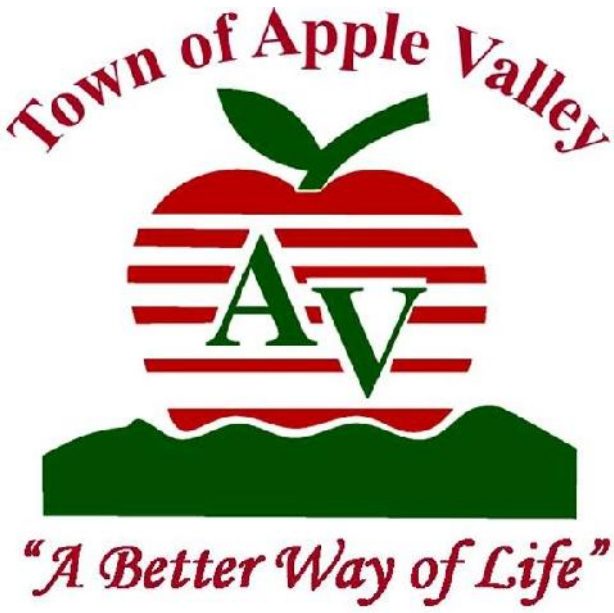

Hazard Mitigation Plan

September 12, 2011

Town of Apple Valley, CA

Primary Point of Contact
Laura Whitehead
Emergency Services Officer
Town of Apple Valley
22400 Headquarters Drive
Apple Valley, CA 92307
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RESOLUTION NO. _____

A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF APPLE VALLEY, CALIFORNIA, ADOPTING THE 2011 LOCAL HAZARD MITIGATION PLAN UPDATE, AUTHORIZING FUTURE NON-SUBSTANTIVE AMENDMENTS TO THE PLAN, AND RESCINDING RESOLUTION NO. 2005-12

WHEREAS, the preservation of life and property is an inherent responsibility of local, State and Federal government; and

WHEREAS, the Town of Apple Valley joined with agencies in San Bernardino County to develop, adopt and maintain a multi-jurisdictional Hazard Mitigation Plan; and

WHEREAS, the Town is charged and entrusted with the protection of persons and property prior to and during emergencies, and/or disaster conditions; and

WHEREAS, the goal of a Hazard Mitigation Plan is to minimize, reduce or eliminate loss of life and/or property; and

WHEREAS, this Hazard Mitigation Plan represents a comprehensive description of the Town's commitment to reducing, preventing or eliminating potential impacts of disasters caused by natural and human-caused hazards; and

WHEREAS, the Town of Apple Valley previously adopted its Hazard Mitigation Plan with the adoption of Resolution No. 2005-12; and

WHEREAS, the Town Council desires to rescind Resolution No. 2005-12 and adopt the updated Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the Town has undertaken a comprehensive planning effort in developing the Local Hazard Mitigation Plan by organizing resources, assessing risks, and developing and implementing a mitigation plan and monitoring process; and

WHEREAS, the Hazard Mitigation Plan is a Federal requirement under the Disaster Mitigation Act of 2000 for the Town to receive Federal funds for disaster recovery and mitigation; and

WHEREAS, the Hazard Mitigation Plan established a coordinated effort to support mitigation activities and identifies measures to combat natural and man-made hazards within our Town; and

WHEREAS, the Hazard Mitigation Plan is an extension of the State of California Multi-Hazard Mitigation Plan, and will be reviewed and exercised periodically and revised as necessary to meet changing conditions; and

WHEREAS, the Town of Apple Valley agrees to adopt this Hazard Mitigation Plan and urges all officials, employees, public and private organizations, and citizens, individually and collectively, to do their share in furthering the goals and objectives of hazard mitigation within the Town of Apple Valley.

NOW, THEREFORE, THE TOWN COUNCIL OF THE TOWN OF APPLE VALLEY DOES HEREBY RESOLVE, DETERMINE AND ORDER AS FOLLOWS:

Section 1. Resolution No. 2005-12 is hereby rescinded.

Section 2. The Town Council approves the Local Hazard Mitigation Plan of the Town of Apple Valley.

Section 3. The Town Council authorizes the Director of Emergency Services to make necessary administrative and operational changes to the plan that are in keeping with the intent of the plan as approved.

Section 4. The Town Council authorizes the Director of Emergency Services, or his duly appointed representative, to perform all duties required to carry out the Local Hazard Mitigation Plan.

Section 5. That the Town Clerk shall certify to the passage and adoption of this resolution and enter it into the book of original resolutions.

PASSED, APPROVED, AND ADOPTED this _____ day of _____ 2011.

SCOTT NASSIF, MAYOR

ATTEST:

LA VONDA PEARSON
TOWNCLERK

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Executive Summary

The Disaster Mitigation Act of 2000 (DMA) was passed by Congress to emphasize the need for mitigation planning to reduce vulnerability to natural and human-caused hazards. DMA 2000 amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act; 42 United States Code 5121 et seq.) by repealing the act's previous Mitigation Planning section (409) and replacing it with a new Mitigation Planning section (322).

To implement the DMA 2000 planning requirements, the Federal Emergency Management Agency (FEMA) established mitigation planning requirements for states, tribes, and local communities, including the requirement to develop a Hazard Mitigation Plan to address known hazards that impact the Town of Apple Valley. The Town of Apple Valley's Hazard Mitigation Plan includes resources and information to assist Town residents, public and private sector organizations, and others interested in participating in planning for natural hazards. This Hazard Mitigation Plan provides a list of activities that may assist Apple Valley in reducing risk and preventing loss from future hazard events. The action items address multi-hazard issues, as well as activities for earthquakes, flooding, and wildfires. While we cannot predict or protect ourselves against every possible hazard that may strike the community, we can anticipate many impacts and take steps to reduce the harm they will cause. This Hazard Mitigation Plan starts an ongoing process to evaluate the risks different types of hazards pose to the Town, and to engage the Town and the community in dialogue to identify which steps are most important to pursue to reduce these risks. The Plan contains a background on the purpose and methodology used to develop the mitigation plan, a profile of Apple Valley, and sections on hazards that occur within the City.

The Town and community members have worked to address certain aspects of the risk – such as strengthening infrastructures, developing strategies, and establishing emergency preparedness plans. This Plan will formalize this process and assure that these activities continue to be explored and improved over time. Over many years, this constant focus on disasters will make the Town, its residents, and businesses much safer.

This Plan meets the requirements of the federal DMA 2000, which calls for all communities to prepare mitigation plans. By preparing this plan, the Town of Apple Valley is eligible to receive federal mitigation funding after disasters and to apply for mitigation grants before disasters strike.

This Plan promotes sound public policy designed to protect citizens, critical facilities, infrastructure, private property, and the environment from natural hazards. This can be achieved by increasing public awareness, documenting the resources for risk reduction and loss-prevention, and identifying activities to guide the Town toward building a safer, more sustainable community.

SECTION 1 – INTRODUCTION

1.1 Purpose of the Plan

Emergencies and disasters cause death or leave people injured or displaced, cause significant damage to our communities, businesses, public infrastructure and our environment, and cost tremendous amounts in terms of response and recovery dollars and economic loss.

