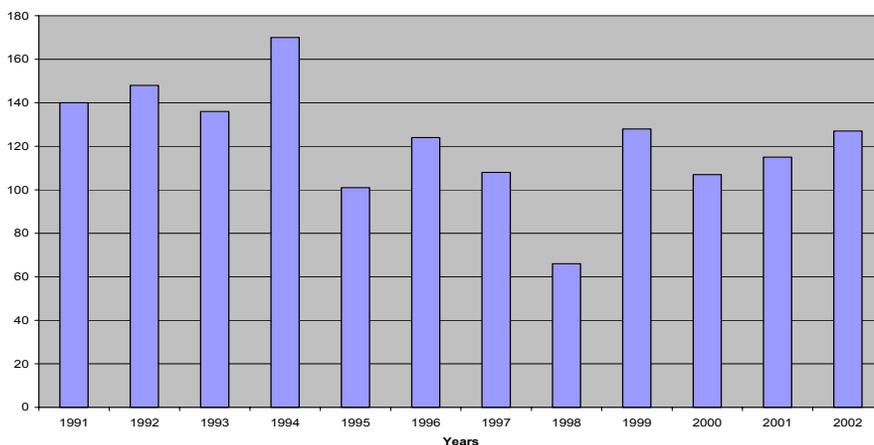
### THE PROJECT AREA

The project area encompasses approximately 978 square miles of diverse and rugged rural lands in the Sierra Nevada foothills of Nevada County, California. Nevada County includes Grass Valley, Nevada City, Lake Wildwood, Alta Sierra, Penn Valley, Rough & Ready, North San Juan, Truckee, Cedar Ridge, Lake of the Pines, and rural areas of the Sierra Nevada foothills. This high fire threat zone is characterized as a classic interface area with significant history of large and damaging wildfires. Nevada County has a diverse bio-system. The western border, located in the Sacramento Valley, contains grass-covered foothills with oak trees. Traveling eastward the landscape changes to a mix of deciduous and conifer forests with a mix of heavy brush. The forests turn to conifer with a brush under-story as the elevation goes high into the Sierra Nevada Range, approaching 8000 feet in elevation. Continuing further east and down the Eastern slope of the Sierras one finds conifers with a brush under-story mix with heavy brush fields, ending at the California/Nevada border with conifer forests and sagebrush.

The area consists of both public and private lands and contains a mix of land uses with a population of approximately 90,000 people and 45,000 housing structures in a wildland-urban intermix setting commonly referred to as the I-Zone. (the urban/wildland interface).

On the private lands within the county, over a recent 12 year period, the county

Nevada County Wildfire Ignitions by Year



experienced just over 120 wildland fires per year. Lightning caused fires actually account for very few fire starts on private lands as evidenced by the year 2002 in which the county experienced 133 wildland fires with only one

## NEVADA COUNTY FIRE PLAN

being caused by lightning. History shows that most fires in the county are caused by the accidental, careless or intentional acts of the people who live in or visit Nevada County. Clearly, with the fuels, weather, topography and an increasing population, Nevada County is at significant risk from wildland fire.

### **Public lands include:**

- 175,694 acres in the Tahoe National Forest
- 2,475 acres in the Toiyabe National Forest
- 10,485 acres of other Federal Lands, which include the Bureau of Land Management (BLM), Department of Fish & Wildlife (DF&W), and the Army Corps of Engineers.

In addition, the Nevada Irrigation District controls 8,636 acres, Pacific Gas & Electric 10,882 acres and the State 11,394 acres, which may include, but not be limited to State Parks, California Department of Forestry & Fire Protection (CDF), Department of Fish and Game.

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### THE WILDLAND FIRE PROBLEM

The fire problem in Nevada County is directly related to the amount of hazardous fuels that have accumulated since the disruption of the natural fire cycles that normally occurred prior to the land use change effects that began at about the turn of the century. It was at this time that the effects of non-native American settlement of the region caused the land use to change and move away from being compatible with the natural fire regimes.

Fire history studies conducted in the Sierra Nevada, southern Cascades, and Klamath mountains point toward pre-European settlement fires (prior to 1849) burning, with mostly low to moderate severities within most of the vegetation types found in the County. Barbour and Majors (1977) and the Sierra Nevada Ecosystem Project (1996) indicate that the grassland areas had an average period between fires of 2-8 years; oak woodlands, 2-8 years; mixed conifer, 5-16 years; east-side pine, 5-16 years; various brush types; 5 to 30 years; and Red Fir, 16-26 years. These vegetation types evolved over time to adapt to these fire cycles. California's Mediterranean climate, dominated by wet winters and hot dry summers with lightning from frequent summer thunderstorms and Native American burning worked in harmony with our fire adapted ecosystems.

The effect on fuels due to these frequent fires was a periodic consumption of relatively light amounts of vegetation and dead material. As a result, these conditions produced fires with mostly low to moderate severities and intensities that generated short flame



lengths. Most of the larger trees survived these low to moderate intensity fires. The short flame lengths kept the fire on the ground. Studies and historical observations indicate that very few of the fires before the 1900's, except in small patches, burned into the crowns of the larger Conifers. Based on written

accounts from the late 1800's and the very early 1900's, in areas covered by the mixed-conifer vegetation type, approximately 1-10 percent of the larger conifers perished

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during each fire event. Most of these low intensity fires burned in fuels that were not continuous from the ground into the upper layers of the forest. The periodic fires kept a natural separation from the ground fuels to the upper forest layers.

This natural cycle of periodic fire no longer occurs. Current land uses, i.e. the presence of people and their houses, dictate that wildland fires be suppressed due to risks to life, property, and the environment. A century of virtual elimination of natural and cultural fire has led to a buildup of fuels to today's current unnaturally high levels and has resulted in significantly higher intensity fires that are difficult to suppress. Today, many of our vegetation types have a continuous layer of live growing fuels from the forest floor to the upper tree layers that act as fuel for a wildfire. This, unfortunately, results in larger fires with more damaging effects to life, property, and the environment.

Today, people in Nevada County are attracted to live and build their homes in remote



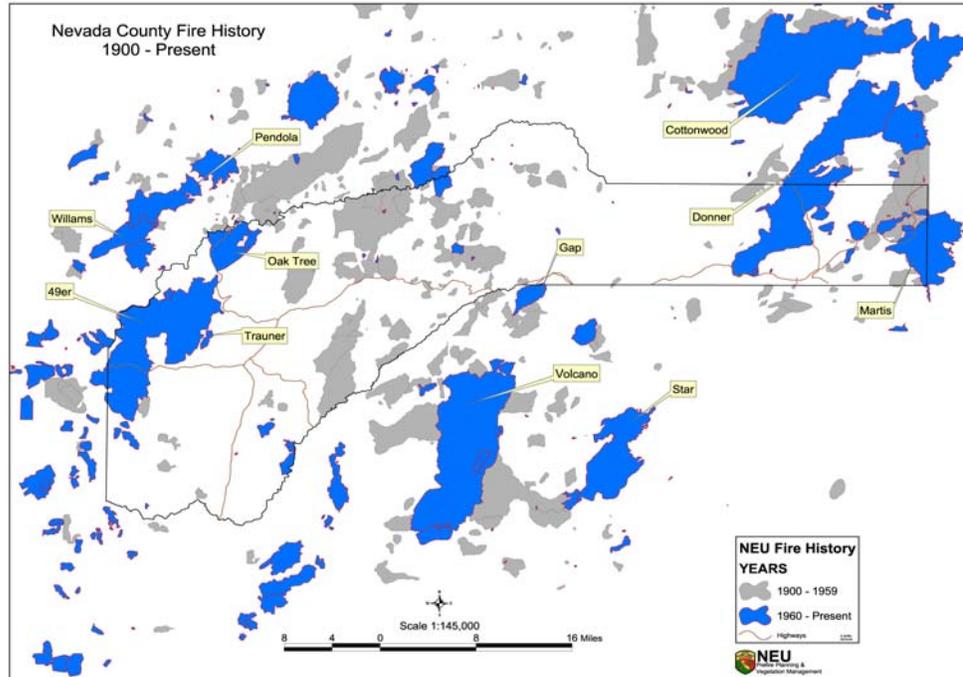
areas, on hillsides, and in and among the native woodlands. There is a misconception held by many of us that today's grasslands, oak woodlands, and forests are "natural" and as such, think if we just keep suppressing fires, these vegetation types will remain the same. This is a grave error. All of our fire adapted ecosystems are complex entities. They are not like a photograph and non-changing over time; they are constantly changing. There is a tremendous amount of growth and in-growth every year. As a result, without periodic fire or treatment,

these vegetation types have ever increasing unnaturally high fuel loads that, over time, have created hazardous fire conditions. We now understand that the extreme fire

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behavior we are witnessing is a result of the long term interruption of the natural fire cycle.

The combination of our topography, climate, and present day fuel conditions produces large, high severity and intense wildland fires; e.g., the Forty-niner fire in September 1988, (33,500 ac/185 homes); the Martis fire, June 2001, (14,500 ac/4 structures); the Trauner fire, August 1994



(500 ac/12 homes); and the Cottonwood, fire, August 1994, (46,800 ac). The Forty-niner fire, the Martis fire and the Trauner fire resulted in over 33 million dollars damage and more than 27 million dollars in suppression cost. The Cottonwood fire cost 12.5 million dollars to suppress.

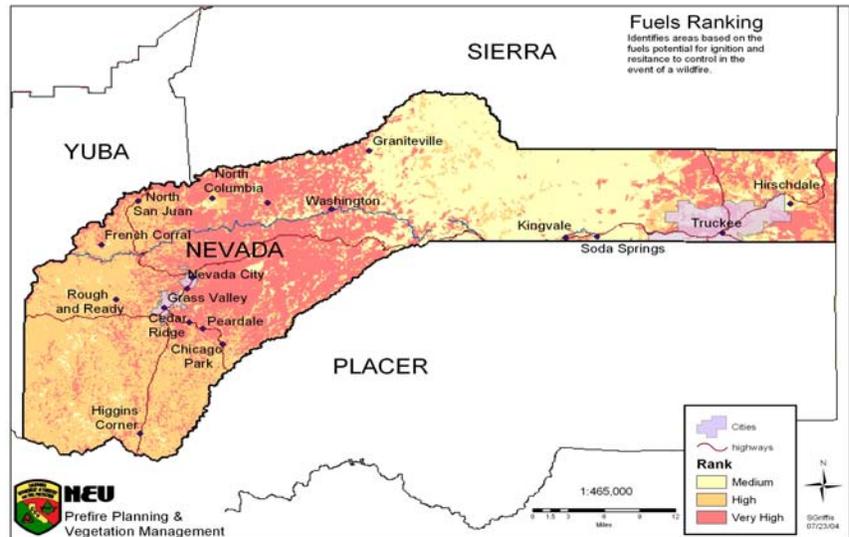
We can never go back to the natural fire cycles as land use has changed dramatically since the mid-1800's and we now have life and property intermixed within the wildland environment. However, we can, with vegetation management, reduce fuels to those pre-settlement "natural" levels in target areas in and around our communities.

The FPC is acutely aware that the present day wildland fuel condition is the root of the fire problem in Nevada County. It is the reason the conditions and standards addressing roads, water supply systems, fire related codes and ordinances, wildland fire protection

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systems, and firesafe education are being addressed through this Plan. The FPC recognizes that all these parameters need to be addressed now.

The FPC understands that all of us living in Nevada County live in fire adapted environments. With this now comes a reality that we, as individual property owners, need to adopt a stewardship responsibility and manage fuel levels to their historical natural levels. We all need to do this not only for our individual property and life safety but, for our community's safety as well. If we all do our part in managing fuels, we can reduce extreme fire behavior and give fire suppression resources a better chance to extinguish fires with less damage to life, property, and the environment.



## NEVADA COUNTY FIRE PLAN

### PRIORITY RECOMMENDATIONS

Over the course of the development of this plan, the Committee, in collaboration with a variety of stakeholders and citizen participants, identified five specific goals to be accomplished through the implementation of 42 different recommendations. In a formalized priority setting process 10 of the 42 recommendations received 53% of the votes cast and were identified as having the most significant impact on “reducing threats to public safety and reducing costs and losses as a result of wildfire in Nevada County” It is suggested by the Fire Plan Committee that after this plan has been accepted by the Board of Supervisors, that the initial implementation efforts be focused on these recommendations. Those top ten are identified here, followed by a complete listing of all the goals, objectives and recommendations. (Refer to Appendix A for a complete prioritization schedule).

#### GOAL I – FUELS MANAGEMENT

**Recommendation 5:** The FPC recommends that the Board of Supervisors adopt the Fuel Management prescription (found in Appendix B) as the foundation of an expanded ordinance for providing defensible space around structures



**Recommendation 6:** The FPC recommends that the Board of Supervisors adopt a fuel management prescription (found in Appendix C) as the foundation for a new ordinance for wildland fuels management on improved and vacant parcels in and adjacent to communities or neighborhoods of ten acres or less and on parcels greater than 10 acres that are immediately adjacent to smaller parcels

**Recommendation 7:** The FPC recommends that the Board of Supervisors adopt as a fire risk reduction policy the following implementation timeline for education, assistance and compliance programs for fuels management ordinances recommended for adoption

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by this Plan. The FPC further recommends that enforcement be used as the method of last resort and that a process of phased enforcement over a number of years be utilized.

### **Year 1**

- Public Education
- Assistance Program
- Enforcement of Defensible Space

### **Year 2**

- Public Education
- Assistance Program
- Enforcement of Defensible Space
- Point Of Sale Disclosure For Developed And Undeveloped Parcels
- Enforcement at Building Permit Issuance

### **Year 3**

- Public Education
- Assistance Program
- Enforcement of Defensible Space
- Point Of Sale Disclosure For Developed And Undeveloped Parcels
- Enforcement at Building Permit Issuance
- General Enforcement Emphasized In Very High Hazard Severity Zones

### **Year 4**

- Continuation Of Year Three

### **Year 5**

- Public Education
- Assistance Program
- Enforcement of Defensible Space
- Point Of Sale Disclosure For Developed And Undeveloped Parcels
- Enforcement At Building Permit Issuance
- General Enforcement Emphasized In High Hazard Severity Zones
- General Enforcement Of Community/Neighborhood Fuel Management

### **Subsequent Years**

- Continuation of Year 5

**Recommendation 8:** The FPC recommends that resource agencies (CDF, Natural Resource Conservation Service, Resource Conservation District, USFS, and BLM) jointly develop guidelines for fuel management on large parcels. These guidelines must take into account variations based upon fuel types, differing land management objectives and proximity to communities/neighborhoods

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**Recommendation 11:** In recognition of the relationship between fuel reduction and public safety, the FPC recommends that the Board of Supervisors seek a permanent funding mechanism for the provision of chipper services or alternative services at a reduced rate and free fuels management advising services to the landowners of Nevada County. Funding for this program may be entirely or partially offset through grants, but the program is of such value that it should not be grant dependent

### **GOAL II – INFRASTRUCTURE IMPROVEMENTS**

**Recommendation 15:** The Board of Supervisors direct the Department of Transportation, in cooperation with the County Office of Emergency Services, law enforcement and the fire services to identify county maintained roads not meeting design standards for current or anticipated ADT, and that those roads be prioritized for upgrading as funds become available

**Recommendation 16:** The FPC recommends that a compliance program be put in place to ensure that private roads required as a condition of approval are maintained over the long term, to the same standard that they were originally approved

**Recommendation 19:** The FPC recommends that the Board of Supervisors, through the County Fire Marshal's Office, conduct a study for funding a countywide system of strategically located rural fire protection water storage tanks. It is further recommended that this study be funded with Title III funds. (Grant Funds to the County from the USFS under HR 2389) With the successful implementation of this program the FPC recommends the abandonment of the application of individual water storage tank requirements on single-family residences.