Hazard mitigation reduces or eliminates losses of life and property. After disasters, repairs and reconstruction are often completed in such a way as to simply restore to pre-disaster conditions. Such efforts expedite a return to normalcy; however, the replication of pre-disaster conditions results in a cycle of damage, reconstruction, and repeated damage. Hazard mitigation ensures that such cycles are broken and that post-disaster repairs and reconstruction result in a reduction in hazard vulnerability.

While we cannot prevent disasters from happening, their effects can be reduced or eliminated through a well-organized public education and awareness effort, preparedness and mitigation. For those hazards which cannot be fully mitigated, the community must be prepared to provide efficient and effective response and recovery.

The purpose of this Hazard Mitigation Plan is to assess the significant natural and manmade hazards that may affect the Town of Apple Valley and its inhabitants, evaluate and incorporate ongoing mitigation activities and related programs in the community, determine additional mitigation measures that should be undertaken, and to outline a strategy for implementation of mitigation projects. In addition, this plan has been developed to identify actions, policies and tools for implementation over the long-term resulting in reduction of future losses community wide. The established mitigation projects provided were identified and reviewed by members of the planning committee. The Town of Apple Valley has established an effective, inclusive, comprehensive, and long-term plan against natural and manmade hazards.

Citizens and professionals active in disaster planning, response, and mitigation provided important input in the development of the plan and recommended goals and objectives, mitigation measures, and priorities for actions.

This plan fulfills the requirements of the following programs:

1. Pre-Disaster Mitigation (PDM)
2. National Flood Insurance Programs (NFIP) Community Rating System (CRS)
3. Hazard Mitigation Grant Program (HMGP)

Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5165, enacted under section 104 of the Disaster Mitigation Act of 2000, P.L. 106-390, provides new and revitalized approaches to mitigation planning. Section 322, in concert with other sections of the Act, provides a significant opportunity to reduce the

Nation's disaster losses through mitigation planning and emphasizing the need for State, local and tribal entities to closely coordinate mitigation planning and implementation efforts.

A major requirement of the law is the development of local hazard mitigation plans. These plans must be developed and approved by the Federal Emergency Management Agency (FEMA) before November 1, 2004, in order for the local jurisdictions to be eligible for Hazard Mitigation Grant Program (HMGP) project funding from a Presidentially-declared disaster that occurs after this date. Local mitigation plans must be reviewed, updated and re-approved by FEMA every five years to remain eligible. This Mitigation Plan has been updated to meet the requirements of the Act and the regulations established by FEMA. The FEMA regulations were published in the Federal Register on February 26, 2002, as an interim final rule at 44 CFR Parts 201 and 206. FEMA may revise the Interim Final Rule and publish a Final Rule; however, until such time, the Interim Final Rule will serve as the rule for mitigation planning implementation.

1.2 Authority

The Disaster Mitigation Act of 2000 (DMA 2000), Section 322 (a-d) requires that local governments, as a condition of receiving federal disaster mitigation funds, have a mitigation plan that describes the process for identifying hazards, risks and vulnerabilities, identify and prioritize mitigation actions, encourage the development of local mitigation and provide technical support for those efforts. This mitigation plan serves to meet those requirements.

1.3 Community Profile

This section is to provide a broad perspective, brief history and describes the makeup and development of the community.

1.3.1. Physical Setting

The Town of Apple Valley is located in the Mojave Desert of the County of San Bernardino, at an elevation of 3,000 feet. Known as the "High Desert", Apple Valley consists of 78 square miles in its incorporated boundaries and a sphere of influence encompassing 200 square miles. The Town borders Interstate 15 to the north, Joshua Road to the east, the foothills of the San Bernardino Mountains to the south, and the Mojave River to the west.

Apple Valley is primarily desert-rural and consists of a typical mountain-and-basin topography with sparse vegetation. The natural geographic vulnerabilities are: Mojave River, San Bernardino Mountains, Dry Lake Bed, and the Desert Knolls area (generally an area with a slope greater than 15%).

Apple Valley experiences an average of 350 days of sunshine per year with summer temperatures ranging from 40 degrees Fahrenheit (F) to 100 degrees F., and winter temperatures dipping down to 10 degrees F. to a high of 70 degrees F. Prevailing winds range from 5-20 knots/hour from the south/southwest to the northeast.

The Mojave River rises in the San Bernardino Mountains at the Lake Silverwood and Mojave River Forks Reservoirs. The River runs in a northerly direction the entire length of the Town's western boundary. Due to the porous soil and rapid evaporation, the River is primarily dry in the area adjacent to Apple Valley. A flow of water is present during major rains and upon release of water from Lake Silverwood (contained by the Cedar Springs Dam and Mojave Dam).

The Town of Apple Valley also consists of a dry lake bed area that consists of sparse population. This area and the area along the Mojave River is part of the 100 Year Flood Area (Flood Zone A).

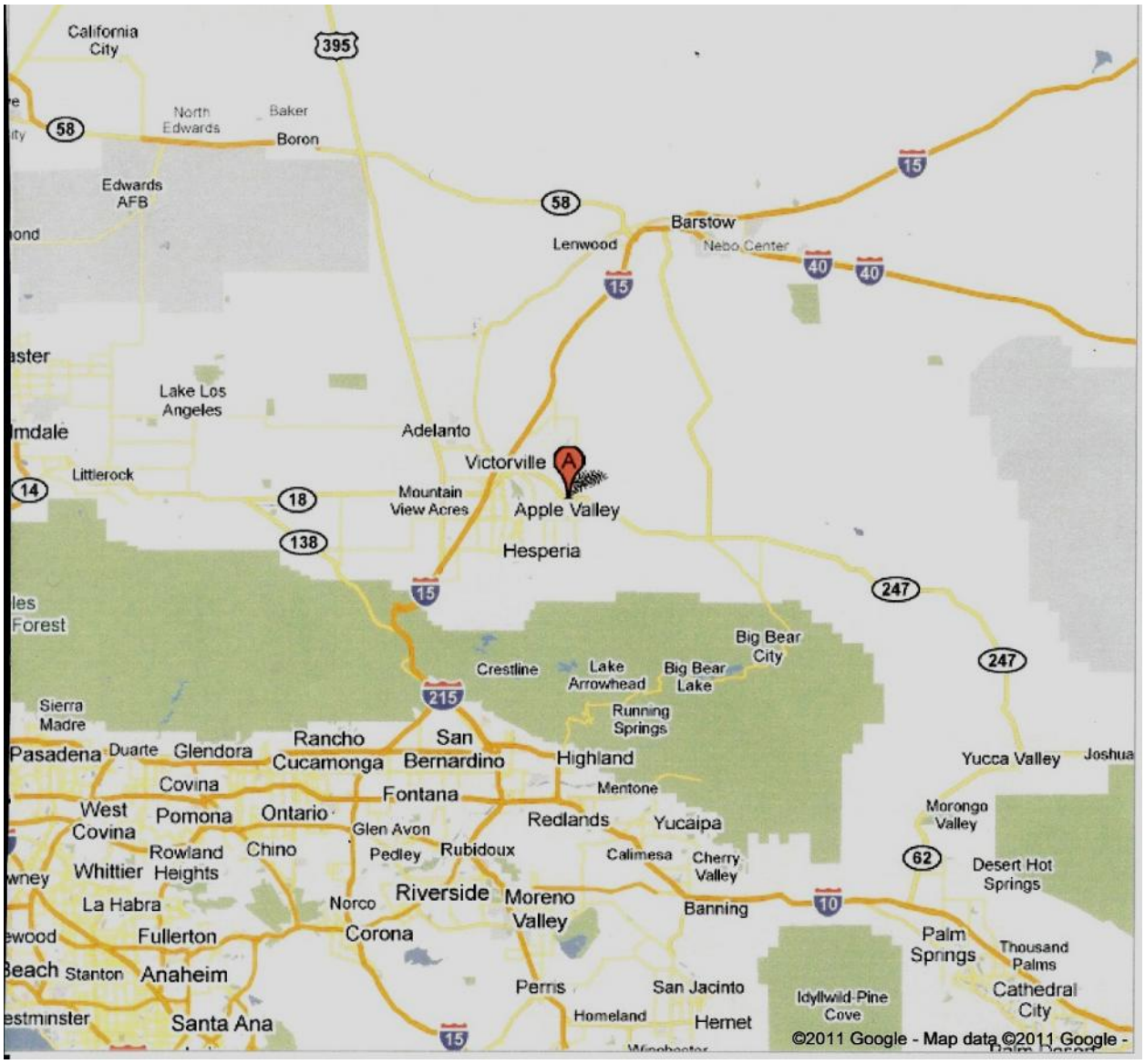

Figure 1 Regional Setting (Credit: 2011 Google Map data)

1.3.2. History

The Town of Apple Valley was incooporated in 1988; however, its history goes back much further. Local historians have found signs of Serrano Indian camps along the Mojave River in Apple Valley. They were already there when Father Francisco Garces arrived in 1776, as he established the Spanish missions throughout California. In the late 1800s, the Paiute Indians also migrated to this area. The Mojave River Trail hosted trappers, gold prospectors, pack mules and Mormon wagon trains—over 13,000 people passed through there between 1849 and 1859. It was in 1860 that the first cabin was built in Apple Valley by Silas Cox, and the first road was cut the following year.

There are many stories as to how Apple Valley acquired its name. According to the late Mary Hampton, local historian, the name arose from the abundance of apple orchards that existed there in the 1920s. Some say the name “Apple Valley” originated from The Appleton Land Company that was based in this area in the early 1900s. Ursula Poates, one of the first settlers in the area, is credited with saying, “There were some apples being raised along the river in those early days, but not by the ton, so I just cut it down and called it Apple Valley!” By 1920, apples were being grown by the ton at award-winning orchards. Unfortunately, with the Great Depression and the cost of pumping water for irrigation, the orchards died off in the 1930s.

With a pleasant climate and lots of land, many types of ranches were built in the area. They touted the dry desert air as a cure for ailments of all sorts, including tuberculosis and asthma. Other ranches provided a haven for shell-shock victims of World War I, while still others developed into guest ranches. People would come to Apple Valley to enjoy the western lifestyle where they could ride horses, attend rodeos and just get away from the big city.

The modern founders of Apple Valley were Newton T. Bass and B.J. “Bud” Westlund, who were partners in the oil and gas industry in Long Beach, CA. Westlund and Bass formed the Apple Valley Ranchos Land Co. in 1946 and marketed the area as a destination resort and quality residential community - "The Golden Land of Apple Valley". They built the Apple Valley Inn and Hilltop House, and invited famous celebrities of Hollywood to come visit. Within ten years there were banks, churches and a school, along with a golf course, hospital and 180 businesses.

1.3.3. Demographics:

San Bernardino County Designated as a Coastal County within the State of California

The number of Americans residing in a coastal county passed the 150 million mark in 2005, making the coastal population larger than the entire U.S. population in 1950. Today, more than half of the U.S. population lives in a coastal area (as defined by the National Oceanic and Atmospheric Administration - NOAA), even though the 673 coastal counties constitute only about one fourth of the country’s landmass.

Figure 2 – U.S. Census Bureau

As indicated by the map prepared by the U. S. Census Bureau, San Bernardino County is designated as a Coastal County within the State of California. Particular data exists demonstrating the effects of various types of risks within the county. It is

important to use this information as a source point for evaluating the various risks that prevail not only in San Bernardino County, but the Town of Apple Valley.

The growth in population of coastal areas illustrates the importance of emergency planning and preparedness for areas that are more susceptible to inclement weather conditions. The U.S. Census Bureau's official population estimates, along with annually updated socioeconomic data from the new American Community Survey, provide a detailed look at the nation's growing coastal population. Emergency planners and community leaders can better assess the needs of coastal populations using census data.

In 2005, the Town of Apple Valley had a population of 63,868 and that population has grown to 74,266 in 2009, with a median age of 33.41 and an average household size of 2.94.

Demographic Overview	
Current population (2009):	74,266
Current regional population (2007) :	333,061
Avg. Household Size (2009) :	2.94
Median Age (2009):	33.41
Home Ownership (2009):	70.43%
Total Households (2009):	25,088

Sources: Claritas Pop Facts Demographic Snapshot Report 04/09, Victorvalleyca.com Regional Profile 1/8/09

* Regional population estimate is based on a total of Victorville, Hesperia, Apple Valley, and Adelanto populations; unincorporated areas are not included in this estimate.

Historic and Projected Population Estimates				
1995	2000	2005	2009	2014
50,586	54,239	63,868	74,266	85,843
Annual Growth Rate:	Waiting for update			

Source: Claritas Pop Facts Demographic Snapshot Report 4/6/09; Town of Apple Valley Building and Safety Department; California Dept. of Finance, Table E-1 City/County Population Estimates witn Annual Percentage of Change.

Age Distribution of Population		
Age Group	Total (2009)	% Distribution
0-17 years	20,915	28.16%
18-24 years	7,808	10.52%

25-34 years	10,001	13.47%
35-54 years	17,555	23.63%
55-74 years	13,147	17.70%
75 years and older	4,840	6.52%
TOTAL	74,266	100%
Claritas "Pop-Facts: Demographic Snapshot Report – 2009 Est. Population by Age," 4/6/09		

Educational Attainment of Population over 25 Years of Age		
Years of School Completed	Total (2009)	% Distribution
Less than High School	7,973	17.5%
High School	12,659	27.80%
Some College	13,794	30.29%
Associate's Degree	3,624	7.96%
Bachelor's Degree	4,520	9.92%
Graduate Degree or higher	2,973	6.52%
Claritas "Pop-Facts: Demographic Snapshot Report/Est. Population by Age 25+ by Educational Attainment," 4/6/09		

Income Level		
Per Capita (2009)	Median Household (2009)	Average Household (2009)
$22,848	$51,927	$66,959
Claritas "Pop-Facts: Demographic Snapshot Report /Est. Population by Age 25+ Educational Attainment,"4/6/09		

Household Income Distribution		
Annual Income	Total (2009)	% Distribution
Under $35,000	8,480	33.79%
$35,000- $49,999	3,695	14.73%
$50,000-$74,999	4,793	19.10%
$75,000- $99,999	3,246	12.94%
Over $100,000	4,874	19.42%
Claritas "Pop-Facts: Demographic Snapshot Report /Est. Households by Household income " 4/6/09		

Figure 3 Demographics Town of Apple Valley 2009

1.3.4 Existing Land Use

The land use types in Apple Valley are all related to a single, over-arching concept: that Apple Valley's quality of life is tied to its rural character, and that this character is to be preserved and protected for the long term health of the community. In Apple Valley "rural" means space -- unscarred mountains and vistas of desert valleys, neighborhoods of large lots where keeping horses is allowed, an extensive multi-use trail system, and landscaping consistent with the desert environment. The land use designations established in the Town's General Plan are provided below. The single family land use designations are consistent with those defined in Measure N (see further discussion below). Three land use designations are new to the General Plan: Estate Residential ., Mobile Home Park and Mixed Use.