### **GOAL III – COMPLIANCE PROGRAMS**

**Recommendation 25:** The FPC recognizes the continuing constraints that are being placed upon outdoor burning. The Committee recommends that green waste pickup, mulching or composting be the preferred alternative for leaf and pine needle disposal. Outdoor burning should be reserved as a priority for disposal of wildland fuels where no other options are feasible

## NEVADA COUNTY FIRE PLAN

### **GOAL V – IMPLEMENTATION OF MITIGATION MEASURES**

**Recommendation 38:** The FPC recommends that the Board of Supervisors seek a source of funding for the appropriate staffing of the County Fire Marshal's Office to implement many of the recommendations of this Fire Plan that are most efficiently and effectively provided on a county wide basis. Those programs include the phased in implementation of the fuels management ordinances, the management of the county wide Rural Fire Protection Water Supply System, management of tax funded assistance programs for landowners, providing leadership in producing resource documents for the public and providing training to the fuels management industry

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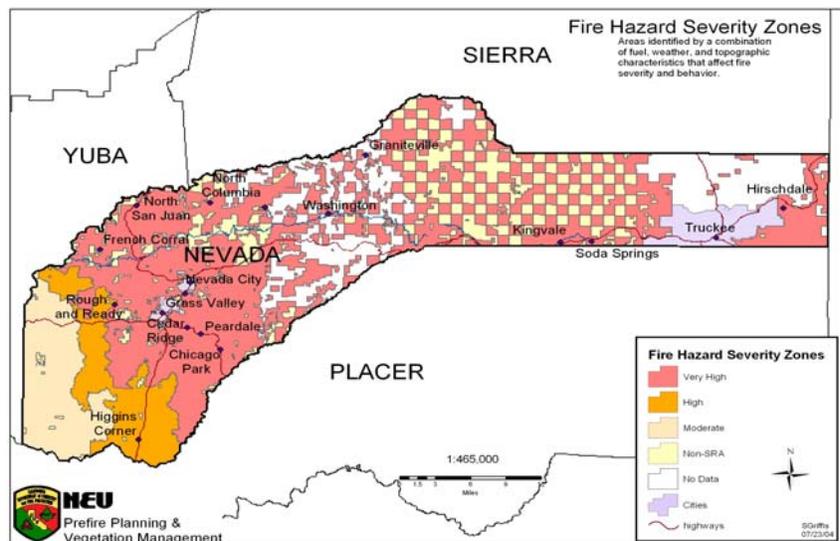
## GOALS, OBJECTIVES AND RECOMMENDATIONS

### GOAL I - REDUCE FIRE SEVERITY AND INTENSITY THROUGH FUELS MANAGEMENT

#### PROBLEM STATEMENT

Nevada County contains all the major vegetation types found within the northern Sierra Nevada: annual grasslands, oak savannas, oak woodlands, montane chaparral, both pine and fir dominated mixed-conifer, red fir, sage, and east-side pine. It also contains the rugged topography of the deeply incised westerly flowing drainages and the steep escarpments found on the eastside of the range.

The County also has the typical California Mediterranean climate that produces extreme fire weather conditions from a few days, to many days annually. This combination of topography, climate, and the elimination of the historic fire cycles which previously reduced vegetative fuel accumulations, sets the stage for repeated destructive wildland fires.



#### OBJECTIVE – A

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**Improve public awareness and understanding that Nevada County lies within a fire-adapted ecosystem that historically relied upon natural fire or cultural burning by natives to maintain the vegetative fuel accumulations. With fire no longer being an option for fuel management in communities, landowners need to take appropriate steps to mimic the fire regime of the past. It needs to be stressed that there is a direct relationship between high fuel accumulations and high intensity, destructive wildland fire.**

**Recommendation 1:** The FPC recommends that the CDF, USFS, BLM and the Nevada County Superintendent of Schools, and other interested groups, work together to develop a school curriculum based upon the historic nature of the Sierran Forests and the role of cyclical historic fire as nature's way of maintaining vegetative fuels accumulations.

**Recommendation 2:** The FPC recommends that the USFS and Nevada County Superintendent of Schools implement the concept of a Forest School within the Tahoe National Forest to provide students a laboratory in which to study and understand the dynamics of the Sierra Nevada forest.

**Recommendation 3:** The FPC recommends that the NRCS, CDF, FSC and Resource Conservation District jointly conduct seminars for landowners on proper stewardship techniques based upon fuel management prescriptions developed for this Plan.

**Recommendation 4:** In collaboration with the Fire Safe Council, create a Video Lending Library of videos focused on proper land stewardship, proper defensible space, fire prevention, disaster preparedness and application of the various fuel management prescriptions and seek outlets to inform the public of this library.

### **OBJECTIVE - B**

**Define the desired future fuel condition based upon a general understanding of historic fuel conditions that primarily promoted low to moderate intensity fires as opposed to high and extreme intensity fires that commonly occur today; and**

## NEVADA COUNTY FIRE PLAN

**develop a vegetation management prescription for defensible space around structures.**

**Recommendation 5:** The FPC recommends that the Board of Supervisors adopt the Fuel Management prescription (found in Appendix B) as the foundation of an expanded ordinance for providing defensible space around structures.

### **OBJECTIVE - C**

**Develop prescription for defensible community-level fuel modifications on the wildland portion of all parcels 10 acres or less. Require parcels larger than 10 acres which are immediately adjacent to parcels 10 acres or less to provide fuels management to the maximums under this recommendation. Those treatments are to be located in a way that offers the highest level of protection to the community/neighborhood areas.**

**Recommendation 6:** The FPC recommends that the Board of Supervisors adopt a fuel management prescription (found in Appendix C) as the foundation for a new ordinance for wildland fuels management on improved and vacant parcels in and adjacent to communities or neighborhoods of ten acres or less and on parcels greater than 10 acres that are immediately adjacent to smaller parcels.

***Note: See Appendix I for a map displaying parcel sizes 10 acres and smaller and parcels greater than 10 acres***

### **OBJECTIVE - D**

**Develop a fuels management implementation strategy phased in over 5 years, initially focusing on education and assistance with ultimate implementation through education, assistance and enforcement.**

**Recommendation 7:** The FPC recommends that the Board of Supervisors adopt as a fire risk reduction policy the following implementation timeline for education, assistance and compliance programs for fuels management ordinances recommended for adoption

## NEVADA COUNTY FIRE PLAN

by this Plan. The FPC further recommends that enforcement be used as the method of last resort and that a process of phased enforcement over a number of years be utilized.

### **Year 1**

- Public Education
- Assistance Program
- Enforcement of Defensible Space

### **Year 2**

- Public Education
- Assistance Program
- Enforcement of Defensible Space
- Point Of Sale Disclosure For Developed And Undeveloped Parcels
- Enforcement at Building Permit Issuance

### **Year 3**

- Public Education
- Assistance Program
- Enforcement of Defensible Space
- Point Of Sale Disclosure For Developed And Undeveloped Parcels
- Enforcement at Building Permit Issuance
- General Enforcement Emphasized In Very High Hazard Severity Zones

### **Year 4**

- Continuation Of Year Three

### **Year 5**

- Public Education
- Assistance Program
- Enforcement of Defensible Space
- Point Of Sale Disclosure For Developed And Undeveloped Parcels
- Enforcement At Building Permit Issuance
- General Enforcement Emphasized In High Hazard Severity Zones
- General Enforcement Of Community/Neighborhood Fuel Management

### **Subsequent Years**

- Continuation of Year 5

## **OBJECTIVE - E**

**Provide fuel management consulting service contacts for private property owners of parcels greater than 10 acres in size.**

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**Recommendation 8:** The FPC recommends that resource agencies (CDF, Natural Resource Conservation Service, Resource Conservation District, USFS, and BLM) jointly develop guidelines for fuel management on large parcels. These guidelines must take into account variations based upon fuel types, differing land management objectives and proximity to communities/neighborhoods.

**Recommendation 9:** The FPC recommends that the Resource agencies provide training to fuels management contractors on the guidelines for fuel management on large parcels, and after successful completion of training, placed on a published hiring list.

**Recommendation 10:** The FPC recommends that the Resource agencies prepare and make available to the public a directory of Agency Advisors, Private Consultants and Fuels Management Companies to assist landowners in being proper stewards of their lands.

### **OBJECTIVE - F**

**Develop, organize and fund, a property owner assistance program.**

**Recommendation 11:** In recognition of the relationship between fuel reduction and public safety, the FPC recommends that the Board of Supervisors seek a permanent funding mechanism for the provision of chipper services or alternative services at a reduced rate and free fuels



management advising services to the landowners of Nevada County. Funding for this program may be entirely or partially offset through grants, but the program is of such value that it should not be grant dependent.

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**Recommendation 12:** Provide consulting services for private landowners for the restoration and rehabilitation of wildlands impacted by fire, insect, and disease.

**Recommendation 13:** Create Directory of Assistance of Programs for large landowners i.e. Vegetation Management Program, California Forest Improvement Program, Environmental Quality Incentives Program.

**Recommendation 14:** Provide financial aid for community based fuel reduction to those landowners who can demonstrate financial need based upon established criteria and who are incapable of accomplishing the fuels management on their own.

### **GOAL II – ENHANCE PUBLIC SAFETY AND IMPROVE EFFECTIVENESS OF EMERGENCY SERVICES THROUGH INFRASTRUCTURE IMPROVEMENTS**

#### **PROBLEM STATEMENT**

In order to protect citizens and emergency responders with the essential tools to mitigate disasters, government leaders and citizens alike have, through experience, seen the need to provide a basic infrastructure to allow for a safe and successful outcome to emergencies.

Infrastructure is generally thought of as the foundation from which services are provided and that most citizens benefit equally from their existence. As it applies to the provision of emergency services, infrastructure components are thought to be the responsibility of government agencies and are funded through taxes or the levy of fees.

In the context of the wildland fire problem in Nevada County, the infrastructure includes; the fire agency response organizations, the road system, a system with which to communicate emergency information with the public and a fire protection water supply

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system. All of these are critical to a successful emergency response and will be discussed under this goal.

### **GOAL: II    ENHANCE PUBLIC SAFETY AND IMPROVE EFFECTIVENESS OF EMERGENCY SERVICES THROUGH INFRASTRUCTURE IMPROVEMENTS**

#### **OBJECTIVE - A**

**Identify existing County maintained roads not meeting design standards for current or anticipated use as indicated by the General Plan.**

**Recommendation 15:** The Board of Supervisors direct the Department of Transportation, in cooperation with the County Office of Emergency Services, law enforcement and the fire services to identify county maintained roads not meeting design standards for current or anticipated ADT, and that those roads be prioritized for upgrading as funds become available.

#### **OBJECTIVE - B**

**Ensure that private roads that are required as a condition of approval through the Subdivision Map Act are maintained to the design standard that they were originally required to be built to.**

**Recommendation 16:** The FPC recommends that a compliance program be put in place to ensure that private roads required as a condition of approval are maintained over the long term, to the same standard that they were originally approved.

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### OBJECTIVE - C

**Review private roads that have offers for dedication placed upon them and develop mechanisms for taking those of significant regional importance to public safety into the county maintained mileage program.**

**Recommendation: 17** The FPC recommends that the DOT in cooperation with County OES, law enforcement and the fire services, conduct an analysis of private roads with offers of dedication on them and identify those of significant regional importance for safe ingress and egress. Once identified, those roads need to be prioritized for inclusion into the county maintained mileage program.

**Recommendation 18:** The FPC recognizes the current funding issues related to adding new roads to the maintained mileage program and recommends that mechanisms be explored by which to fund bringing roads of regional importance under county maintenance.

### OBJECTIVE - D

**Develop a countywide rural fire protection water system that provides a cost effective, adequate water supply and seek adoption into county ordinance.**

**Recommendation 19:** The FPC recommends that the Board of Supervisors, through the County Fire Marshal's Office, conduct a study for funding a countywide system of strategically located rural fire protection water storage tanks. It is further recommended that this study be funded with Title III funds. (Grant Funds to the County from the USFS under HR 2389) With the successful implementation of this program the FPC recommends the abandonment of the application of individual water storage tank requirements on single-family residences.

**Recommendation 20:** Include inspection of required existing water storage facilities when inspecting for fuels management.

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### **OBJECTIVE - E**

**Develop an emergency public notification system and educate citizens and agencies on intent and use.**

**Recommendation 21:** The FPC recommends that the Board of Supervisors direct the County OES to put in place an automated emergency public notification system which uses the phone system to distribute information to user identified zones. These zones can be identified and the message can be spontaneously constructed in response to each incident. Given that this system is not wildland fire specific, but has application on all types of incidents, the committee feels that it is appropriate to purchase this system with Office of Homeland Security Grant funds. Once in place, the committee recommends that training on its application be given to all managers within public safety. The committee also recommends that the Fire Marshal and OES monitor new methods of distributing emergency information and implement those methods if practical.

### **OBJECTIVE - F**

**Create a business environment that encourages the development of a sustainable fuels management industry that assists landowners in their fuels management efforts safely, economically and in a manner consistent with the adopted fuels management prescriptions.**

**Recommendation 22:** The FPC recommends that the resource agencies in Nevada County jointly sponsor workshops for fuel reduction contractors that cover safe operations, the application of the fuel management prescriptions to various fuel types, and fire prevention in their operations. Those contractors attending the workshop would be placed on a resource list and made available to the public.

**GOAL III – REDUCE RISK TO LIFE AND PROPERTY THROUGH NEW OR REVISED CODES, ORDINANCES AND COMPLIANCE PROGRAMS**

**PROBLEM STATEMENT**

Modern fire safety codes and standards, and in particular those developed by the National Fire Protection Association (NFPA) trace their origins to the nineteenth-century development of automatic sprinklers. From the beginning, sprinklers performed properly as extinguishing devices; however, they were originally installed in so many different ways that their reliability was uncertain. In March of 1895, a small group of men representing sprinkler and fire insurance interests gathered in Boston to discuss these inconsistencies and develop uniform codes and standards.

Years later, we continue to struggle in our co-existence with wildfire. Annually, thousands of homes are destroyed, and all too often lives are lost, including firefighters. Hundreds of firefighters are injured and thousands of firefighters are exposed to the risks of wildland firefighting.

While reduction of major destruction of property and loss of life can be achieved partly through proper implementation and enforcement of fire hazard zoning and mitigation codes, laws, and ordinances, it should be noted that there can be no guarantee that a major fire can be prevented from causing major destruction of property or loss of life.

The four methods of interface fire hazard mitigation most often associated with increased structure survival are:

- Defensible space around structures
- Landscape level fuel management
- Ignition resistant building construction
- Defensive actions by firefighters during the wildfire exposure.

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However, it is important to have reasonable expectations of mitigation measures. A one-third or two-third reduction in historic loss patterns is reasonable with full implementation of both fuel reduction and improved building construction.

### **GOAL: III REDUCE RISK TO LIFE AND PROPERTY THROUGH NEW OR REVISED CODES, ORDINANCES AND COMPLIANCE PROGRAMS**

#### **OBJECTIVE - A**

**Review and revise, as needed, existing wildland fire related codes and ordinances to address the recognized hazards of building and living in the wildland urban interface.**

**Recommendation 23:** The FPC review Fire Safety related Regulations in the LUDC Chapters 2, 16 and 17 and make recommendations for modifications to the BOS.

*Note: The FPC established a separate subcommittee to review the existing Fire Safety Regulations in the Land Use and Development Code (LUDC), Chapters 2, 16 and 17. This committee, made up of fire prevention officers, members of the Building, Planning and Transportation Department, and members of various interest groups within the county, met over a period of three months and prepared suggested changes to the Fire Safety Regulations. Their recommendations have been reviewed and approved by the full Fire Plan Committee. Those changes are displayed in Appendix B and C.*

**Recommendation 24:** The FPC recommends that the Board of Supervisors consider the recommended changes of Code Review Sub-Committee and move to adopt those changes into the LUDC Chapters II, XVI & XVII.

**Recommendation 25:** The FPC recognizes the continuing constraints that are being placed upon outdoor burning. The Committee recommends that green waste pickup, mulching or composting be the preferred alternative for leaf and pine needle disposal. Outdoor burning should be reserved as a priority for disposal of wildland fuels where no other options are feasible.

**Recommendation 26:** Provide green waste pickup services county wide or in rural areas schedule community vegetative waste drop off days in those areas not receiving

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green waste pickup.

### **OBJECTIVE B**

**Consider new fire safety Codes and Ordinances to meet the county's fire safe needs.**

**Recommendation 27:** The FPC recommends that the Board of Supervisors adopt an expanded defensible space ordinance and a neighborhood/community level defensible landscape ordinance in accordance with the recommended fuels management prescriptions developed under Goal #1 and to be implemented consistent with the implementation strategy found in Goal #1

**Recommendation 28:** The FPC recommends that the Board of Supervisors direct that a review of the fire safety provisions of specific ordinances be conducted a maximum of five years after the implementation of the fuels management ordinances. The intent of the review is to evaluate whether or not significant fuels reduction has occurred that would allow reconsideration of prior regulations or restrictions based upon the risk being reduced in an area previously recognized as having significant wildland fire risk.

### **OBJECTIVE C**

**Review and recommend improvement of "same practical effect" process for meeting the intent of the Fire Safety Regulations.**

**Recommendation 29:** The FPC recognizes the value of the 'same practical effect' or 'exception' process for use when the letter of the law may not be practically applied, but the intent of the law may be achieved through application of other measures and suggests that this provision in the code be retained. However, the FPC suggests that the public be better informed on how to enter and use the process.

**GOAL IV – INCREASE COMMUNITY AWARENESS AND INVOLVEMENT TO  
PROMOTE PARTICIPATION AND VOLUNTARY COMPLIANCE**

**PROBLEM STATEMENT**

Nevada County's population is steadily increasing, with many new residents building homes in the *I-Zone*. (*I-Zone is defined as the urban/wildland interface*) Many of these new homeowners, as well as existing homeowners, are unaware of the dangers surrounding their homes. When people live in a very high fire hazard environment, the human built environs becomes an important factor in predicting the loss of life and property. Wood shake and shingle roofs, narrow roads, limited access, lack of fire-safe landscaping, inadequate water supplies, and poorly planned subdivisions are examples of increased risk to people living with the threat of wildfire.

Community education and awareness programs are an essential means of informing homeowners and citizens how to protect their belongings and loved ones from the next wildland fire that will occur in Nevada County. Much of the education needs to focus on creating and maintaining defensible space around their homes and on managing the vegetative fuels on the remainder of their property. To achieve the desired voluntary compliance, residents need to understand the role of historic natural or cultural fire in the Sierra ecosystem; and as property owners they need to become proper land stewards and implement practices which are intended to mimic the valuable role of natural fire.

The most effective and successful methods for mitigating the impact of wildland fire begin with having local decision makers and community members having a good understanding of the problem and a willingness to take necessary steps to deal with that problem.

## NEVADA COUNTY FIRE PLAN

### **OBJECTIVE A**

**Utilize the Fire Safe Council and community and business associations, i.e. Nevada County Board of Realtors within Nevada County for public education and assistance.**

**Recommendation 30:** The FPC recognizes the value of the Fire Safe Council as a significant contributor of providing fire safe education and information to the residents of the County and supports efforts to seek sustainable, long term funding in order to maintain their programs.

### **OBJECTIVE B**

**Develop A Template for A Community/Neighborhood Fire Safe Plan.**

**Recommendation 31:** The Fire Plan Committee has developed a Template for a Community Fire Safe Plan. It is the FPCs intent that this template be used by the various fire protection agencies within the county, in cooperation with the Fire Safe Council, to create community specific fire safe plans. These plans will address evacuation planning, specific high hazard project areas, neighborhood preparedness, safety zones and public education at the local level. It is the intent of the FPC that the community plan in tandem with the county plan will meet the requirement of the Disaster Management Act of 2000. The FPC seeks the support of the Board of Supervisors in this effort.

### **OBJECTIVE C**

**Provide on-site consulting for landowners.**

**Recommendation 32:** The FPC recommends that the fire services, resource agencies, and the Fire Safe Council jointly publish a resource directory of public agency advisors, consulting services and private contractors available to the public for education, designing, or completing fuels management projects on private lands.

### **OBJECTIVE D**

**Create incentives that encourage voluntary compliance.**

**Recommendation 33:** The FPC recommends that the Fire Marshal's Office continue to

## NEVADA COUNTY FIRE PLAN

work with the insurance industry to obtain recognition of the fact that the landscape level fuel reduction ordinance, once in effect, will significantly reduce losses from wildland fire paid by insurers in Nevada County. Also, the reduction in risk should translate into lower premium costs to policyholders.

**Recommendation 34:** The FPC recommends that all agencies and organizations support the Fire Safe Council's effort to create a biomass reutilization center. It is hoped that this effort will result in a monetary value being placed upon removed vegetative fuels that will, at least in part, pay for their removal.

**Recommendation 35:** The FPC recommends that the Board of Supervisors, in cooperation with the fire services and the Fire Safe Council, publicly recognize individual landowners, communities and public land managers for significant accomplishments in fuels management at the individual parcel level, the community level, and at the landscape level.

### **OBJECTIVE E**

Identify fuel reduction priorities for grant funded projects and public education.

**Recommendation 36:** The FPC recommends that the fire services and the Fire Safe Council, based on information taken from the Community Fire Plans and the CDF's Nevada-Yuba-Placer Fire Management Plan, identify those areas within the county with significant potential for large and damaging wildfires and prioritize those for grant funded fire risk reduction projects.

### **OBJECTIVE F**

**Provide a better understanding to the public and to the architectural and building industry about the benefits and material/design options available with ignition resistant building materials.**

**Recommendation 37:** The FPC recommends that the fire agencies, the building industry and the building material industry cooperate on a high visibility educational

## NEVADA COUNTY FIRE PLAN

effort on the benefits of using ignition resistant building materials and methods when building in the wildlands of Nevada County, and that this effort emphasize the architectural and appearance similarities between ignition resistant building materials and more readily combustible building materials.

### **GOAL V – INVOLVE FIRE AGENCIES, COUNTY DEPARTMENTS, AND PUBLIC AND PRIVATE LAND MANAGERS, AND THE FIRE SAFE COUNCIL IN COLLABORATING ON COUNTY-WIDE GOALS AND PLANS TO CONSISTENTLY AND EFFECIENTLY IMPLEMENT MITIGATION MEASURES**

#### **PROBLEM STATEMENT**

There are numerous fire agencies in Nevada County with various and sometimes overlapping jurisdictions. These agencies each have various plans and programs to reduce the risk and severity of wildland fires. These plans are not necessarily synchronized to a county-wide set of plans. This creates the potential for inconsistency of effort and direction.

Various programs, such as the residential fire protection water supply requirements, are thought by some fire personnel to not be meeting the originating goals. Some agencies have fuel management programs, but these tend to be very limited in scope and difficult to enforce.

Given that whatever plans to further reduce the risk and severity of wildland fires may have substantial costs to community, existing programs need to be reviewed and recommendations made accordingly.

The insurance industry is moving toward factoring fuel loads and local water supplies into their criteria for insurability of homes. The community will be looking to the fire

## NEVADA COUNTY FIRE PLAN

agencies to assist in providing improved fire risk mitigation in synchronization with the insurance companies' concerns.

**GOAL: V INVOLVE FIRE AGENCIES, COUNTY DEPARTMENTS, AND PUBLIC AND PRIVATE LAND MANAGERS, AND THE FIRE SAFE COUNCIL IN COLLABORATING ON COUNTY-WIDE GOALS AND PLANS TO CONSISTENTLY AND EFFECIENTLY IMPLEMENT MITIGATION MEASURES**

### **OBJECTIVE - A**

**Provide adequate resources to implement Fuels Modification Ordinance, Rural Fire Protection Water Supply System and County Chipper Assistance Program and other programs appropriate for countywide application.**

**Recommendation 38:** The FPC recommends that the Board of Supervisors seek a source of funding for the appropriate staffing of the County Fire Marshal's Office to implement many of the recommendations of this Fire Plan that are most efficiently and effectively provided on a county wide basis. Those programs include the phased in implementation of the fuels management ordinances, the management of the county wide Rural Fire Protection Water Supply System, management of tax funded assistance programs for landowners, providing leadership in producing resource documents for the public and providing training to the fuels management industry.

### **OBJECTIVE – B**

**Create a collaborative process for integration of countywide common goals, into each agency's Fire Prevention Program.**

**Recommendation 39:** The FPC recommends that the County Fire Marshal take a lead role in bringing together all agencies, non-profits, county departments and associations which have a statutory or general interest in fire risk reduction or protection of the environment from wildland fire with the intent of creating and maintaining a consistent message to the public regarding fire prevention and risk reduction requirements and activities.

## NEVADA COUNTY FIRE PLAN

### **OBJECTIVE - C**

**Public and Private Lands – The Board of Supervisors should direct the County Fire Marshal to develop a collaborative process with public land managers, open space districts, and land trusts for wildland urban interface fuel management.**

**Recommendation 40:** The FPC recommends that the County Fire Marshal, in cooperation with the local fire agency, work with public land managers, which manage wildlands within and adjacent to communities and who may not have a statutory requirement for compliance with the County's Fire Safety Regulations. The focus of the effort is to see that the vegetative fuels on these lands are managed in a manner similar to that being proposed for private lands in this plan.

### **OBJECTIVE - D:**

**Review the effectiveness of the fire plan in a minimum of five years and each five years thereafter.**

**Recommendation 41:** The Fire Plan Committee recommends that the County Fire Marshal report, in May of each year, to the Board of Supervisors on the progress being made towards full implementation of the Fire Plan. And, that every five years the Board of Supervisors should reconvene the Fire Plan Committee for a comprehensive review of the effectiveness of the fire plan. The effectiveness of the plan should be evaluated based upon measures of success developed as a part of the implementation of this plan.

**Recommendation 42:** The Fire Plan Committee recommends that during the periodic review of the Fire Plan that if there are findings that a landscape wide fuel reduction has occurred, then a review of the Fire Safety Regulations should also occur with the understanding that the wildland fire environment is less hazardous.

NEVADA COUNTY FIRE PLAN

**APPENDIX – A PRIORITY VOTING**

**Nevada County Fire Plan - Priority Voting**

Yellow = (Top Recommendations)

	<u>FPC COMM</u>	<u>GV</u>	<u>NSJ</u>	<u>TRK</u>	<u>CABPRO</u>	<u>FONA</u>	<u>Totals</u>	<u>% of Total</u>
<b>GOAL #1</b>	<b>33</b>	<b>31</b>	<b>10</b>	<b>15</b>	<b>37</b>	<b>40</b>	<b>166</b>	<b>40%</b>
Recom. 1	0	2	1	2	2	2	9	2%
Recom. 2	0	3	1	0	0	0	4	1%
Recom. 3	0	4	0	0	0	1	5	1%
Recom. 4	0	0	1	1	0	1	3	1%
Recom. 5	12	6	1	2	8	8	37	9%
Recom. 6	6	4	1	3	6	10	30	7%
Recom. 7	4	2	0	1	7	5	19	5%
Recom. 8	0	4	1	0	6	7	18	4%
Recom. 9	0	0	0	0	2	0	2	0%
Recom. 10	0	0	1	0	0	0	1	0%
Recom. 11	10	6	1	5	5	6	33	8%
Recom. 12	0	0	2	0	0	0	2	0%
Recom. 13	1	0	0	1	0	0	2	0%
Recom. 14	0	0	0	0	1	0	1	0%
<b>Goal 2</b>	<b>15</b>	<b>21</b>	<b>6</b>	<b>3</b>	<b>23</b>	<b>39</b>	<b>107</b>	<b>26%</b>
Recom. 15	6	5	0	0	4	8	23	6%
Recom. 16	7	1	1	1	3	8	21	5%
Recom. 17	0	2	0	0	4	11	17	4%
Recom. 18	0	0	0	0	1	2	3	1%
Recom. 19	1	6	5	0	0	8	20	5%
Recom. 20	0	0	0	0	8	0	8	2%
Recom. 21	0	5	0	1	3	2	11	3%
Recom. 22	1	2	0	1	0	0	4	1%
<b>Goal 3</b>	<b>23</b>	<b>7</b>	<b>4</b>	<b>13</b>	<b>8</b>	<b>14</b>	<b>69</b>	<b>17%</b>

## NEVADA COUNTY FIRE PLAN

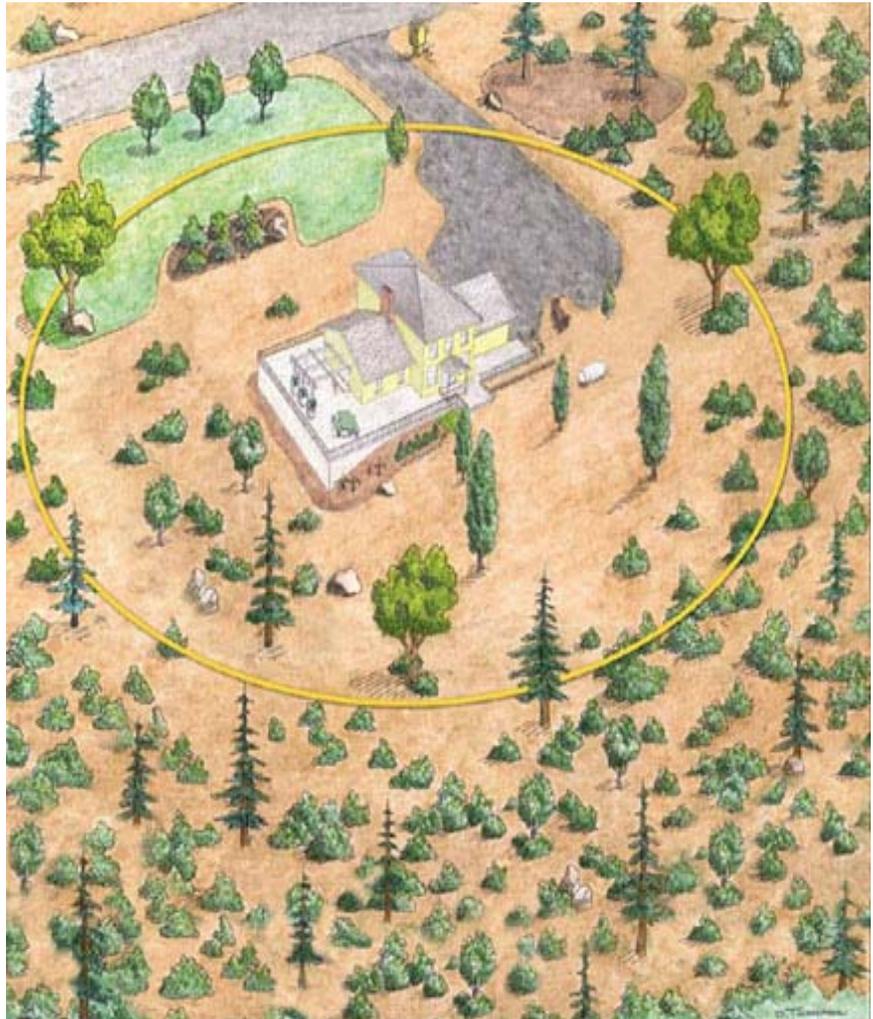
	<u>FPC COMM</u>	<u>GV</u>	<u>NSJ</u>	<u>TRK</u>	<u>CABPRO</u>	<u>FONA</u>	<u>Totals</u>	<u>% of Total</u>
Recom. 23	1	0	0	0	0	0	1	0%
Recom. 24	0	0	0	4	0	0	4	1%
Recom. 25	3	3	1	4	1	6	18	4%
Recom. 26	3	0	0	4	1	1	9	2%
Recom. 27	8	3	0	0	0	2	13	3%
Recom. 28	5	1	1	1	1	1	10	2%
Recom. 29	3	0	2	0	5	4	14	3%
<b>Goal 4</b>	<b>9</b>	<b>10</b>	<b>6</b>	<b>5</b>	<b>6</b>	<b>8</b>	<b>44</b>	<b>11%</b>
Recom. 30	1	1	1	0	2	1	6	1%
Recom. 31	0	2	1	1	1	2	7	2%
Recom. 32	0	0	1	0	0	0	1	0%
Recom. 33	4	3	2	4	1	1	15	4%
Recom. 34	2	0	0	0	0	2	4	1%
Recom. 35	1	0	0	0	0	0	1	0%
Recom. 36	0	3	1	0	2	2	8	2%
Recom. 37	1	1	0	0	0	0	2	0%
<b>Goal 5</b>	<b>6</b>	<b>6</b>	<b>2</b>	<b>1</b>	<b>6</b>	<b>8</b>	<b>29</b>	<b>7%</b>
Recom. 38	6	5	1	0	1	4	17	4%
Recom. 39	0	1	1	0	1	0	3	1%
Recom. 40	0	0	0	1	3	4	8	2%
Recom. 41	0	0	0	0	1	0	1	0%
Recom. 42	0	0	0	0	0	0	0	0%
<b>Grand Total # of Votes:</b>							<b>415</b>	<b>100%</b>

**APPENDIX – B DEFENSIBLE SPACE FUEL MANAGEMENT PRESCRIPTION**

In addition to the requirements of Public Resources Codes 4290 and 4291, any person owning, leasing controlling, operating or maintaining any structure, as defined by the building code, within the unincorporated areas of Nevada County shall at all times maintain around and adjacent to such structures an effective fuel-break made by removing and clearing away combustible vegetation and material that exists within the defensible space of such structure. The size of the defensible space is defined below. (For the purpose of this prescription, a structure is a building as defined by the building code)

This shall not apply to single specimens or stands of protected species of trees, ornamental shrubbery or similar plants used as ground covers, provided they are maintained and/or irrigated and they do not form a means of rapidly transmitting a fire from the native growth.

The size of the defensible space area is expressed as a distance extending outward from the sides of a permanent structure. The distance varies by the type of wildland vegetation growing near the structure and the steepness of the terrain.



## NEVADA COUNTY FIRE PLAN

The following matrix defines the Defensible space area based on vegetation type and slope:

VEGETATION TYPE	SLOPE		
	0 TO 20%	21 TO 30%	> 31%
GRASS	100 feet	100 feet	100 feet
BRUSH	100 feet	150 feet Down slope	200 feet Down slope
TREES	100 feet	150 feet Down slope	200 feet Down slope

Any person owning, leasing, controlling, operating or maintaining any structure in the unincorporated area of Nevada County shall at all times maintain the defensible space of such building in the following manner:

### ***Understory Fuels***

Understory herbaceous and woody fuels over 1 foot in height are to be treated as directed below in order to develop vertical separation from the canopy above and low horizontal continuity of fuels. Plants to be retained shall not be within the drip lines of an overstory tree.