Very Low Density Residential (R-VLD; 1 dwelling unit per 5 or more gross acres): This land use designation allows detached single family homes on lots of at least five gross acres. Multi-use trails should be integrated into all new projects in this designation, as appropriate. Also permitted are agricultural and ranching activities, animal keeping (both personal use and commercial) and home occupations. May be appropriate for bed and breakfast and similar uses, and animalkeeping or agricultural-related commercial enterprises, such as feed stores, commercial stables and similar uses with approval of a conditional use permit.

Low Density Residential (R-LD; 1 dwelling unit per 2.5 to 5 gross acres): This land use designation allows detached single family homes on lots of two and a half to five gross acres. This designation provides for the rural and suburban environment. Multi-use trails should be integrated into all new projects in this designation, as appropriate. Also permitted are agricultural and ranching activities, animal keeping (both personal use and commercial) and home occupations. May be appropriate for bed and breakfast and similar uses, with approval of a conditional use permit.

Estate Residential (R-E; 1 dwelling unit per 1 to 2.5 gross acres): This land use designation allows detached single family homes on lots of one to two and a half gross acres. Access on local roads in new subdivisions within this designation should be paved. Multi-use trails should be integrated into all new projects in this designation, as appropriate. Animal keeping for personal use, ranching activities and home occupations are appropriate land uses in this designation. May be appropriate for bed and breakfast and similar uses, with approval of a conditional use permit.

Estate Residential . (R-E; 1 dwelling unit per 0.75 to 1.0 net acre): This land use designation is specifically designed for animal keeping. Multi-use trails should be integrated into all new projects in this designation, as appropriate. Animal keeping for personal use, ranching activities and home occupations are

appropriate land uses in this designation. Centralized stables, corrals, show rings and similar facilities, available to all residents of a development project are encouraged. May be appropriate for bed and breakfast and similar uses, with approval of a conditional use permit.

Single Family Residential (R-SF; 1 dwelling unit per 0.4 to 0.9 net acre): Lots in this designation must be a minimum of 18,000 square feet net, and may range to 39,200 square feet. This designation is intended to be composed of planned subdivisions with all utilities and public services. Animal keeping is permitted on lots zoned Equestrian Residential in the Development Code. Multi-use trails should be integrated into all new projects in this designation, as appropriate.

Medium Density Residential (R-M; 4 to 20 dwelling units per net acre): This designation is intended to promote a wide range of higher density residential units, including: single family attached; and multi-family units, including condominiums, townhomes and apartments. Projects restricted to senior citizens (age 55 and older) and providing various levels of care are also appropriate in this designation. Single family detached units are only permitted on lots of 18,000 square feet or greater in the Mountain Vista Estates area, as defined in Program 2.G.1. On all other lands designated Medium Density Residential within Town limits, single family detached units are prohibited. This land use designation should be a buffer between less intense residential designations and commercial or industrial designations, or major roadways. Future projects should be located in close proximity to commercial services, public transit and schools.

Mobile Home Park (MHP; 5-15 units per acre): This designation is applied to mobile home parks that existed upon adoption of the General Plan. New mobile home parks would be required to file a General Plan Amendment and Change of Zone to assign this designation to the project. This designation applies to mobile home parks and mobile home subdivisions. Home occupations and recreational facilities and amenities associated with the mobile home use are also appropriate in this designation.

Mixed Use (M-U): The land use designation has been created to allow for the development of projects that include residential and retail and office commercial development in an integrated, master planned project. Residential development should occur over commercial development, or within a commercial complex (i.e. residential building abutting a commercial building). Residential development must occur at a density of 4 to 30 units per acre. Mixed Use projects are encouraged in The Village, on major roadways, and in close proximity to employment centers, such as the North Apple Valley Industrial Specific Plan area. Projects that propose residential parcels adjacent to commercial parcels, and do not truly integrate the land uses, will not qualify for this designation. The minimum size for a Mixed Use project is 1 acre.

Office Professional (O-P): This designation allows professional offices, and is intended to act as a buffer between General Commercial and residential land uses. This designation encourages high quality professional services with only ancillary retail commercial components. There is no minimum size for project sites in this designation, but assemblage of smaller parcels is encouraged.

General Commercial (C-G): This designation allows a broad range of retail uses, as well as office and service land uses. Typical uses will serve the needs of the Town's residents and businesses, in a shopping center setting. General retail stores, including all types of consumer goods, furniture and appliance sales, auto repair and sales are permitted in this designation. Restaurants, both sit-down and fast food, gasoline service stations and general office (secondary to retail uses) are also permitted in this designation. There is no minimum size for project sites in this designation, but assemblage of smaller parcels is encouraged.

Service Commercial (C-S): This designation is assigned to lands in The Village, and is intended as a transition designation allowing commercial and industrial land uses on a smaller scale. Its location in an established area of Town necessitates flexibility in development standards, due to existing development and infrastructure constraints. Land uses in this designation include vehicle sales and service; lumber, home repair and building supply, general retail, warehousing and manufacturing uses completely contained within an enclosed structure. There is no minimum size for project sites in this designation, but assemblage of smaller parcels is encouraged.

Regional Commercial (C-R): This land use category allows retail uses that serve not only the residents and businesses of Apple Valley, but also of the surrounding region. Permitted uses in this designation include auto malls, regional malls, business parks, factory stores and outlets, entertainment commercial, hotels and motels, restaurants, institutional and public uses. The minimum size for a Regional Commercial project site is 10 acres.

Planned Industrial (I-P): This land use designation allows high quality, non-polluting industrial land uses, either as free-standing uses or as part of master planned industrial parks. Uses permitted include warehousing, light manufacturing, research and development and administrative facilities. The minimum size for a Planned Industrial project site is 5 acres.

Public Facility (PF): This land use designation is assigned to public and quasi-public land uses, including Town Hall and other Town facilities, fire stations, schools, facilities of the County, State and federal government, water and sewer district, and utility substations and facilities. There is no minimum size in this land use designation.

Open Space (OS): This land use designation is applied to natural and active open space areas, including the knolls, Bell and Fairview mountains, the Mojave

River, lands owned by Town, County, State and federal agencies for the purposes of recreation or conservation, and golf courses, parks or other recreational facilities.

Mineral Resources (MR): This land use designation is applied to lands in active mining operations. One such operation exists in theTown at the present time, located near Interstate 15. This land use designation allows mining operations permitted by the State for lands with significant deposits of concrete aggregate (please see the Mineral Resources Element).

Specific Plan: This designation is applied to lands on which a specific plan has been approved by the Town Council. The Specific Plan must conform to State law, and include maps and text that establish the land use designations; standards and guidelines for development; infrastructure requirements; and phasing for the specific plan area.