Down fuels and slash between 1 inch and 8 inches in small end diameter and two feet in length or longer shall also be removed so they do not form a means of rapidly transmitting a fire from the native growth.

Rare and endangered species, elderberry plants for example, shall not be removed or treated.

**Grasses**: Grasses within the Defensible Space area shall be maintained to a height of 4 inches or less by the beginning of and through declared Fire Season each year.

## NEVADA COUNTY FIRE PLAN

**Brush:** It is desirable to remove as much brush as possible within the Defensible Space area. However, if individual plants or groups of plants are desired to be left, leave plants with the following characteristics: young plants less than 5 feet tall and individual or groups of plants that are no more than 10 feet wide, with a horizontal separation between plant canopies of 3 times the height of the plants to be retained. Retained plants shall not be within the drip line of mid or overstory vegetation.

## NEVADA COUNTY FIRE PLAN

### ***Mid-story Fuels***

For mid-story fuels, this prescription only considers trees up to the 8-inch diameter class at breast height (dbh) are eligible to be removed. Note that trees larger than 8-inch diameter class may be removed at the owner's discretion if done so in compliance with all applicable local, state, and federal regulations.

Trees 8 inches diameter at breast height and less shall be removed to create horizontal distances between retained tree trunks (boles) a minimum of 20 feet. Larger overstory trees (> 8 inches dbh) do count as trees to be retained and, in order to reduce ladder fuels, shall have brush vegetation within their drip lines removed. Retained trees that are 8 inches dbh and less; that exist within the drip line of larger overstory trees shall have a space a minimum of 20 feet between their trunks. Prune branches off of all retained trees from 8 feet off the forest floor, not to reduce the live crown ratio below 1/2 of the height of the tree.

Rare and endangered species, elderberry plants for example, shall not be removed or treated.

### **Special Considerations:**

#### **Snags**

Snags (standing dead trees) are a conduit for fire spread during a wildfire and shall be removed. However, they may also provide excellent wildlife habitat in their natural state. The following is the criteria of when snags may be retained:

- Eighteen inch diameter class or larger and not more than 30 feet in height which, should they fall, are not capable of reaching a road or structure provided there is a separation of least 100 feet between snags.

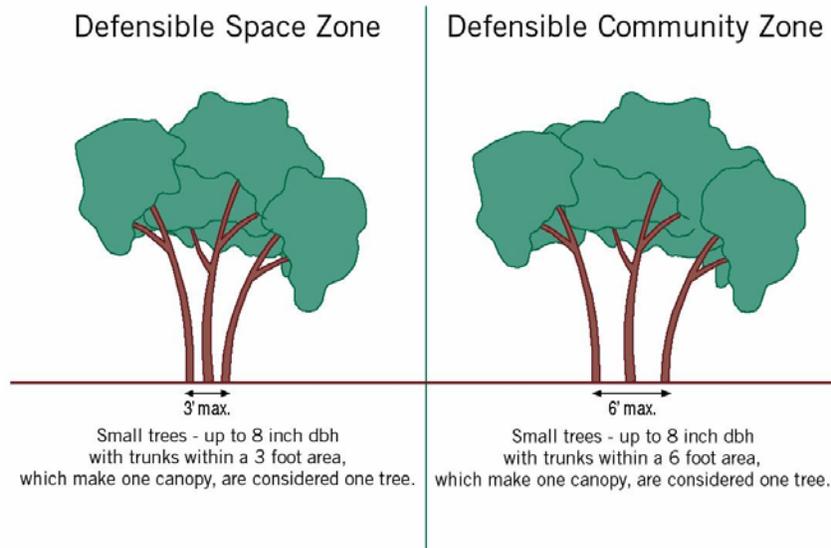
## NEVADA COUNTY FIRE PLAN

- Live but defective trees larger than the 8-inch diameter class providing cavities or obvious wildlife use may also be retained.

### Tree Groups

Trees up to the 8-inch diameter class at breast height (dbh) with trunks within 3 feet of each other, essentially making one canopy, may be considered one tree in the

#### Tree Groups as One Tree



Defensible Space area.

Prune branches off of all retained trees from 8 feet off the forest floor, not to reduce the live crown ratio below 1/2 of the height of the tree.

*Adjacent trees shall be removed to create horizontal distances between retained trees a minimum of 20 feet.*

### Wetlands and Watercourse and Lake Protection Zones

Live vegetation within functional wetlands is not recommended for treatment. Only dead material within 100 feet of watercourses and lakes with riparian vegetation shall be removed.

Riparian setback areas, as defined by County Code for building construction and leach field installation, will only have dead material be required to be removed.

**APPENDIX – C COMMUNITY FUELS MANAGEMENT PRESCRIPTION**

In addition to the requirements of Public Resources Codes 4290, 4291, and the Defensible Space requirements above in (a), any person owning, leasing controlling, operating or maintaining any parcel 10 acres or less in size in the unincorporated area of Nevada County shall at all times manage wildland fuels by removing and clearing away combustible vegetation and material that exists on the parcel in accordance with the following prescription.

This shall not apply to single specimens or stands of protected species of trees, ornamental shrubbery or similar plants used as ground covers, provided they are maintained and/or irrigated and they do not form a means of rapidly transmitting a fire from the native growth.

Any person owning, leasing, or controlling any parcel 10 acres or less in size in the unincorporated area of Nevada County shall at all times maintain the parcel in the following manner:

***Understory Fuels***

Understory woody fuels over 1 foot in height are to be treated as directed below in order to develop vertical separation from the canopy above and low horizontal continuity of fuels.

Down fuels and slash between 1 inch and 8 inches in small end diameter and two feet in length or longer shall also be removed so they do not form a means of rapidly transmitting a fire from the native growth.

For rare and endangered species concerns, elderberry plants shall not be removed or treated.

## NEVADA COUNTY FIRE PLAN

**Grasses:** For parcels one acre and less in size, grasses within the Defensible Community-level Fuel Modification area shall be maintained to a height of 4 inches or less by the beginning of and through declared Fire Season each year. For parcels greater than one acre in size, grasses within the Defensible Community-level Fuel Modification area need not be treated.

**Brush:** It is desirable to remove as much brush as possible within the Defensible Community-level Fuel Modification area. However, if individual plants or groups of plants are desired to be left, leave plants with the following characteristics: individual or groups of plants that are no more that 10 feet wide, with a horizontal separation between plant canopies of 1.5 times the height of the plants to be retained. Retained plants shall not be within the drip line of mid or overstory vegetation.

### ***Mid-story Fuels***

For mid-story fuels, this prescription only considers trees up to the 8-inch diameter class at breast height (dbh) are eligible to be removed. Note that trees larger than 8-inch diameter class may be removed at the owner's discretion if done so in compliance with all applicable local, state, and federal regulations.

Trees 8 inches diameter at breast height and less shall be removed to create horizontal



distances between retained tree trunks (boles) a minimum of 15 feet. Larger overstory trees (> 8 inches dbh) do count as trees to be retained and, in order to reduce ladder fuels, shall have brush vegetation within their drip lines removed. Retained trees that are 8 inches dbh and less; that exist within the drip line of larger overstory trees

## NEVADA COUNTY FIRE PLAN

shall have a space a minimum of 15 feet between their trunks. Prune branches off of all retained trees from 8 feet off the forest floor, not to reduce the live crown ratio below 1/2 of the height of the tree.

Rare and endangered species, elderberry plants for example, shall not be removed or treated.

### **Special Considerations:**

#### **Snags**

Snags (standing dead trees) are a conduit for fire spread during a wildfire and shall be removed. However, they also provide excellent wildlife habitat in their natural state. The following is the criteria of when snags shall be retained:

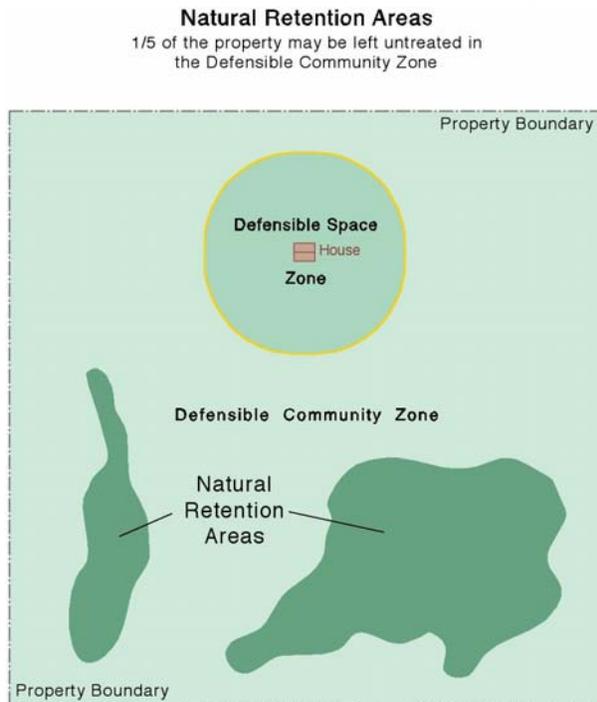
- Eighteen inch diameter class or larger and not more than 30 feet in height which, should they fall, are not capable of reaching a road provided there is a separation of least 100 feet between snags.
- Live but defective trees larger than the 8-inch diameter class providing cavities or obvious wildlife use may also be retained.

#### **Tree Groups**

Trees up to the 8-inch diameter class at breast height (dbh) with trunks within 6 feet of each other, essentially making one canopy, may be considered one tree in the Defensible Community-level Fuel Modification area. Prune branches off of all trees to be retained from 8 feet off the forest floor, not to reduce the live crown ratio below 1/2 of the height of the tree. *Adjacent trees shall be removed to create horizontal distances between residual trees a minimum of 15 feet.*

## Vegetation Retention Areas

One 1/5-acre clump of vegetation, including brush and trees, per acre may also be retained in the Defensible Community-level Fuel Modification area providing spread of fire to or from this feature is adequately mitigated. Mitigation measures for this feature include:



fire to or from this feature is adequately mitigated. Mitigation measures for this feature include:

- a. Adjacent trees to this feature shall be removed to create horizontal distances between retained trees a minimum of 15 feet.
- b. It is recommended that these features, when left on the property, be located adjacent to watercourses, lakes, and/or wetlands.
- c. The 1/5-acre vegetation retention areas may be combined on parcels larger than 1 acre as long as they do not fall within the defensible space of a structure and do not form a means of rapidly transmitting a fire from the native growth off the parcel.

## Wetlands and Watercourse and Lake Protection Zones

Live vegetation within functional wetlands is not recommended for treatment. Only dead material within 100 feet of watercourses and lakes with riparian vegetation shall be removed.

Riparian setback areas, as defined by County Code for building construction and leach field installation, will only have dead material be required to be removed.

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### **Exemption from Defensible Community-level Fuel Modification requirements**

Those parcels 10 acres and less that do not have a structure within its boundaries may be considered for an exemption from the Defensible Community-level Fuel Modification requirements under the following condition:

The parcel lies within an area surrounded by larger than 10-acre parcels or of low-density of 10 acre and less parcels where the fuel modification would not provide Community level benefits.

**APPENDIX – D FUELS MANAGEMENT PRESCRIPTION SUMMARY**

**Defensible Space – Defensible Community Guidelines Summary**

**Exempt Materials**

- ❑ **Any vegetation utilized as landscape which is maintained in a fire safe manner, i.e., irrigated, pruned, free of dead material.**
- ❑ **Trees greater than 8-inch dbh (diameter measured at 4-1/2 feet from the ground).**
- ❑ **All Rare and Endangered plants.**
- ❑ **Snags greater than 18-inch dbh and not more than 30 feet in height which, should they fall, are not capable of reaching a road and have a separation of at least 100 feet between snags.**

	<b>Defensible Space Zone</b>	<b>Defensible Community Zone</b>
<b>Application</b>	Pertains to all parcels with structures in the unincorporated portions of the County. Clearance requirements, based on slope and vegetation types up to 200 feet from the structure(s).	The area outside of the Defensible Space zone. Pertains to all parcels ten acres and less within the unincorporated portions of the County.
<b>Grasses</b>	Grasses and weeds to be maintained to less than 4 inches.	Grasses and weeds to be maintained to less than 4 inches on unimproved parcels less than 1 acre.
<b>Brush-Shrubs</b>	Separated from other vegetation by a distance equal to at least 3 times the height of the fuel.	Separated from other vegetation by a distance equal to at least 1-1/2 times the height of the fuel.
<b>Trees</b>	Trees 8 inches dbh and less shall be spaced at least 20 feet apart. Exempt trees (>8 inches dbh), in order to reduce ladder fuels, shall have brush vegetation within their drip lines removed. Retained trees that are 8 inches dbh and less which exist within the drip line of larger overstory trees shall be spaced a minimum of 20 feet between their trunks.	Trees 8 inches dbh and less shall be spaced at least 15 feet apart. Exempt trees (>8 inches dbh), in order to reduce ladder fuels, shall have brush vegetation within their drip lines removed. Retained trees that are 8 inches dbh and less which exist within the drip line of larger overstory trees shall be spaced a minimum of 15 feet between their trunks.

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<b>Tree Groups</b>	Trees up to the 8-inch dbh with trunks within 3 feet of each other, essentially making one canopy, may be considered one tree.	Trees up to the 8-inch dbh with trunks within 6 feet of each other, essentially making one canopy, may be considered one tree.
<b>Branches</b>	Any dead woody material and low hanging limbs up to 8 feet above the ground or half the tree's height, whichever is less, shall be removed.	
<b>Natural Retention Areas</b>	Not Applicable	1/5 acre untreated natural retention area per acre can be grouped or spread across the property
<b>Riparian Areas</b>	Independently evaluated based on threat to structure.	Only dead material within riparian areas is required to be removed.
<b>Special Considerations</b>	Not Applicable	For parcels greater than 10 acres, the fuels treatment shall be placed in such a manner to inhibit the spread of high intensity fire to adjoining smaller parcels.

**APPENDIX - E RECOMMENDED CHANGES TO LAND USE AND  
DEVELOPMENT CODE CH. II-SETBACKS**

**NOTE: ITEMS IN RED ARE RECOMMENDED CHANGES TO THE LUDC**

**~~ITEMS WITH THE STRIKE THROUGH ARE RECOMMENDED TO BE  
REMOVED FROM THE LUDC~~**

**CHAPTER L-II 4.2.5 BUILDING SETBACKS**

**Sec. L-II 4.2.5 Building Setbacks**

A. PURPOSE. Building setbacks are intended to provide open areas around structures for visibility and traffic safety, access to and around structures for safety and convenience purposes, access to natural light, ventilation and direct sunlight, separation of incompatible land uses, space for privacy and landscaping, protection of natural resources, and defensible space against encroaching wildland fire.

1. For the specific purpose of providing defensible space against an encroaching wildfire, Exceptions to Standards as for provided in Sec. L-XVI 2.6 may be used for the application of same practical effect measures.

B. DEFINITIONS.

1. Setback – The distance by which a structure or an addition to a structure must be separated from a parcel line, natural feature, other structure, road, right-of-way, or easement.

2. Yard - An unoccupied space on a parcel on which a structure is situated, or for which a structure is intended, which is open from the ground upward, except as otherwise provided in this Chapter.

## NEVADA COUNTY FIRE PLAN

3. Yard, Front – A yard measured from the edge of the easement or right-of-way across the front of the parcel between side parcel lines and to a width required by the district in which said parcel is located.
  4. Yard, Exterior Side – A yard along the edge of a side street, right-of-way or easement to a width required by the district in which said parcel is located.
  5. Yard, Interior Side – A yard along the interior side parcel line of the parcel to a width required by the district in which said parcel is located.
  6. Yard, Rear – A yard extending along the rear parcel line of the parcel, or edge of easement or right-of-way on a through parcel, and to a width required by the district in which said parcel is located.
- C. STANDARD. Unless otherwise delineated on the zoning district map or otherwise provided in this Chapter, the space within a required setback as established for the base districts in Article 2 shall be unoccupied space open from the ground upward and no structure or addition to an existing structure of any kind shall be permitted within a required setback.
- D. NATURAL RESOURCES. Additional setbacks are required for selected natural resources as provided in Section 4.3 Resource Standards.
- E. DETERMINING THE FRONT YARD.
1. Interior parcels: The front yard shall be on the side containing the road right-of-way or easement.
  2. Corner parcels: The front yard shall be the shorter line abutting the road (except in commercial and industrial districts, in which case the longer line abutting the road shall be considered the front parcel line).

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3. Flag Pole Parcels: The front yard shall be the parcel line nearest and perpendicular to the driveway or flagpole portion.
4. Through Parcels: Shall maintain front yard setbacks on both the front and rear parcel lines.