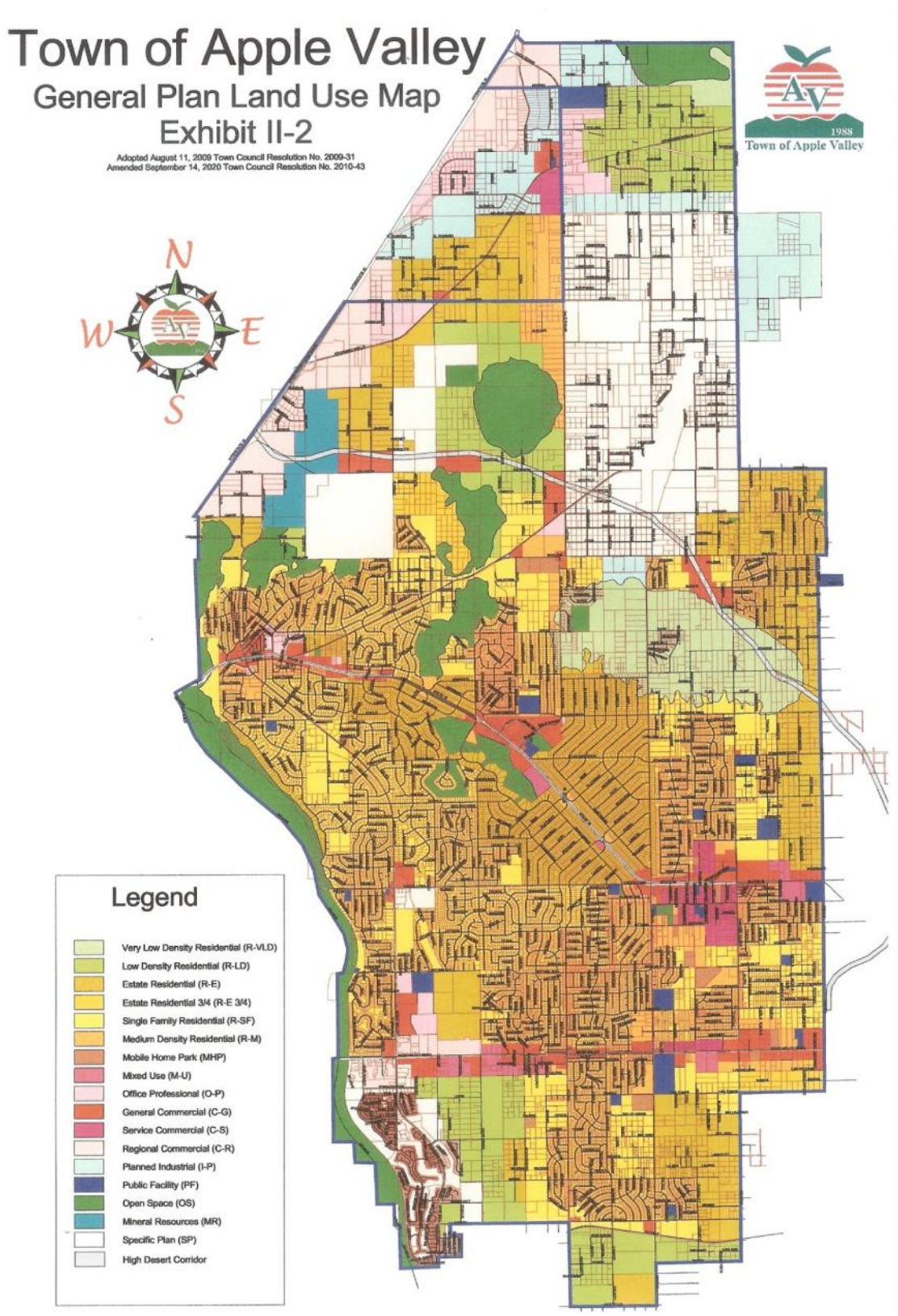

Figure 4 - 2009 Land Use Map, Exhibit II-2 – Source: Town of Apple Valley General Plan

Build Out Statistics

The Town consists of a total of 50,532 acres, of which 46,948.3 acres were within the Town limits prior to the addition of the two annexation areas. 3,583.2 acres were added as part of Annexations 2008-001 and 2008-002. The acreage, by land use designation, is shown in Tables II-1 and II-2, below.

Table II-1
Statistical Summary of Land Uses
(2008 Town Limits)

	Town of Apple Valley		
Land Use Designation	**Developed Acres**	**Vacant Acres**	**Total Acres**
Residential Land Uses			
Very Low Density Residential (1 du/5 or more gross ac)	212.0	1,749.5	1,961.5
Low Density Residential (1 du/2.5 - 5 gross ac)	450.7	3,071.7	3,522.4
Estate Residential (1du/1 – 2.5 gross ac)	3,308.2	3,308.0	6,616.3
Estate Residential ¾ (1 du/0.75 – 1 ac)	26.1	449.6	475.7
Single family Residential (1 du/0.4-0.9 ac)	8,811.2	3,770.7	12,581.9
Medium Density Residential (4- 20 du/ac)	826.2	1,057.0	1,883.1
Mobile Home Park (5-15 du/ac)	178.5	1.5	180.0
Mixed Use	90.8	229.7	320.5
Specific Plan	1,359.0	5,653.7	7,012.7
Total Residential Uses	**15,262.7**	**19,291.5**	**34,554.2**
Commercial Land Uses			
Mixed Use[1]	90.8	229.7	320.5
General Commercial	480.3	1,066.5	1,546.8
Regional Commercial	99.6	1,203.3	1,303.0
Service Commercial	152.4	179.2	331.6
Office Professional	64.7	546.7	611.3
Specific Plan/Commercial[1]	1,359.0	5,653.7	7,012.7
Total Commercial Uses[1]	**797.0**	**2,995.7**	**3,792.7**
Industrial Land Uses			
Planned Industrial	21.4	623.9	645.3
Specific Plan/Industrial[1]	1,359.0	5,653.7	7,012.7
Total Industrial Uses[1]	**21.4**	**623.9**	**645.3**
Other Land Uses			
Public Facility	330.2	132.0	462.2
Open Space	291.2	2,796.4	3,087.5
Mineral Resources	129.4	323.2	452.5
Street Rights-of-Way	2,771.1	1,182.8	3,953.9
Total Other Land Uses	**3,521.8**	**4,434.4**	**7,956.2**
Grand Total	**19,602.8**	**27,345.5**	**46,948.3**

[1]Specific Plan and Mixed Use acreage included under Residential, above.
Source: Aerial Information Systems, July 2008

Table 1 Statistical Summary of Land Uses

Table II-2
Statistical Summary of Land Uses
Annexation No. 2008-001 and No. 2008-002

General Plan Land Use Designation	ANNEXATION NO. 2008-001 and 2008-002 Developed Acres	Vacant Acres	Total Acres
Residential Land Uses			
Estate Residential (1du/1 – 2.5 gross ac)	55.7	722.3	778.0
Medium Density Residential (4- 20 du/ac)	41.5	177.3	218.7
Mixed Use (4-30 du/ac)	0.0	94.8	94.9
Total Residential Uses	**97.2**	**994.4**	**1,091.6**
Commercial Land Uses			
Mixed Use[1]	0.0	94.9	94.9
General Commercial	12.3	50.5	62.8
Regional Commercial	7.2	435.7	442.9
Office Professional	0.0	183.1	183.1
Total Commercial Uses	**19.5**	**669.3**	**688.8**
Industrial Land Uses			
Planned Industrial	64.3	1,538.5	1,602.8
Other Land Uses			
Public Facility	0.0	5.1	5.1
Street Rights-of-Way	43.8	151.1	194.9
Grand Total All Land Uses	**224.8**	**3,358.4**	**3,583.2**

[1] Mixed Use Acreage included under Residential, above.