### F. MEASUREMENT.

1. Front and Exterior Side: Setbacks from local and fire standard (or emergency) access roads shall be measured from the edge of the right-of-way, or from the centerline of the right-of-way, whichever setback standard is greater, to any portion of the structure.

Setbacks from arterial and collector roads shall be measured from the edge of the existing right-of-way, or ultimate right-of-way as provided in LUDC Section L-XVII 3.3 Table 2 or as determined by resolution of the Board of Supervisors, whichever setback standard is greater, to any portion of the structure.

2. Interior Side and Rear: Setbacks shall be measured from the side or rear property line to any portion of the structure.

### G. EXCEPTIONS TO BUILDING SETBACKS. Building setbacks must be maximized wherever possible; however, exceptions to setback standards are as follows:

1. Parcels that are less than 3 acres in size. Such parcels may reduce setbacks as follows:

## NEVADA COUNTY FIRE PLAN

“R1”, “R2”, and “R3” districts shall provide a 5’ interior side yard setback and a 20’ rear yard setback;

“RA”, “AG”, “AE”, & “FR” districts shall provide a 10’ interior side yard setback and a 20’ rear yard setback.;

Provided all of the following are satisfied:

- a. The site is served by a community or public water supply pursuant to Chapter XVI, Section 4.3 of the LUDC, ~~or, if approved by the California Department of Forestry, & Fire Protection, 2,500 gallons of storage available at 500 gallons per minute.~~
- b. The under-floor (subdeck) space of structures, including decks, of combustible construction shall be enclosed on the side or sides within that area between the standard setback and the reduced setback. The enclosure shall be skirting of solid sheathing or equivalent material. Venting of covered areas shall be allowed consistent with the Uniform Building Code. This protection may be omitted for areas where the horizontal supports are greater than 8’ from grade.
- c. One of the following features is incorporated into that portion the structure proposed within that area between the standard setback and the reduced setback:
  - 1) ~~The undersides of projections beyond the exterior wall including eaves, cantilever balconies and similar overhangs, shall be enclosed with solid sheathing or equivalent material. The undersides of attached decks 8’ or taller must similarly be enclosed. Venting of covered areas shall be allowed consistent with the Uniform Building Code.~~

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- 2) The sum of the area of unprotected openings in the exterior wall(s) shall not exceed 25 percent of the total area of the exterior wall(s).
  - 3) Non-combustible materials or materials approved for one-hour fire-resistive construction shall be installed on the exterior side of the wall. The location of the wall shall be approved by the County Fire Marshal or his/her appointed designee.
  - 4) ~~If the proposed construction is located on the uphill side of a slope in excess of 20%, a 4' high, non-combustible wall may be constructed along the length of the exposed side of the structure.~~
  - 5) If a setback easement is recorded on the adjacent parcel, providing the required 60' of defensible space between structures, which allows for modification and maintenance of vegetative fuels.
2. This section deleted. (Ord. #2090, 7/9/02.)
  3. Architectural Features/Aboveground Utilities. Such features, including but not limited to cornices, eaves, roof overhangs, canopies, decks and unenclosed porches not more than 18" in height, bay windows, steps, stairways, fire escapes, landing places, fireplaces, propane tanks and heating or air conditioning units, may extend into front and rear yard setbacks by not more than 5'.
  4. Site Design Features. The following features are exempt from the setback requirements of this Section:

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- a. Fences or walls that meet the height limits established in Section 4.2.6 of this Chapter.
  - b. Retaining walls less than 4' in height above the finished grade.
  - c. Signs consistent with Section L-II 4.2.12.
  - d. Underground utilities and septic tanks leach lines.
5. Open-Air Structures Abutting Water. Notwithstanding any other provision of Chapters II and XII of this Code, the following water-use related structures that do not include walls or roofs, may be constructed without complying with the rear and side property line setback requirements as established in this Code for any parcel of real property that abuts a lake, watercourse, or floodplain:
- a. Docks & Piers
  - b. Boat Hoists and Canopies
  - c. Private boat launch facilities
  - d. Directional hazard or warning, marina and gasoline signs.

See floodplain-related setback requirements in Section L-II 4.3.10.

6. Clustered Parcel Development, Dwelling Groups, and Planned Developments. Clustered parcels, dwelling groups, and planned developments (within both the base and combining districts) are exempt from the Article 2 setback standards, provided that:
- a. The modified setback standards are a part of a conditional use permit and/or subdivision map.
  - b. Findings for approval ensure consistency with and furthers the purpose of all Article 4.3. Resource Standards

## NEVADA COUNTY FIRE PLAN

- c. The modified standard is recorded as a part of the subdivision map, deed restriction, or other enforceable restriction.
7. Dwellings in Commercial/Industrial. Dwellings proposed in any commercial or industrial district shall provide setbacks as required in the “R2” and “R3” Districts, except when located within a commercial or industrial structure.
8. Swimming Pools. Shall maintain a minimum setback of 10’ from any side or rear property line and shall not be permitted within any required front yard setback. Fencing standards for swimming pools are contained in Article 15 of the Nevada County Land Use and Development Code.
9. Properties East of the 10E Range Line. Attached or detached garages and/or carports may be constructed within 1’ of the front property line if 20’ is maintained from the edge of pavement or traveled way if unpaved.
10. Setback Easements. In order to provide required side and rear building setbacks on properties that cannot otherwise provide those setbacks, a building setback easement may be recorded and recognized on adjacent properties, pursuant to the following standards:
  - a. Applications for setback easements shall include the written consent of the grantor and grantee property owners.
  - b. Applications shall include a site plan exhibit for all affected properties, pursuant to Section 5.1 of this Chapter, including a clear delineation of the proposed easement, reflecting the required setbacks for both grantor and grantee properties.

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- c. Applications for setback easements shall provide clear justification for the need of the easement, providing supporting documentation that other alternatives, including a variance, are not feasible.
- d. Setback Easements shall be recognized only after review and approval by the Planning Director who shall make findings that the recording of such easement will not jeopardize the integrity of the neighborhood nor will it conflict with any recorded Conditions, Covenant and Restrictions for all properties.
- e. A deed restriction shall be recorded concurrently with said easement in the Nevada County Recorder's Office, noting the purpose and intent of the setback easement and noting that building setbacks shall be measured from the setback easement.
- f. Reconveyance or other abandonment of a setback easement without the express approval of the County of Nevada shall constitute grounds for revocation of any permit issued pursuant to this Section.

### 11. Parking Lots.

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**APPENDIX-F RECOMMENDED CHANGES TO LAND USE AND  
DEVELOPMENT CODE CH. XVI-FIRE SAFETY REGULATIONS**

**NOTE: ITEMS IN RED ARE RECOMMENDED CHANGES TO THE LUDC**  
**~~ITEMS WITH THE STRIKE THROUGH ARE RECOMMENDED TO BE  
REMOVED FROM THE LUDC~~**

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ARTICLE 1 DEFINITION

Sec. L-XVI 1.1	Purpose
Sec. L-XVI 1.2	Definitions

# NEVADA COUNTY FIRE PLAN

## ARTICLE 1 DEFINITIONS

### Sec. L-XVI 1.1 Purpose

For the purpose of carrying out the intent of this Chapter, words, phrases and terms used herein shall be deemed to have the meaning ascribed to them. When not inconsistent with the content, words in the singular number include the plural and words in the plural include the singular. (Ord. #1734, 9/10/91)

### Sec. L-XVI 1.2 Definitions

- A. **ACCESSORY BUILDING:** Any building used as an accessory to residential, commercial, recreational, industrial or educational purposes as defined in the California Building Code, 1989 Amendments, Chapter II, Group M, Division 1, Occupancy that requires a building permit.
- B. **AGRICULTURE:** Land used for agricultural purposes as defined in a local jurisdiction's zoning ordinances.
- C. **BUILDING:** Any structure used or intended for supporting or sheltering any use or occupancy that is defined in the California Building Code, 1989 Amendments, Chapter II, except Group M, Division 1, Occupancy. For the purposes of this Article, building includes mobile homes and manufactured homes, churches and day care facilities.
- D. **CDF:** California Department of Forestry and Fire Protection.
- E. **DEAD END ROAD:** A road that has only one point of vehicular ingress/egress, including cul-de-sacs and looped roads.
- F. **DEFENSIBLE SPACE:** The area within the perimeter of a parcel, development, neighborhood or community where basic wildland fire protection practices and measures are implemented, providing the key point of defense from an approaching wildfire or defense against encroaching wildfires or escaping structure fires. The perimeter, as used in this Chapter, is the area encompassing the parcel or parcels proposed for construction and/or development, excluding the physical structure itself. The area is characterized by the establishment and maintenance of emergency vehicle access, emergency water reserves, street names and building identification, and fuel modification measures.

## NEVADA COUNTY FIRE PLAN

- G. DEVELOPMENT: As defined in Section 66418.1 of the California Government Code.
- H. DIRECTOR: The Director of the Department of Forestry and Fire Protection or his/her designee.
- I. DRIVEWAY: A vehicular access that serves no more than two parcels with no more than two (2) dwelling units on each, and any number of accessory buildings.
- J. DWELLING UNIT: Any building or portion thereof which contains living facilities for not more than one family, including provisions for sleeping, eating, cooking and/or sanitation.
- K. EXCEPTION: An alternative to the specified standard, requests by the applicant that may be necessary due to health, safety, environmental conditions, physical site limitations or other limiting conditions such as recorded historical sites to provide mitigation of the problem.
- L. FIRE VALVE: See hydrant.
- M. FUEL MODIFICATION AREA: An area where the volume of flammable vegetation has been reduced, providing reduced fire intensity and duration.
- N. GREENBELT: A facility or land use, designed for a use other than fire protection, which will slow or resist the spread of a wildfire. Includes parking lots, irrigated or landscaped areas, golf courses, parks, playgrounds, maintained vineyards, orchards or annual crops that do not cure in the field.
- O. HAMMERHEAD T: A roadway that provides a "T"-shaped, three-point turnaround space for emergency equipment, being no narrower than the road that serves it.
- P. HYDRANT: A valved connection on a water supply/storage system having at least one 2 1/2 inch outlet with male National Hose Threads (NH) used to supply fire apparatus and hoses with water.
- Q. LOCAL JURISDICTION: Any county, city/county agency or department or any locally authorized district that issues or approves building permits, use permits, parcel maps or tentative parcel maps or has authority to regulate development and construction activity.
- R. OCCUPANCY: The purpose for which a building, or part thereof, is used or intended to be used.

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- S. ONE-WAY ROAD: A minimum of one traffic lane width designed for traffic flow in one direction only.
- T. ROADS, STREETS, PRIVATE LANES: Vehicular access to more than two residential parcels; access to any industrial or commercial occupancy.
- U. ROADWAY: Any surface designed, improved, or ordinarily used for vehicle travel.
- V. ROADWAY STRUCTURES: Bridges, culverts, and other appurtenant structures which supplement the roadway bed or shoulders.
- W. SAME PRACTICAL EFFECT: As used in this Chapter, means an exception or alternative with the capability of applying accepted wildland fire suppression strategies and tactics and provisions for fire fighter safety including:
  - 1. access for emergency wildland fire equipment
  - 2. safe civilian evacuation
  - 3. signing that avoids delays in emergency equipment response
  - 4. available and accessible water to effectively attack wildfire or defend a structure from wildfire
  - 5. fuel modification sufficient for civilian and fire fighter safety
- X. SHOULDER: Roadbed or surface adjacent to the traffic lane.
- Y. STATE BOARD OF FORESTRY (SBOF): A nine member board, appointed by the Governor, which is responsible for developing the general forest policy of the State, for determining the guidance policies of the Department of Forestry and Fire Protection, and for representing the State's interest in federal land in California.
- Z. STATE RESPONSIBILITY AREAS (SRA): As defined in Public Resources Code Sections 4126-4127.
- AA. STRUCTURE: That which is built or constructed, an edifice or building of any kind, or any piece of work artificially built up or composed of parts joined together in some definite manner.
- BB. SUBDIVISION: As defined in Section 66424 of the Government Code.
- CC. TRAFFIC LANE: The portion of a roadway that provides a single line of vehicle travel.

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- DD. TURNAROUND: A roadway, unobstructed by parking, which allows for a safe opposite change of direction for emergency equipment. Design of such area may be a hammerhead/T or terminus bulb.
- EE. TURNOUTS: A widening in a roadway or driveway to allow vehicles to pass. Minimum 30' long plus 10' wide with a 25' taper on both ends.
- FF. VERTICAL CLEARANCE: The minimum specified height of a bridge or overhead projection above the roadway.
- GG. WILDFIRE: As defined in Public Resources Code Sections 4103 and 4104. (Ord. #1734, 9/10/91)

Ord. #1734, 9/10/91

### ARTICLE 2. GENERAL REQUIREMENTS

Sec. L-XVI 2.1	Purpose and Intent of Chapter
Sec. L-XVI 2.2	Scope
Sec. L-XVI 2.3	Project Consultation and Review
Sec. L-XVI 2.4	Violations
Sec. L-XVI 2.5	Inspection Authority
Sec. L-XVI 2.6	Exceptions to Standards
Sec. L-XVI 2.7	Appeals
Sec. L-XVI 2.8	Distance Measurements
Sec. L-XVI 2.9	Maintenance of Defensible Space Measures

# NEVADA COUNTY FIRE PLAN

## ARTICLE 2. GENERAL REQUIREMENTS

### Sec. L-XVI 2.1 Purpose and Intent of Chapter

The regulations contained in this Chapter and the provisions in Chapter II (Zoning Regulations), Chapter IV (Subdivision Regulations), Chapter VII (Street Addressing and Naming), and Chapter V (Buildings) and County adopted road standards collectively provide the necessary minimum wildfire protection standards that will minimize public safety effects with the establishment of land uses and buildings within State Responsibility Areas (SRA) lands within Nevada County. These regulations are intended to mitigate effects of wildland fire exposure to such land uses within the State Responsibility Areas and they are further adopted to equal, exceed, or provide the same practical effect contained in the California State Board of Forestry's Fire Safe Regulations adopted on November 7, 1990.

The fire safety regulations contained in these Chapters provide measures for emergency access, street name and building address signage, water reserves for emergency fire use, and vegetation modification.

These regulations are not to be applied retroactively to existing dwelling units as reflected on the official tax rolls as of October 10, 1991, or to any approved and unexpired entitlements (tentative maps, use permits, site plans, building permits, etc.). They shall be applied to all activities set forth in Sec. L-XVI 2.2. (Ord. #1734, 9/10/91)

### Sec. L-XVI 2.2 Scope

Activities affected by this Chapter include, but are not limited to:

- A. Subdivisions.
- B. Application for mobile home set-up permits and building permits for new construction, not related to an existing structure, filed on or after October 10, 1991.
- C. Application for a use permit and all ministerial and discretionary site plans.
- D. Road construction, including construction of a road that does not currently exist, or extension of an existing road, not including roads for agricultural or mining use solely on one ownership, and roads used solely for the management and harvesting of wood products.

## NEVADA COUNTY FIRE PLAN

(Ord. #1734, 9/10/91)

### Sec. L-XVI 2.3 Project Consultation and Review

- A. All projects subject to this Chapter shall be sent for review and comment to the appropriate fire district, to the California Department of Forestry Director (or designee) and/or any other designated fire official having expertise in wildland fire mitigation. Any conditions imposed by said fire agencies shall not be a substitute for or be less restrictive than the minimum requirements contained in these Chapters of the Nevada County Land Use and Development Code.
- B. All projects located on SRA lands shall be reviewed for compliance with all regulations in the Nevada County Land Use and Development Code that provide fire safety requirements. No project may be authorized until the decision-making body or County agent has verified that all appropriate requirements have become a condition of project approval.

(Ord. #1734, 9/10/91)

### Sec. L-XVI 2.4 Violations

Any permittee or applicant who violates any provision contained in this Chapter shall be guilty of an infraction pursuant to Sec. L-II 37.5 of the Land Use and Development Code. (Ord. #1734, 9/10/91)

### Sec. L-XVI 2.5 Inspection Authority

- A. Inspections of the various fire safety regulations on SRA lands shall be completed by the County department under whose jurisdiction the fire safety standard exists and which has inspection authority. The Board of Supervisors may, by Resolution, authorize a different County department, division or officer with fire protection responsibility to perform all or part of such inspection duties.
- B. Within local fire district boundaries, inspections established by this Chapter may be performed by district personnel with the approval of the California Department of Forestry and Fire Protection ~~Ranger~~ Unit Chief.
- C. All necessary inspections must be performed and approval obtained prior to final occupancy, map recordation or other authorization to occupy as applicable to the use or permit being finalized.