Source: Aerial Information Systems, July 24, 2008.

Table 2 Statistical Summary of Land Uses

The build out potential of these lands is shown categorically in Table II-3, Residential Land Use Designation Build Out Summary; Table II-4, Commercial and Industrial Land Use Designation Build Out Summary; and Table II-5, Other Land Use Designation Build Out Summary.

Table II-3
Residential Land Use Designation Build Out Summary

	Town Limits						Annexation Areas					
Designation	**AC Dev.**	**AC Vacant**	**AC Total**	**Exist. Units**	**Future Units**	**Total Units**	**AC Dev.**	**AC Vacant**	**AC Total**	**Exist. Units**	**Future Units**	**Total Units**
Very Low Density Residential (1 du/5 or more gross ac)	212.0	1,749.5	1,961.5		350	350	--	--	--	--	--	--
Low Density Residential (1 du/2.5 - 5 gross ac)	450.7	3,071.7	3,522.4		1,229	1,229	--	--	--	--	--	--
Estate Residential (1du/1 – 2.5 gross ac)	3,308.2	3,308.0	6,616.3	20,107	3,308	23,415	55.7	722.3	778.0	--	722	722
Estate Residential ¾ (1 du/0.75 – 1 ac)	26.1	449.6	475.7		599	599	--	--	--	--	--	--
Single family Residential (1 du/0.4-0.9 ac)	8,811.2	3,770.7	12,581.9		5,656	5,656	--	--	--	--	--	--
Medium Density Residential (+ 20 du/ac)	826.2	1,057.0	1,883.1	3,775	15,854	19,629	41.4	177.3	218.7	--	2,659	2,659
Mobile Home Park (5-15 du/ac)	178.5	1.5	180.0	1,043	23	1,066	--	--	--	--	--	--
Mixed Use	90.8	229.7	320.5		2,068	2,068	0.00	94.8	94.8	--	854	854
Specific Plan	1,068.6	5,939.0	7,027.6		2,629	2,629	--	--	--	--	--	--
Residential Total	15,262.7	19,391.5	34,554.2	24,925	31,716	56,641	97.2	994.4	1,091.6	--	4,236	4,236

Table II-4
Commercial and Industrial Land Use Designation Build Out Summary

	Town Limits				Annexation Areas			
Designation	**Acres Dev.**	**Acres Vacant**	**Acres Total**	**Total Potential SF**	**Acres Dev.**	**Acres Vacant**	**Acres Total**	**Total Potential SF**
Mixed Use[1]	90.8	229.7	320.5	1,541,035	0.0	94.9	94.9	636,612
General Commercial	480.3	1,066.5	1,546.8	14,823,253	12.3	50.5	62.8	601,824
Regional Commercial	99.6	1,203.3	1,303.0	12,486,485	7.2	435.7	442.9	4,244,469
Service Commercial	152.4	179.2	331.6	3,177,665	0.0	183.1	183.1	1,754,639
Office Professional	64.7	546.7	611.3	5,858,606	0.0	94.9	94.9	636,612
Specific Plan[1]	1,359.0	5,653.7	7,012.7	6,663,010	--	--	--	--
Commercial Sub Total	**887.7**	**3,225.4**	**4,113.2**	**44,550,054**	**19.5**	**669.3**	**688.8**	**7,874,156**
Planned Industrial	21.4	623.9	645.3	6,183,941	64.3	1,538.5	1,602.8	15,359,953
Specific Plan[1]	1,359.0	5,653.7	7,012.7	36,938,445	--	--	--	--
Industrial Sub Total	**21.4**	**623.9**	**645.3**	**43,122,386**	**64.3**	**1,538.5**	**1,602.8**	**15,359,953**
Grand Total Commercial & Industrial	**909.1**	**3,849.4**	**4,758.5**	**87,672,440**	**83.9**	**2,302.7**	**2,386.5**	**23,234,109**

[1] Mixed Use and Specific Plan acreage included under Residential in Table II-3.

Table II-5
Other Land Use Designation Build Out Summary

	Town Limits			Annexation Areas		
Designation	**Acres Dev.**	**Acres Vacant**	**Acres Total**	**Acres Dev.**	**Acres Vacant**	**Acres Total**
Public Facility	330.2	132.0	462.2	0.00	5.1	5.1
Open Space	291.2	2,796.4	3,087.5	--	--	--
Mineral Resources	129.4	323.2	452.5	--	--	--
Street Rights-of-Way	2,771.1	1,182.8	3,953.9	43.8	151.1	194.9
Grand Total Other Use:	**3,521.8**	**4,434.4**	**7,956.2**	**43.8**	**156.2**	**200.0**

Table 3 Land Build out Summaries

Build Out Potential and Population
As indicated in the Tables above, the Land Use Map creates a potential for up to 60,877 housing units. Based on 2008 average household size, these units could support a build out population of 185,858 people.

The Land Use Map further establishes 4,791.3 acres of commercial land, which has a potential to generate 51,685,423 square feet of commercial space. There is also a potential for 58,629,920 square feet of industrial space, mostly to be located in the North Apple Valley Industrial Specific Plan area. This Land Use Element also provides 3,068.5 acres of Open Space, and 481.2 acres of Public Facilities, which include schools, parks, fire stations and government buildings.

1.3.5 Development Trends

The Town of Apple Valley has been diligently working on a bridge project (Yucca Loma Bridge) for several years. The purpose of the Project is to establish an alternate route between the Town of Apple Valley, County of San Bernardino, and the City of Victorville, in California. This Project would provide a new arterial connection through these three jurisdictions which would provide better access to the existing local residential neighborhoods, to the local freeway system, and to the Mojave Narrows Regional Park. The Project is designed to reduce traffic volume and congestion on the existing routes connecting the City of Victorville and the Town of Apple Valley (Bear Valley Road to the south and State Route 18 to the north), as well as increase residential, commercial, and industrial development in both jurisdictions.

Construction of the proposed Project would be an implementation of the General Plans from the Town of Apple Valley, the City of Victorville, and the County of San Bernardino. The Project is approximately 3.3 miles long with logical termini at the existing signalized intersections of Yucca Loma Road and Apple Valley Road on the East and Green Tree Boulevard and Hesperia Road on the West. The Project would build a new four-lane transportation corridor, including a bridge over the Mojave River and BNSF railroad, extension of Green Tree Boulevard, and expansion of existing sections of Yucca Loma Road and Yates Road.

The proposed Project connects Apple Valley Road to Hesperia Road. Given the large scope of the proposed Project and its location in three jurisdictions, the proposed Project will be built under multiple construction contracts over multiple construction seasons. It is anticipated construction will begin in the year 2010 and that the first area of focus or phase will be the Yucca Loma Bridge over the Mojave River, sound walls along Yucca Loma Road and Yates Road and other improvements from Apple Valley to Ridgecrest Road that will allow opening the bridge while maintaining the existing two lane configuration.

Constructing this phase first will allow the associated segments of the proposed Project to be utilized by the public while the other phases are implemented and constructed. This first component will take approximately two to three years to construct.