(Ord. #1734, 9/10/91)

## NEVADA COUNTY FIRE PLAN

### Sec. L-XVI 2.6 Exceptions to Standards

- A. All exceptions or modifications to the stated standards not contained in Chapter II of the Land Use and Development Code, **with the exception of L-II 2.5 Building Setbacks, as they relate only to the provision of defensible space**, shall be considered by the planning agency having jurisdiction over the land use entitlement. The planning agency shall consider all the facts associated with the requested exception and request for mitigated practices. In approving same, the hearing body must find that the substituted mean(s) provide the same overall practical effect. Such evidence shall be supported by the Director.

Exceptions or modifications to any portion of Chapter II of the Land Use and Development Code shall be considered pursuant to Article 30 (Area Variances) of Chapter II of the Land Use and Development Code. In addition to the findings required to approve an area variance, any exception or substitution to the stated standards shall have the same practical effect as supported by the Director and by finding of the appropriate hearing body.

- B. All requests for exceptions and area variances shall include the following information:
1. The specific Section of the applicable Chapter of the Land Use and Development Code that is being sought to be modified.
  2. Material facts and reasons supporting the request.
  3. Details of the exception and substitute standard being proposed along with a demonstration that the same practical effect is being achieved.
  4. Site plan and/or other supporting documentation showing the location of the exception, proposed modifications and any mitigating factors that contributes to the exception request.

(Ord. #1734, 9/10/91)

### Sec. L-XVI 2.7 Appeals

All appeals from this Chapter and any other Chapters of the Land Use and Development Code shall be processed pursuant to Article 33 of Chapter II of the Land Use and Development Code. Appeals may only be filed from actions taken by the appropriate hearing body. No appeal may occur without first having it considered as an exception or an area variance. (Ord. #1734, 9/10/91)

## NEVADA COUNTY FIRE PLAN

### Sec. L-XVI 2.8 Distance Measurements

All specified or referenced distances as to road lengths and vegetative clearing areas are measured along the **horizontal** ground, unless otherwise stated. (Ord. #1734, 9/10/91)

### Sec. L-XVI 2.9 Maintenance of Defensible Space Measures

To ensure continued maintenance of properties in conformance with these standards and measures and to assure continued availability, access, and utilization of the defensible space provided for in these standards during a wildfire, provisions for continued annual maintenance shall be included in the development plans and/or shall be provided as a condition of the permit, parcel or map approval. The persons or entity responsible for maintenance must be designated in the development plans. (Ord. #1734, 9/10/91)

Ord. #1734, 9/10/91

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ARTICLE 3 DRIVEWAYS

- Sec. L-XVI 3.1 Purpose
- Sec. L-XVI 3.2 Private Driveway Construction Standards
- Sec. L-XVI 3.3 Exception to Driveway Permit Requirement

# NEVADA COUNTY FIRE PLAN

## ARTICLE 3 DRIVEWAYS

### Sec. L-XVI 3.1 Purpose

Proper emergency access providing evacuation of residents and guests and access by emergency response vehicles is of paramount importance in order to assure that the spread of a wildland fire can be retarded, that improvements can be protected from wildland fire and that year round access can be assured for the owners' convenience and access by emergency vehicles. (Ord. #1734, 9/10/91)

### Sec. L-XVI 3.2 Private Driveway Construction Standards

All newly constructed residences shall be served by a driveway. Any subdivision proposing that two (2) lots be served by a common driveway shall have the driveway constructed prior to the map recordation. The driveway shall meet the following construction standards as administered by the Building Department through a driveway permit when a grading permit is not applicable:

#### A. DRIVEWAY GRADE

1. Below 4,000foot elevation, 16% maximum grade without a hard surface. For driveway grades between 16.1% and 20% refer to B.2. for surfacing requirement. For driveway grades between 20.1% and 25% refer to B.3 below. ~~except for distances less than 100 feet when topographic conditions make moderate grade impractical. In no event may such grades exceed 20%-25%.~~
2. Above 4,000 foot elevation, 16% maximum without a hard surface. For driveway grades greater than 16% up to a maximum of 20%, surfacing shall be as described in B.2.

#### B. DRIVEWAY SURFACE

1. A surface capable of supporting a 40,000 lbs. legally-loaded vehicle as certified by a registered civil engineer or a ~~minimum of 4"~~ Class II aggregate base compacted to a minimum of 4".
2. For driveway portions in excess of 16% up to the maximum 20%, the surface provided in B.1 (above) must be paved with 2" of Asphalt concrete, concrete or an engineered hard surface system.

## NEVADA COUNTY FIRE PLAN

3. For driveway portions in excess of 20% up to a maximum of 25% the surface must be roughened concrete or an engineered roughened hard surface. The roughened concrete surface must have surface drains in the shape of grooves in the driveway surface running diagonally from side to side to rapidly shed water. These grooves shall be two feet on center a minimum of 1/2 "deep and a minimum 1/4" wide. The engineered roughened hard surface must be designed to rapidly shed water.

### C. DRIVEWAY DESIGN

1. The vehicle access by a driveway must be built to within 50 feet of the nearest point of each dwelling unit. If the access to a dwelling unit is met through off street access, the distance between the dwelling and street must be easily traversable by pedestrians
2. Width: 10 foot minimum surfaced width with one foot shoulders on driveway grades up to 20%. 12 foot minimum surfaced width with one foot shoulders on driveway grades greater than 20% up to a maximum of 25%.
3. Vertical clearance: 15 feet minimum measured from the outside edge of the shoulder.
4. Horizontal curve radius: 50 foot minimum from centerline. Add 4' of surfacing to the outside of the curve for radii between 50.1 feet and 75 feet. Add 2' of surfacing to the outside of the curve for radii between 75' and 100'. ~~For all driveway radii less than 100', an additional 4' of surfacing shall be provided on said curves.~~
5. Vertical Curve: Any gradebreak of greater than 14% shall be made by means of a minimum 20 ft. radius vertical curve.
6. Back-out maneuvering area in front of parking garages and open parking stalls: 24 feet. This area may be used as a part of the turnaround, but not as required off street parking.
7. For driveways in excess of 400 feet, a turnaround or hammerhead T of 12 percent maximum grade shall be provided within 100 feet of the dwelling and meeting the following standards:
  - a. Turnaround: The terminus bulb shall have a minimum 40' radius.
  - b. Hammerhead T: The long axis shall be a minimum of 60' and the leg shall be a minimum of 40'.

## NEVADA COUNTY FIRE PLAN

For driveways less than 400' in length and where 50% or more of that driveway is greater than 16% grade, a turnaround shall be required where the driveway length exceeds 200'

*Note: the purpose for this requirement is to minimize the distance a fire engine has to back down a steep driveway recognizing that the air compressor for the braking system may not be able to supply enough air with the engine running at an idle.*

8. Turnouts: Driveway lengths exceeding 400', but less than 800' shall have a turnout near the mid-point. Where the driveway exceeds 800', turnouts shall be provided no more than 400' apart.
- 9 All bridge and culvert portions of the driveway shall support a 40,000 pound legally loaded vehicle.

Roadside vegetation: A fuel modification area shall be provided for a distance of 10 feet on the uphill side of each side of the driveway and 10' for every 10% of topographic slope on the downhill side of the driveway. The fuel modification shall be consistent with the community level fuel management prescription.

- 10 All appropriate grading, drainage and erosion control shall be included pursuant to Chapter V of the Land Use and Development Code.
- 11 Lateral slopes must be designed and installed to accommodate a minimum 2% and maximum 4% cross slopes, taking topography into consideration.

### D. Gates on Driveways

1. Gate entrances shall be at least two feet wider than the width of the traffic lanes serving the gate.
2. All gates providing access from a road to a driveway or another road shall be located at least 30 feet away from the primary roadway and shall open to allow a vehicle to stop without obstructing traffic on that primary road.

### E. Driveway Encroachment onto Private Roads

1. Driveway encroachment onto private roads shall be constructed in accordance with Standard Drawing B-8 'Encroachment Detail – PRIVATE DRIVEWAY' except that encroachment surface shall be equal to or greater than the surfacing of the private road.

(Ord. #1748, 10/22/91; paragraph 9 amended by Ord. #1919, 11/5/96)

## NEVADA COUNTY FIRE PLAN

### Sec. L-XVI 3.3 Exception to Driveway Permit Requirement

A driveway permit pursuant to this Article shall not be required for a driveway completed prior to November 21, 1991, so long as the driveway was constructed under and in compliance with a duly issued grading permit and the driveway as constructed complies with the driveway construction standards of Sec. L-XVI 3.2. (Ord. #1773, 5/12/92)

Ord. #1734, 9/10/91; Ord. #1748, 10/22/91; Ord. #1773, 5/12/92; Ord. #1919, 11/5/96

## ARTICLE 4 EMERGENCY WATER SUPPLY

Sec. L-XVI 4.1	Purpose and Intent
Sec. L-XVI 4.2	Application
Sec. L-XVI 4.3	General Standards
Sec. L-XVI 4.4	Standards for Hydrants/Fire Valves

## ARTICLE 4 EMERGENCY WATER SUPPLY

### Sec. L-XVI 4.1 Purpose and Intent

To provide available and accessible emergency water for wildfire protection on SRA lands, in specified quantities and locations to attack a wildfire or defend property from a wildfire. Such emergency water may be provided in a fire agency mobile water tender or naturally occurring or manmade containment structure, as long as the specified quantity is immediately available. (Ord. #1734, 9/10/91)

### Sec. L-XVI 4.2 Application

## NEVADA COUNTY FIRE PLAN

- A. Subdivisions, use permits, **administrative development permits**, site plans. The provisions of this Article shall apply when new parcels, use permits, or site plans are approved. The water supply **requirements shall be met** ~~shall be available on-site~~ prior to map recordation in the case of subdivisions, or building construction in the case of use permits or site plans.
- B. ~~Remote single-family residential buildings. The provisions of this Article shall apply when building permits are approved for residential structures that are in excess of eight (8) miles from the closest fire department water tender and which otherwise do not meet the requirements of Sec. L-XVI 4.3. The stored amount of water available for fire protection shall be 2500 gallons, exclusive of domestic requirements. The water shall be available on-site at the time of the framing inspection. Construction of the water storage facility shall be in compliance with Examples 1, 2 and 3.~~

*Note: This section is proposed for repeal only with successful implementation of the Rural Fire Protection Water Supply System>*

(Ord. #1734, 9/10/91)

NEVADA COUNTY FIRE PLAN

EXAMPLE 1: ON FILE WITH THE BOARD OF SUPERVISORS

EXAMPLE GRAPHICS NOT YET AVAILABLE

NEVADA COUNTY FIRE PLAN

EXAMPLE 2: ON FILE WITH THE BOARD OF SUPERVISORS

EXAMPLE GRAPHICS NOT YET AVAILABLE

NEVADA COUNTY FIRE PLAN

EXAMPLE 3: ON FILE WITH THE BOARD OF SUPERVISORS

EXAMPLE GRAPHICS NOT YET AVAILABLE

NEVADA COUNTY FIRE PLAN

Sec. L-XVI 4.3 General Standards

Each subdivision shall install a water supply system as provided in the following chart. All emergency water to meet fire flow requirements is in addition to the domestic water source.

LAND USE	DENSITY AC/DU	SYSTEM TYPE	FIRE FLOW REQ. (GPM)	HYDRANT SPACING
SINGLE-FAMILY	0-.5	Public (Note 1)	1,000	500
	.5-1.0	Public (Note 1)	<del>500</del> 1000	500
	1.01-1.5	Public (Note 1)	<del>500</del> 1000	1,000
	1.51-3	Public (Note 1)	<del>500</del> 1000	1,000
		Community (Note 2)	500	1,000
	3-5*	Public (Note 1)	<del>500</del> 1000	2,000
		Community (Note 2)	500	2,000
		Class 8 (Note 3)		1 mile
	5+*	Public (Note 1)	<del>500</del> 1000	2,000
		Community (Note 2)	500	1 mile
	Class 8 (Note 3)	500	1 mile	
MULTIPLE-FAMILY DWELLINGS		Refer to Sec. 10.301(c) of 1988 Uniform Fire Code Refer to the currently adopted version of the Calif. Fire Code		
COMMERCIAL		Refer to Sec. 10.301(c) of 1988 Uniform Fire Code Refer to the currently adopted version of the Calif. Fire Code		
INDUSTRIAL		Refer to Sec. 10.301(c) of 1988 Uniform Fire Code Refer to the currently adopted version of the Calif. Fire Code		

## NEVADA COUNTY FIRE PLAN

\* NOTE: Subdivisions using Class 8 may require installation of strategic water supply with storage volumes based on the formula for community water systems.

1. PUBLIC WATER SYSTEM - Nevada Irrigation District or other public water purveyor standards.
2. COMMUNITY WATER SYSTEM - Centrally located water storage system maintained by property owners.

In no case shall the water storage quantity be less than 4000 gallons regardless of the number of parcels served. All such systems shall be designed to avoid contamination of potable water supplies in accordance with Environmental Health Standards.

The minimum water supply shall be determined by using the Formula  $Q=1500F$  when  $Q$ =quantity of water storage and  $F$ =the number of units or parcels served.

3. CLASS 8 - Those areas within a fire jurisdiction where the Insurance Services Office (ISO) has issued a dwelling Class 8 rating. Typically within five miles of a fire station and within eight miles of a water tender.

In no case shall the water storage quantity be less than 4000 gallons regardless of the number of parcels served. All such systems shall be designed to avoid contamination of potable water supplies in accordance with Environmental Health Standards.

The minimum water supply shall be determined by using the Formula  $Q=1500F$  when  $Q$ =quantity of water storage and  $F$ =the number of units or parcels served.

(Ord. #1734, 9/10/91)

### Sec. L-XVI 4.4 Standards for Hydrants/Fire Valves

When the fire protection water supply consists of a static water source, a dry hydrant connection shall be provided for fire department use. A dry hydrant connection is an arrangement of pipe permanently connected to a water source that provides a ready means of accessing a water supply for firefighting purposes and that utilizes the drafting (suction) capability of fire department pumps.

General requirements for the installation of a dry hydrant:

1. The dry hydrant shall be readily accessible by fire apparatus and shall be located not less than 50 feet or more than 500 feet from the structure intended to be

## NEVADA COUNTY FIRE PLAN

served by the system.

2. The dry hydrant shall be located within 10 feet of the driveway or other approved access roadway.
  - (a) If the dry hydrant is located along the driveway serving a single structure or along the primary access roadway serving multiple structures, the connection shall be located in such a manner that fire apparatus can utilize the hydrant without obstructing the access roadway.
  - (b) An approved turnout, consisting of a 10-foot wide driving surface with a 25-foot taper on either end (total length of 75 feet), shall be provided when the dry hydrant is placed adjacent to a single lane access roadway or where fire apparatus using the hydrant would obstruct the access roadway.
  - (c) All flammable vegetation within 10 feet of the dry hydrant shall be removed.
3. Piping supplying the dry hydrant shall be not less than 4 inches in diameter.
  - (a) If PVC piping is used, the piping shall be Schedule 40, or better.
    1. Exposed PVC piping shall be primed and painted with epoxy paint or otherwise protected from damage that could be caused by exposure to sunlight in an approved manner.
    2. If PVC piping is used for the dry hydrant, an approved brace or support shall be provided to support the connection
  - (b) If galvanized steel piping is used, the piping in contact with the soil shall be wrapped with 2 layers of Mil Tape or otherwise protected from corrosion in an approved manner.
4. The connection for the dry hydrant shall consist of a 4-1/2 inch threaded male fitting with National Standard Threads. The connection shall be provided with an approved cap to protect the threads and to protect the water supply from contamination.
5. The connection for the dry hydrant shall be located between 18 inches and 36 inches above the finished grade.
6. If the dry hydrant connection is located lower than the water source, such as a storage tank, an approved valve at the base of the dry hydrant shall be provided to control the water flow.
  - (a) Provisions shall be made to drain any standing water from the piping above the valve.

## NEVADA COUNTY FIRE PLAN

- (b) Any exposed piping that contains water shall be protected from freezing in an approved manner.
7. Closed storage tanks shall be vented in an approved manner.
- (a) Vent piping shall be equal to or larger than, the size of the piping serving the dry hydrant.
  - (b) The vent opening shall be screened with an approved material to prevent obstruction of the vent or contamination of the water supply.
8. When the water supply consists of an open water source such as a lake, reservoir, or pond, the following shall apply:
- (a) If the distance between the water source and the dry hydrant is greater than 100 feet, a minimum 6-inch piping shall be used to supply the dry hydrant.
  - (b) The piping between the base of the dry hydrant and the water source shall be buried at least 3 feet below the finished grade.
  - (c) The end of the piping located in the water source shall be located a minimum of 2 feet above the bottom surface of the water source and a minimum of 2 feet below the lowest recorded level of the top surface of the water source.
  - (d) The end of the piping located in the water source shall be fitted with a commercially manufactured dry hydrant strainer, a hand-made strainer consisting of a capped section of pipe with 1000 holes that are 5/16 inch in diameter drilled along the length, or equal.
  - (e) The distance between the lowest recorded level of the water surface and the connection for the dry hydrant shall not exceed 10 vertical feet.
9. Approved signs indicating the size, location, and access travel route to a fire protection water storage facility shall be provided in such a manner that all pertinent information relating to the facility is clearly identified.
- (a) All signs shall be mounted on noncombustible posts, shall be a minimum of 18" by 24" in size, and shall be a minimum of 0.080 gauge metal.
  - (b) The sign(s) shall have a reflective blue background with a minimum of 3" high reflective lettering that sharply contrasts with the background.
  - (c) If the water supply consists of a fixed amount, such as an underground or aboveground storage tank, the sign shall be located on or adjacent to the facility. The sign shall be clearly visible and legible from the access roadway

## NEVADA COUNTY FIRE PLAN

serving the facility. The lettering on the sign shall be arranged as shown in the following example:

6,000 Gallon  
Fire Protection  
Water Supply

- (d) If the water storage facility consists of a reservoir, pond, or similar facility, at least one sign shall be provided at the intersection of the primary access roadway serving the area and the access roadway serving the water storage facility. This sign shall be located in such a manner that it is clearly visible and legible from the primary access roadway serving the area. Additional signs shall be provided along the access roadway serving the water storage facility if the route of travel is not easily recognized. The lettering on the sign shall be arranged as shown in the following example:

Access to  
Fire Protection  
Water Supply

- A. ~~The hydrant shall be located 18" above grade in a turnout/turnaround or other approved location, not less than 50' from any building. Flammable vegetation shall be removed within 8' of the hydrant.~~
- B. ~~The hydrant shall be: (1) brass with 2 1/2 inch National Hose male thread with cap for pressure and gravity flow systems and 4 1/2 inch for draft systems; or (2) any hydrant approved by the American Water Works Association. Such hydrants shall be an insulated wet barrel or dry barrel as required by the delivery system. It shall have suitable crash protection if required by the local jurisdiction.~~
- C. ~~Signing of Water Sources – Each hydrant/fire valve or access to water shall be identified as follows:~~
- ~~1. If located along a driveway, a reflectorized blue marker, with a minimum dimension of 3 inches shall be located on the driveway address sign and mounted on a fire retardant post, or~~
  - ~~2. If located along a street or road, it shall be marked/signed to the satisfaction of the fire agency with fire protection responsibility or the hydrants located along state highways shall be as specified in the State Fire Marshal's Guidelines for Fire Hydrant Markings Along State Highways and Freeways.~~

(Ord. #1734, 9/10/91)

NEVADA COUNTY FIRE PLAN

ARTICLE 5. FUEL MODIFICATION

- Sec. L-XVI 5.1 Purpose and Intent
- Sec. L-XVI 5.2 Disposal of Flammable Vegetation and Fuels
- Sec. L-XVI 5.3 ~~Fuel Modification/Greenbelts~~ Management of Vegetative Fuels

ARTICLE 5 FUEL MODIFICATION

Sec. L-XVI 5.1 Purpose and Intent

To reduce the intensity of a wildfire by reducing the volume and density of flammable vegetation, these areas shall provide (1) increased safety for emergency fire equipment and evacuating civilians; and (2) ~~a point of attack or defense from a wildfire;~~ and significant reduction in fire intensity resulting in lower resistance to fire control efforts; and (3) ~~strategic siting of fuel modification and greenbelts;~~ a reduction in costs and losses from wildland fire. (Ord. #1734, 9/10/91)

Sec. L-XVI 5.2 Disposal of Flammable Vegetation and Fuels

Disposal of flammable vegetation and fuels caused by site development and construction, road and driveway construction and fuel modification, including chipping, burying, burning or removal to a landfill site approved by the local jurisdiction, shall be completed prior to completion of road construction or final inspection of a building permit or subdivision, whichever is appropriate. (Ord. #1734, 9/10/91)

Sec. L-XVI 5.3 Fuel Modification/Greenbelts Management

As a condition of approval of any Tentative or Final Subdivision Map, the applicant shall submit to the County Fire Marshal a vegetative fuels management plan that complies with the provisions of the County Ordinance describing the Landscape Level Fuel Management Prescription. The fuels management plan shall be implemented prior to the recordation of any map.

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~~As determined by the Director, a fuel modification zone or greenbelt may be required along all or some subdivision exterior boundaries. All subdivisions in excess of 10 lots with a density of one residence per 1-1/2 acres or greater shall provide greenbelts or fuel modification areas as a separation between wildland fuels and the lots within the subdivision. In all cases, the minimum width of a greenbelt or fuel modification zone shall be determined by the Director.~~

~~Depending on the fire hazard severity classification and other factors, those subdivisions providing a greenbelt may reduce or otherwise eliminate the setbacks required in the base zoning district in Chapter II of the Land Use and Development Code requiring 30" to interior side and rear yards. The less setbacks provided for may be used in lieu of the 30 feet. Such reduction or elimination of setbacks must be determined as part of the review of the tentative map and shall be incorporated as notes on the final map.~~

(Ord. #1734, 9/10/91)

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NEVADA COUNTY FIRE PLAN

**APPENDIX-G RECOMMENDED CHANGES TO LAND USE AND  
DEVELOPMENT CODE CH. XVII-ROAD STANDARDS**

**NOTE: ITEMS IN RED ARE RECOMMENDED CHANGES TO THE LUDC**  
**~~ITEMS WITH THE STRIKE THROUGH ARE RECOMMENDED TO BE  
REMOVED FROM THE LUDC~~**

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**Sec. L-XVII 3.4 Design Geometrics**

**A. DESIGN WIDTHS AND SPEEDS**

The minimum design widths, speeds and other major design criteria for road construction are as follows in the chart on the following page. Further details are provided in the Standard Drawings to be adopted by resolution to supplement this Chapter.

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TABLE II

NEVADA COUNTY STANDARD SPECIFICATION SUMMARY CHART

Functional Classification	Min. Right of Way Width Note 4	Standard Lane Width	Standard Shoulder Width	Fuel Mod. Zone Width	Standard Design Speed	Standard Max. Grade Below 3500'	Standard Max. Grade Above 3500'	Required Surface
Minor Arterial (Urban)	60-100'	12'	Varies	10' min.	35 mph	10%	8%	Note 1,6
Minor Arterial (Rural)	60'	12'	6'	10' min.	35 mph	10%	8%	Note 1,6
Collector (Urban)	60-100'	12'	Varies	10' min.	35 mph	10%	8%	Note 1,6
Major Collector (Rural)	60'	12'	4'	10' min.	35 mph	10%	8%	Note 1,6
Minor Collector (Rural)	60'	12'	4'	10' min.	35 mph	10%	8%	Note 1,6
Local Class 3 Over 2000 ADT	60'	12'	4'	10' min.	35 mph	10%	8%	Note 1,6
Class 2 401-2000 ADT	50'	10'	4'	10' min.	25 mph	10%	8%	Note 1,5,6
Class 1 101-400 ADT	50'	9'	2'	10' min.	20 mph	10%	8%	Note 1,5,6
Fire Standard Access Road Up to 100 ADT Two-Way One-Way	50' 34'	9' 10'	1' 2'	10' min. 10' min.	20 mph 20 mph	16% 16%	16% 16%	Note 2,5,6 Note 2,5,6
Driveway								Note 3

## NEVADA COUNTY FIRE PLAN

- Note 1: All structural sections for this classification based on future year traffic and estimated percentage of that traffic which will be heavy vehicle
- Note 2: Surface capable of supporting a 40,000 lb. vehicle with a minimum 4" A.B. compacted to 95% with sub-grade compacted to 90%
- Note 3: Driveway standard specifications are contained in Chapter XVI of the Nevada County Land Use and Development Code, Fire Safety Regulations
- Note 4: Intersection channelization may increase the minimum right of way at spot locations
- Note 5: If approved by the Engineer, all grades over 10% will require minimum 2" A.C. surface
- Note 6: A Vertical Clearance of 15 ft shall be provided over all roads including required shoulders.

### B. ROADSIDE FUEL MODIFICATION

Roadside fuel modification shall be as described in LUDC Sec. L-XVI 3.2 C.8.

**APPENDIX – H GLOSSARY OF TERMS**

**Acre foot:** The volume of water, equal to one acre covered by one foot of water or 43,560 cubic feet. One acre-foot equals 326,000 gallons or enough for two families for one year.

**Aspect:** The direction toward which a slope faces (*e.g.*, south facing or *north* facing)

**Brush or Shrub Separation:** The rule of “1 1/2 to 3 x height” applies to the horizontal separation of all brush or shrub plants within each Fire-Safe zone. Separate each plant by a minimum of this distance.

**Chimney:** A topographic feature, usually in a V shaped depression, creek bed, or canyon running a vertical direction from the base to the top of a ridge. These features may act as a “chimney” to conduct and direct heat and flame toward the ridge top. Structures situated in such areas may be at greater risk from on-coming wildfire.

**Conifers [softwoods]:** Sugar pine, ponderosa pine, digger pine, Douglas fir, and incense cedar.

**Crown:** The upper part of a tree or other woody plant carrying the main branch system and foliage.

**Crown Separation:** The distance from the outer edge of one tree crown from the adjacent tree crown.

**Decadent:** In regards to vegetation, it refers to plants of declining vigor and deteriorating health.

**Defensible Space:** That area which lies between a house and an oncoming wildfire where the vegetation has been modified to reduce the means of rapidly transmitting fire from native or ornamental growth to any building or structure. Defensible space may also aid firefighters by providing a less dangerous area from which to defend a structure. Aggressive defensible measures may provide stand-alone survival of property without the benefit of active fire suppression measures.

**Defensible Space Zone:** An area in which the vegetation has been modified to reduce the rapid transmission of heat and flame, generally from an approaching wildfire toward residential structures or other buildings. This zone may be as little as 100’ to as much as 200’ feet or more depending on vegetation, slope, and other natural influences.

**Drip Line:** The outer edge of the tree crown described as “that area where water would shed off the tree.”

## NEVADA COUNTY FIRE PLAN

**Fire environment:** The surrounding conditions, influences, and modifying forces of topography, fuel, and weather that determine fire behavior.

**Fire Fuel:** Any combustible material. As related to wildfire, fuels typically refer to living or dead vegetation, and duff. Structures too, are a component, and contribute to the wildland fuel mix!

**Fire Fuel Load:** The volume or mass of the vegetation, in weight and density.

**Fire Fuel Reduction:** A process of thinning and separating the horizontal and vertical arrangement of the vegetation within a prescribed Defensible Space Zone to reduce the transmission of fire from the wildland to the buildings.

**Fire Resistive Vegetation:** All plants are flammable, but fire resistive plants burn at relatively low intensities, with a slow rate of spread and with short flame lengths. The following are some characteristics of fire resistive vegetation:

- Growth with little or no accumulation of dead vegetation, either on the ground or standing upright.
- Non-resinous plants or those having low sap or resin content.
- Low total volume vegetation; grass as opposed to shrubs or brush, as opposed to trees.
- Broad leaf deciduous trees as opposed to those with needle or blade leaves.
- Plants with high live fuel moisture.
- Plants with heavy stem and limb structure.

**Flash fuels:** Small size fuels (*1/2 inch in diameter or smaller*) loosely arranged such as grass, pine needles, etc.

**Fuelbreak:** A strategically located wide block, or strip, on which a cover of dense, heavy, or flammable vegetation has been permanently changed to one of lower fuel volume or reduced flammability, allowing for safe access by firefighters. A fuelbreak is usually constructed on a ridge and the fuelbreak width varies with the height of the heavy fuels. A *shaded fuelbreak* is a fuelbreak located in forest or woodlands, where the trees are pruned up to 20', and the intermediate shrubs, brush, and dead fuels are removed and replaced with grasses and forbs.

**Fuel Loading:** Refers to the amount of vegetation, live and dead, available for burning in an area and is commonly measured in tons (dry weight) per acre.

**Hardwoods:** Oaks - blue oak, black oak, live oak; alder, willow, madrone, and cottonwood.

**Ladder Fuel:** Or Fuel Ladder. Fuels that provide vertical continuity between strata, Fire is able to move from surface fuels (grass/brush) into tree crowns with relative ease.

## NEVADA COUNTY FIRE PLAN

**Litter:** A surface layer of loose organic debris in forests, consisting of freshly fallen or slightly decomposed organic materials such as leaves, pine needles, and twigs.

**Native Plant Species:** Plants regenerated from seed sources indigenous to the same geographic place.

**Ornamental Specimen:** Single specimens of trees, ornamental shrubbery, or similar plants, which are used as ground cover, are generally acceptable if they do not form a means of rapidly transmitting fire from native growth to any building or structure.

**Overstory:** Those portions of the trees in a forest stand forming the upper tree crown cover.

**Pyrophytes:** Plants that ignite readily and burn intensely. Pyrophytes are typically:

- Blade or needle leaf evergreens
- Stiff, woody, small or fine lacey leaves.
- Leaves or wood containing volatile waxes, fats, terpenes or oils. (Crushed leaves have strong, aromatic odors)
- Sap usually gummy, resinous, strong odor.
- Contain plentiful fine, twiggy, dry or dead materials.

**Ridgetop:** A ridge top is the highest point running the length of a long narrow hill or chain of mountains.

**Saddle:** A saddle shaped depression in the ridge of hill. Often found at the head of a “chimney.”

**Slope:** Upward or downward inclination. Measures of the vertical rise or fall all of a slope from a given point. Usually expressed in percent or degree of rise of fall.

**Tree Canopy:** The crown cover of green leaves and branches formed by all of the tree crowns in a forest.

**Tree Crown:** The branches and foliage of a tree; the upper portion of a tree.

**Wildfire:** Any unwanted fire occurring in a wildland setting.

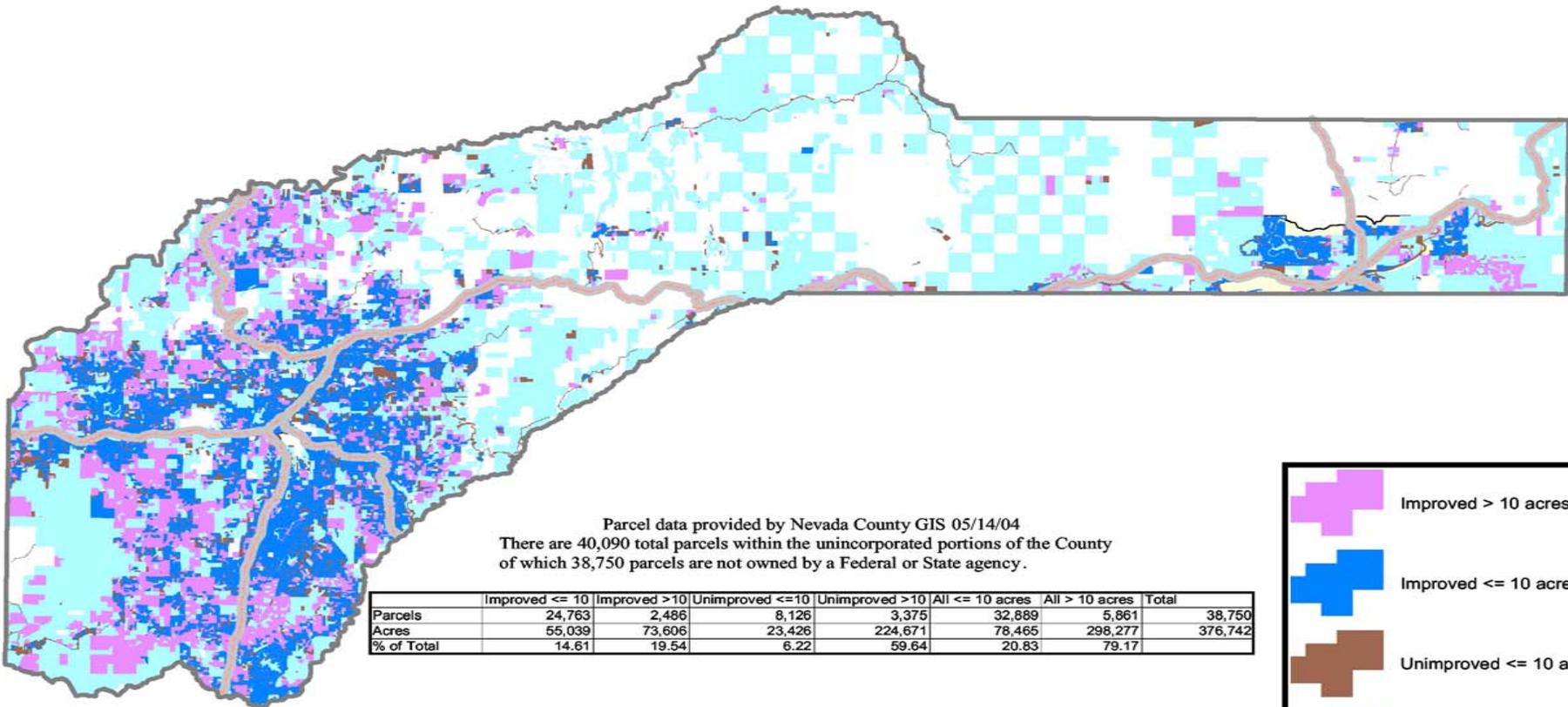
**Wildland/Rural Intermix:** Where many structures are present on a random or matrix pattern throughout large areas that are covered with contiguous brush and trees.