The proposed Project is consistent with applicable state, regional, and local planning documents and is anticipated as a part of an overall development strategy necessary to capture growth that has already occurred as well as anticipated growth projected by the San Bernardino Associated Governments. The proposed Project would comply with Federal (23 USC 109(h), NEPA, American Disability Act of 1990, Council on Environmental Quality Regulations Section 1508.14, Title VI of the Civil Rights Act of 1964, and Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970) and State (CEQA) Laws, Regulations, and Guidance.

The proposed Project will not have a direct impact on changing existing land use designations, and thus, will not have any substantial environmental consequences to Land Use in the Project area. The Project is consistent with state, regional, and local plans and does not cause adverse impacts with respect to any of these plans. The proposed Project is consistent with the Town of Apple Valley's General Plan, 1991, and the General Plan adopted updates 1998 and 2009. The plan recognizes that as the Town grows the expectation and need for increased service levels, including adequate streets, will grow. The proposed Project is consistent with existing and future land uses. The circulation element of the Town's General Plan addresses both the local transportation system within the Town, and those segments of the local transportation system that interface with, and serve as extensions of, the regional roadway system. This system works to connect the Town of Apple Valley with the broader Victor Valley region and other communities in Southern California. The circulation element notes that a major transportation program being worked on by the Town is the construction of an extension of Yucca Loma Road which will result in a four lane bridge and an additional crossing over the Mojave River into Victorville (Mojave River Bridge).

The Project area includes all areas of construction, new or existing right-of-way, temporary staging areas and temporary construction easements. In the town of Apple Valley approximately 39.4 acres of urban land and 6.7 acres of rural land will be affected by the Project. Future plans for land within the Project area are limited by existing development and natural features (including the Mojave River and Mojave Narrows Regional Park). Nearly all of the land in the Project area that is located in the Town of Apple Valley is currently developed.

The 2005 Hazard Mitigation Plan mentioned that the Town's Vision 2010 projected additional development activity in North Apple Valley and anticipated that significant industrial development will occur in the north one-third of the Town. However, this development has moved along much slower than

anticipated due to the downturn of the economy. When this industrial development commences the construction process for each development will be regulated by local building codes. Building codes include regulations pertaining to flooding (grading and elevation), earthquake standards (seismic standards), and fire codes (regulated by Apple Valley Fire Protection District).

Pre-planning for fire and law enforcement agency response was completed prior to occupancy for both the major developments that are currently in that area (Law & Justice Center and the 1.34 million square foot Wal-Mart Distribution Center). The pre-planning methodology includes routine drills at each site. In addition, all future buildings in the Town of Apple Valley will adhere to future building codes.

SECTION 2 – PLAN ADOPTION

2.1 Adoption by local governing body

A (draft) Resolution of the Town Council of the Town of Apple Valley, California, adopting the Local Hazard Mitigation Plan as required by the Disaster Mitigation Act of 2000 is included in this Plan (located before the Table of Contents). Upon receipt of an "approvable pending adoption" status from FEMA, the Town will formally adopt the Resolution and forward adopting documentation to FEMA. The Resolution will include support for the (State of California) Enhanced State Multi-Hazard Plan, October 2007 and, once adopted by the State of California, the 2011 Enhanced State Multi-Hazard Plan Update. The Town of Apple Valley Annex is part of the San Bernardino Operational Area Multi-Jurisdictional Hazard Mitigation Plan.

2.2 Promulgation Authority

Scott Nassif, Mayor
Description of involvement: Mayor Nassif represents the elected body governing the Town of Apple Valley and will sign as the official final approving authority.
Contact Information:
Town of Apple Valley
14955 Dale Evans Parkway,
Apple Valley, CA 92307
760-240-7000
snassif@applevalley.org

Frank Robinson, Town Manager
Description of Involvement: Frank Robinson represents the staff of the Town of Apple Valley and authorized the development and approval process.
Contact Information:
Town of Apple Valley
14955 Dale Evans Parkway,
Apple Valley, CA 92307
760-240-7000
frobinson@applevalley.org

The Apple Valley Town Council will review the Hazard Mitigation Plan prior to its approval.

2.3 Primary Point of Contact

Laura Whitehead, Emergency Services Officer
Town of Apple Valley/Apple Valley Fire Protection District
22400 Headquarters Drive, Apple Valley, CA 92307
760-247-7618
lwhitehead@applevalleyfd.com

SECTION 3 - PLANNING PROCESS

The planning process for the Town's Hazard Mitigation Plan included the creation of a Planning Team representing various agencies and organizations whose input was vital to the plan. The Planning Team reviewed, analyzed, revised, and updated each Section within this Plan as required. Pursuant to Section 4(F) of the Crosswalk, the process used to review and analyze each Section is included within that Section.

Public presentation and input was also delivered at various public meetings in the local community.

3.1 Preparing for the Plan

To update its 2011 Local Hazard Mitigation Plan, the Town of Apple Valley joined with the San Bernardino County Fire Department Office of Emergency Services (OES) which is the coordinating agency for the update of the *San Bernardino County Operational Area Multi-Jurisdictional Multi-Hazard Mitigation Plan*. As required by the Department of Homeland Security's Federal Emergency Management Agency (DHS-FEMA), all Hazard Mitigation Plans (HMP) must be updated, adopted and approved every five (5) years. The purpose of the update is to validate and incorporate new information into the plan and identify progress that has been made since the last approval of the plan. In addition, an approved HMP is required to receive federal assistance under the Hazard Mitigation Grant Program (HMGP) or Pre-Disaster Mitigation (PDM) programs.

The current *San Bernardino County Operational Area Multi-Jurisdictional Multi-Hazard Mitigation Plan* process consists of information from 55 local HMPs, which are included as an annex to the County's Operational Area plan. The 55 participants include all 24 incorporated cities and towns, 30 special districts, and the unincorporated county.

San Bernardino County Fire OES hired a contractor (ICF International) to support the County, Cities and Towns, and Special Districts to update the 55 local HMPs and the *San Bernardino County Operational Area Multi-Jurisdictional Multi-Hazard Mitigation Plan*. The ICF Team, which includes subcontractors MMI Engineering and Natural Hazards, offers experienced, field-tested Hazard Mitigation and planning professionals who have developed similar comprehensive HMPs. This support includes providing technical expertise, resource material and tools, not only to expedite the HMP update process, but also to ensure that the updates are in compliance with federal requirements of the program. The tools, resource material, and other project related information are being maintained on a project portal (https://tmsprojects.icfi.com/sbhmpupdate/default.aspx) to ensure the same information is available to all participants.

Additionally, it was concluded that the Plan will include information and data supplied by supporting local agencies as listed in Section 3.2 "Coordination with Other Jurisdictions,

Agencies, and Organizations", and 3.3 "Public Involvement", of this Plan, along with public surveys, public comments received during community-wide events and from other sources developed through discussions during Planning Team meetings.

The Town initiated its Plan Update by meeting the requirements of Title 44, Code of Federal Regulations, Part 201 (44 CFR 201.6) through the initial implementation of the 2005 Local Hazard Mitigation Plan.

- Why the update is necessary and how the update will build on the existing approved mitigation plan
- The process and data deficiencies/limitations that will be addressed
- The participatory planning process used to develop the plan to include how each section was reviewed and analyzed and how/why the decision was made to modify (or not) specific areas in the plan.
- The opportunities provided for public participation, modified as necessary, based on previous experience
- The contribution from other stakeholders
- The new/additional research conducted and data included in the plan;
- The modified risk assessment based on latest best available data;
- The prioritized mitigation action plan;
- The progress made in local mitigation efforts;
- The plan maintenance process to include: an evaluation of what was supposed to happen vs. what happened; a discussion of how the community was involved in the plan maintenance process; and a discussion of how the mitigation plan was incorporated into other planning mechanisms, and what worked/did not work.