**Wildlife Habitat:** Vegetation, climate, and other natural conditions suited to the life needs for an animal species to survive and reproduce.

# NEVADA COUNTY FIRE PLAN

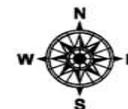
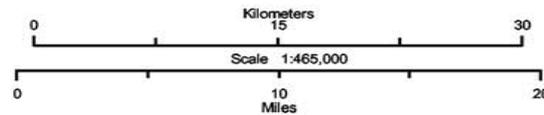
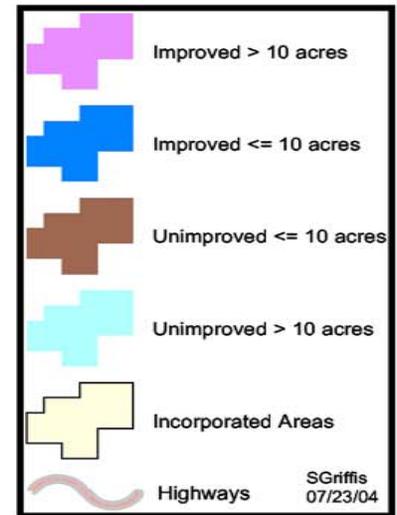
## **APPENDIX I- MAPS**

# Nevada County Parcel Allocations



Parcel data provided by Nevada County GIS 05/14/04  
 There are 40,090 total parcels within the unincorporated portions of the County  
 of which 38,750 parcels are not owned by a Federal or State agency.

	Improved <= 10	Improved >10	Unimproved <=10	Unimproved >10	All <= 10 acres	All > 10 acres	Total
Parcels	24,763	2,486	8,126	3,375	32,889	5,861	38,750
Acres	55,039	73,606	23,426	224,671	78,465	296,277	376,742
% of Total	14.61	19.54	6.22	59.64	20.83	79.17	



SGriffis  
07/23/04

# Nevada County Fire Plan

## Addendum 1.

1. Recommendation 1. Include the Tahoe/Truckee Unified School District as a participant in development of a school curriculum having to do with teaching students about the fire adapted ecosystem. (Supervisor Green)
2. Recommendation 7. Clarification. Recommendations for activities and the application of standards within very high fire hazard areas associated with the Second Dwelling Unit Pilot Program are already contained in recommendations for application within CDF's Very High Hazard Severity Zones within which lie all of the of the Second Dwelling Unit very high fire hazard areas. (Supervisor Van Zant)
3. Recommendation 21. Add, "The FPC further recommends that the elderly/disabled emergency notification/evacuation system (known as S.A.F.E. or Special Assistance for Emergencies) be maintained as a viable method for early notification and evacuation of elderly or disabled citizens in the vicinity of major emergencies." (Supervisor Sutherland)
4. Recommendation 25. Clarification. The recommendation states that "... green waste pick up, mulching or composting be the preferred alternative for leaf and pine needle disposal." The intent is that this recommendation is referring to leaves that have fallen from trees or shrubs because of seasonal changes and when piled together do not burn freely, generating an inordinate amount of smoke. (Supervisor Sutherland)
5. Goal II, Objective D. Add Recommendation 20-1. "The FPC recognizes the fire protection value of having economical and readily available irrigation water available to the landowners of Nevada County and recommends continued support for the Nevada Irrigation District and the agricultural community in keeping irrigation water available in the future. It further recommends that NID work closely with the fire service to make irrigation water readily accessible for fire suppression purposes." (Supervisor Sutherland)

# Nevada County Fire Plan

## Addendum 2.

1. **Recommendation 16.** Development of a compliance program for future developments and the extent permitted by State law to ensure that roads required as a condition of approval through subdivision maps are maintained over the long term, to the standard that they were originally approved.
2. **Recommendation 17.** The DOTS, along with County OES, law enforcement and fire services, conduct an analysis of private roads with offer of dedication on them and identify those of significant regional importance for fire safe ingress and egress. Once identified, those roads need to be prioritized for inclusion into the County maintained mileage program through a public process. Inclusion into the County maintained mileage system would require compliance with the County policy that they be brought up to County road standards and have a funding mechanism in place for future maintenance (e.g. CSA or PRD).



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CatNum	Family	Genus	Species	Locality	
66369	VERTIGINIDAE	Vertigo	allyniana	CALIFORNIA: Nevada County: Donner Lake:	Details
74848	ASTACIDAE	Pacifastacus	leniusculus	CALIFORNIA: Nevada County: near Nevada border:	Details
77198	ARIONIDAE	Ariolimax	columbianus	CALIFORNIA: Nevada County [?]: on road from Nevada City to N Columbia:	Details
79079	LYMNAEIDAE			CALIFORNIA: Nevada County: Hobart Mills. Elev. 6000 (ft.):	Details
79080	LYMNAEIDAE			CALIFORNIA: Nevada County: Grass Valley:	Details
80475	LIMACIDAE	Deroceras		CALIFORNIA: Nevada County: Truckee River Canyon:	Details
80732	HELMINTHOGLYPTIDAE	Helminthoglypta	cypreophila	CALIFORNIA: Nevada County: North San Juan:	Details
81052	PISIDIIDAE			CALIFORNIA: Nevada County: 3 mi N of Boca:	Details
81062	PISIDIIDAE			CALIFORNIA: Nevada County: Little Truckee River:	Details
93837	HYDROBIIDAE	Fluminicola	turbiniformis	CALIFORNIA: Nevada County: E side Donner Lake:	Details
111396	LYMNAEIDAE	Radix	auricularia	CALIFORNIA: Tahoe National Forest: Nevada County: McMurray Lake:	Details
111420	EUCONULIDAE	Euconulus	fulvus	CALIFORNIA: Tahoe National Forest: Nevada County: East Fork Creek:	Details
111421	HELMINTHOGLYPTIDAE			CALIFORNIA: Tahoe National Forest: Nevada County: East Fork Creek:	Details
111422	DISCIDAE	Discus	whitneyi	CALIFORNIA: Tahoe National Forest: Nevada County: East Fork Creek:	Details
			pellucida	CALIFORNIA: Tahoe National	

111423	VITRINIDAE	Vitrina	alaskana	Forest: Nevada County: East Fork Creek:	Details
111424	ARIONIDAE	Ariolimax	columbianus	CALIFORNIA: Tahoe National Forest: Nevada County: East Fork Creek:	Details
111434	VITRINIDAE	Vitrina	pellucida alaskana	CALIFORNIA: Nevada County: Little Truckee River:	Details
112115	LIMACIDAE	Deroceras		CALIFORNIA: Nevada County: Little Truckee River:	Details
112116	VALLONIIDAE	Vallonia		CALIFORNIA: Nevada County: Little Truckee River:	Details
112117	EUCONULIDAE	Euconulus	fulvus	CALIFORNIA: Nevada County: Little Truckee River:	Details

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CatNum	Family	Genus	Species	Locality	
112118	LYMNAEIDAE			CALIFORNIA: Nevada County: Little Truckee River:	<a href="#">Details</a>
112119				CALIFORNIA: Nevada County: Little Truckee River:	<a href="#">Details</a>
112127	PLANORBIDAE	Planorbella	subcrenatum	CALIFORNIA: Tahoe National Forest: Nevada County: Mills Spring:	<a href="#">Details</a>
112128				CALIFORNIA: Tahoe National Forest: Nevada County: Boca Spring:	<a href="#">Details</a>
112129	LYMNAEIDAE			CALIFORNIA: Tahoe National Forest: Nevada County: Boca Spring:	<a href="#">Details</a>
112130	VITRINIDAE	Vitrina	pellucida alaskana	CALIFORNIA: Tahoe National Forest: Nevada County: Boca Spring:	<a href="#">Details</a>
112131	EUCONULIDAE	Euconulus	fulvus	CALIFORNIA: Tahoe National Forest: Nevada County: Boca Spring:	<a href="#">Details</a>
112132	PISIDIIDAE			CALIFORNIA: Tahoe National Forest: Nevada County: Boca Spring:	<a href="#">Details</a>
112133				CALIFORNIA: Tahoe National Forest: Nevada County: Boca Spring:	<a href="#">Details</a>
112134	CYPRIDIDAE	Bradleystrandesia	reticulata	CALIFORNIA: Tahoe National Forest: Nevada County: Boca Spring:	<a href="#">Details</a>
112135	HYALELLIDAE	Hyaella		CALIFORNIA: Tahoe National Forest: Nevada County: Boca Spring:	<a href="#">Details</a>
112136				CALIFORNIA: Tahoe National Forest: Nevada County: Boca Spring:	<a href="#">Details</a>
112137	HYDROBIIDAE			CALIFORNIA: Tahoe National Forest: Nevada County: Boca Spring:	<a href="#">Details</a>
112138	ZONITIDAE	Zonitoides	arboreus	CALIFORNIA: Tahoe National Forest: Nevada County: Boca Spring:	<a href="#">Details</a>
112139				CALIFORNIA: Tahoe National Forest: Nevada County: Alder Creek:	<a href="#">Details</a>
112140	DISCIDAE	Discus	whitneyi	CALIFORNIA: Tahoe National Forest: Nevada County: Alder Creek:	<a href="#">Details</a>
112141	EUCONULIDAE			CALIFORNIA: Tahoe National Forest: Nevada County: Alder Creek:	<a href="#">Details</a>

112142	LIMACIDAE	Deroceras	CALIFORNIA: Tahoe National Forest: Nevada County: Alder Creek:	Details
112143			CALIFORNIA: Tahoe National Forest: Nevada County: Alder Creek:	Details
112144			CALIFORNIA: Tahoe National Forest: Nevada County: Fuller Lake:	Details

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CatNum	Family	Genus	Species	Locality							
112145	ARIONIDAE	Ariolimax	columbianus	CALIFORNIA: Tahoe National Forest: Nevada County: Washington Creek:							Details
112146	ARIONIDAE	Prophysaon	andersoni	CALIFORNIA: Tahoe National Forest: Nevada County: Washington Creek:							Details
112147	VITRINIDAE	Vitrina	pellucida alaskana	CALIFORNIA: Tahoe National Forest: Nevada County: Washington Creek:							Details
112148				CALIFORNIA: Tahoe National Forest: Nevada County: Washington Creek:							Details
112149	ARIONIDAE	Prophysaon		CALIFORNIA: Tahoe National Forest: Nevada County: Washington Creek:							Details
112150	LIMACIDAE	Deroceras		CALIFORNIA: Tahoe National Forest: Nevada County: Washington Creek:							Details
112151	VITRINIDAE	Vitrina	pellucida alaskana	CALIFORNIA: Tahoe National Forest: Nevada County: Washington Creek:							Details
112152	PACHYCHILIDAE	Juga	nigrina	CALIFORNIA: Tahoe National Forest: Nevada County: Washington Creek:							Details
112153				CALIFORNIA: Tahoe National Forest: Nevada County: S fork Yuba River:							Details
112154				CALIFORNIA: Tahoe National Forest: Nevada County: S fork Yuba River:							Details
112155	LIMACIDAE	Deroceras		CALIFORNIA: Tahoe National Forest: Nevada County: S fork Yuba River:							Details
112156				CALIFORNIA: Tahoe National Forest: Nevada County: S fork Yuba River:							Details
112157	PHYSIDAE	Physa	gyrina	CALIFORNIA: Tahoe National Forest: Nevada County: S fork Yuba River:							Details
112158	PHYSIDAE	Physa	gyrina	CALIFORNIA: Tahoe National Forest: Nevada County: S fork Yuba River:							Details
112159	ARIONIDAE	Ariolimax	columbianus	CALIFORNIA: Tahoe National Forest: Nevada County: S fork Yuba River:							Details
112160	ARIONIDAE	Ariolimax	columbianus	CALIFORNIA: Tahoe National Forest: Nevada County: Madrone Spring:							Details
112161	ARIONIDAE	Prophysaon	andersoni	CALIFORNIA: Tahoe National Forest: Nevada County: Madrone Spring:							Details

112162	PLANORBIDAE	CALIFORNIA: Tahoe National Forest: Nevada County: McMurray Lake:	Details
112163	LYMNAEIDAE	CALIFORNIA: Tahoe National Forest: Nevada County: McMurray Lake:	Details
112164		CALIFORNIA: Tahoe National Forest: Nevada County: Madrone Spring:	Details

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CatNum	Family	Genus	Species	Locality	
112165	ARIONIDAE	Ariolimax	columbianus	CALIFORNIA: Tahoe National Forest: Nevada County: Rock Creek:	<a href="#">Details</a>
113099	PACHYCHILIDAE	Juga	nigrina	CALIFORNIA: Tahoe National Forest: Nevada County: East Fork Creek:	<a href="#">Details</a>
113100	PACHYCHILIDAE	Juga	nigrina	CALIFORNIA: Tahoe National Forest: Nevada County: S fork Yuba River:	<a href="#">Details</a>
117266	PHYSIDAE			CALIFORNIA: Tahoe National Forest: Nevada County: S fork Yuba River:	<a href="#">Details</a>
157453	VERTIGINIDAE	Columella		CALIFORNIA: Nevada County: Little Truckee River:	<a href="#">Details</a>

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## U.S. Census Bureau

### American FactFinder

#### FACT SHEET

### Nevada County, California

#### Highlights from the Census 2000 Demographic Profiles:

General Characteristics - show more >>	Number	Percent	U.S.		
Total population	92,033	100.0	100%	map	brief
Male	45,617	49.6	49.1%	map	brief
Female	46,416	50.4	50.9%	map	brief
Median age (years)	43.1	(X)	35.3	map	brief
Under 5 years	4,306	4.7	6.8%	map	
18 years and over	70,756	76.9	74.3%		
65 years and over	16,049	17.4	12.4%	map	brief
One race	89,599	97.4	97.6%		
White	85,948	93.4	75.1%	map	brief
Black or African American	259	0.3	12.3%	map	brief
American Indian and Alaska Native	814	0.9	0.9%	map	brief
Asian	715	0.8	3.6%	map	brief
Native Hawaiian and Other Pacific Islander	81	0.1	0.1%	map	brief
Some other race	1,782	1.9	5.5%	map	
Two or more races	2,434	2.6	2.4%	map	brief
Hispanic or Latino (of any race)	5,201	5.7	12.5%	map	brief
Average household size	2.47	(X)	2.59	map	brief
Average family size	2.88	(X)	3.14	map	
Total housing units	44,282	100.0	100.0%	map	
Occupied housing units	36,894	83.3	91.0%		brief
Owner-occupied housing units	27,958	75.8	66.2%	map	
Renter-occupied housing units	8,936	24.2	33.8%	map	brief
Vacant housing units	7,388	16.7	9.0%	map	
<b>Social Characteristics - show more &gt;&gt;</b>	<b>Number</b>	<b>Percent</b>	<b>U.S.</b>		
Population 25 years and over	65,148	100.0			
High school graduate or higher	58,839	90.3	80.4%	map	brief
Bachelor's degree or higher	17,003	26.1	24.4%	map	
Civilian veterans (civilian population 18 years and over)	12,831	18.1	12.7%	map	brief
Disability status (population 21 to 64 years)	9,364	18.1	19.2%	map	brief
Foreign born	4,065	4.4	11.1%	map	brief
Now married (population 15 years and over)	44,599	59.3	54.4%		brief
Speak a language other than English at home (5 years and over)	5,625	6.4	17.9%	map	brief
<b>Economic Characteristics - show more &gt;&gt;</b>	<b>Number</b>	<b>Percent</b>	<b>U.S.</b>		
In labor force (population 16 years and over)	43,669	59.2	63.9%		brief
Mean travel time to work in minutes (population 16 years and over)	26.0	(X)	25.5	map	brief
Median household income (dollars)	45,864	(X)	41,994	map	
Median family income (dollars)	52,697	(X)	50,046	map	
Per capita income (dollars)	24,007	(X)	21,587	map	
Families below poverty level	1,446	5.5	9.2%	map	brief
Individuals below poverty level	7,332	8.1	12.4%	map	
<b>Housing Characteristics - show more &gt;&gt;</b>	<b>Number</b>	<b>Percent</b>	<b>U.S.</b>		
Single-family owner-occupied homes	21,923	100.0			brief
Median value (dollars)	205,700	(X)	119,600	map	brief
Median of selected monthly owner costs	(X)	(X)			brief
With a mortgage	1,328	(X)	1,088	map	
Not mortgaged	353	(X)	295		