  The Town of Apple Valley completed a General Plan revision in 2009. Emphasis was placed on the importance of incorporating the Local Hazard Mitigation Plan as an extension of that revision, which will be done after the Plan is formally approved and adopted.

3.1.1 Planning Team

This Hazard Mitigation Planning team included members of various agencies, and organizations who were familiar with mitigation planning and have some type of emergency management responsibilities within their organizations. In addition, several private citizens who are Disaster Service Worker (DSW) volunteers were also chosen to give input on the Plan.

Name:	Organization:
Shelley Alfieri	Jess Ranch Community Disaster Response Program, Senior Center, DSW citizen
Art Bishop	Fire Chief, Apple Valley Fire Protection District
Chris Briggs	Desert Communities United Way, COAD
Mike Cook	Apple Valley Ranchos Water Company
Dennis Cron	Assistant Town Manager, Town of Apple Valley

Dawn Harrison	CERT Commander, DSW citizen
Pat Hayes	Sun City Safety Committee, DSW citizen
Brad Miller	Town of Apple Valley Engineer
Lance Miller	Public Works Manager, Town of Apple Valley
David Pinnecker	Risk Manager, Apple Valley Unified School District
Claude Stewart	Building Official, Town of Apple Valley
Robert Suchomel	Director of Facilities, St. Mary Medical Center
Laura Whitehead *Team Leader*	Emergency Services Officer, Town of Apple Valley and the Apple Valley Fire Protection District
Ralph Wright	Parks and Recreation Manager, Town of Apple Valley

Planning team meetings:

Date	Item	Location
12/14/2010	Planning Team Meeting Hazard Mitigation Plan Update	Fire Station 336
11/16/2010	Planning Team Meeting Hazard Mitigation Plan Update	Fire Station 336
10/12/2010	Planning Team Meeting Hazard Mitigation Plan Update	Fire Station 336
9/21/2010	Planning Team Meeting Hazard Mitigation Plan Update	Fire Station 336
8/17/2010	Planning Team Meeting Hazard Mitigation Plan Update	Fire Station 336
7/13/2010	Planning Team Meeting Kickoff Hazard Mitigation Plan Update	Fire Station 336

Table 4 Planning team and meetings

3.2 Coordination with other Jurisdictions, Agencies, and Organizations

The Town of Apple Valley Planning Team consulted members from adjacent jurisdictions as well as the County of San Bernardino, who is implementing the multi-jurisdictional approach.

- Apple Valley Chamber of Commerce
- Apple Valley Unified School District
- California Department of Transportation (Cal Trans)
- California Emergency Management Agency (Cal EMA)
- California Highway Patrol
- Community Members
- Federal Emergency Management Agency (FEMA)
- Local Hospital (St. Mary Medical Center)

- Local Churches
- Local Mobile home Park Owners, Managers and Residents
- Local Non-Profit Agencies (American Red Cross, United Way)
- Local Utility Companies
- National Weather Service (NWS)
- Public and Private Business Sectors
- San Bernardino County (OES, Dept. of Public Health, Animal Control)

In addition, the Town of Apple Valley participated in the San Bernardino County Fire Department Office of Emergency Services (OES) Stakeholder meetings. San Bernardino County Fire OES hired a contractor (ICF International) to support the County, Cities and Towns, and Special Districts to update the 55 local Hazard Mitigation Plans and the San Bernardino County Operational Area Multi-Jurisdictional Multi-Hazard Mitigation Plan. The ICF Team, which included subcontractors MMI Engineering and Natural Hazards, offered experienced, field-tested Hazard Mitigation and planning professionals who have developed similar comprehensive Hazard Mitigation Plans. This support included providing technical expertise and resource material and tools to help ensure that the updates are in compliance with federal requirements of the program.

Stakeholder Meetings

Date	Item	Location
1/27/2011	Stakeholder Meeting Hazard Mitigation Planning	Virtual Meeting
1/20/2011	Stakeholder Meeting Hazard Mitigation Planning	Virtual Meeting
1/11/2011	Stakeholder Meeting Hazard Mitigation Planning	Virtual Meeting
12/15/2010	Stakeholder Meeting Hazard Mitigation Planning	Virtual Meeting
10/28/2010	Stakeholder Meeting Hazard Mitigation Planning	Virtual Meeting
10/7/2010	Stakeholder Meeting Hazard Mitigation Planning	Virtual Meeting
9/23/2010	Stakeholder Meeting Hazard Mitigation Planning	Virtual Meeting
9/9/2010	Stakeholder Meeting Hazard Mitigation Planning	Virtual Meeting
8/26/10	Stakeholder Meeting Hazard Mitigation Planning	SB County OES

Date	Item	Location
8/19/2010	Stakeholder Meeting Hazard Mitigation Planning	Virtual Meeting
8/12/2010	Stakeholder Meeting Hazard Mitigation Planning	Virtual Meeting
7/29/2010	Stakeholder Meeting Hazard Mitigation Planning	Virtual Meeting
7/15/2010	Stakeholder Meeting Hazard Mitigation Planning (Time Line, Next Steps)	Ontario Police Dept.
7/7/2010	Stakeholder Meeting Hazard Mitigation Planning – Portal Rollout 2	SB County OES
7/1/2010	Stakeholder Meeting Hazard Mitigation Planning – Portal Rollout	SB County OES
6/10/2010	Stakeholder Meeting Hazard Mitigation Planning – Project Kick Off Meeting	SB County OES

Table 5 Stakeholder meetings

3.3 Public Involvement/Outreach

The Town of Apple Valley undertook a number of methods to inform the public of this effort to solicit their input on the Hazard Mitigation Plan and efforts of the town involving mitigation and emergency preparedness. On an ongoing basis the Town of Apple Valley and the Apple Valley Fire Protection District participate in public events and meetings to inform the public of emergency preparedness and mitigation and solicit comments and input from the citizens regarding their concerns and questions regarding mitigation planning efforts.

The 2010 Emergency Preparedness Fair sponsored by the Town of Apple Valley, Apple Valley Fire Protection District, Apple Valley Police, and St. Mary Medical Center was held on April 24, 2010, from 10:00 am - 1:00 pm. Exhibitors provided information pertaining to mitigation strategies and disaster preparedness. Exhibitors included the Town of Apple Valley, Apple Valley Fire Protection District, Apple Valley Police, St. Mary Medical Center, American Red Cross, Edison, Gas Company, Church of Jesus Christ of Latter day Saints, CERT (Community Emergency Response Team), FADD (Friends of Animals During Disasters, ECS (Emergency Communications Services), PAL Humane Society, Ultrastop, Simpler Life, and other vendors catering to community preparedness and mitigation information.

The event included informational sessions on CERT, (people in disasters) FADD/PAL (Animals in Disasters, ECS (Communications in Disasters) St. Mary Medical Center Responding the emergencies and HAZMAT decontamination procedures): SB County

Animal Control (Disaster Preparedness for Pets), SB County Health Department (Responding to Epidemics and Natural Disasters), and Redlands Community Hospital (Responding to Emergencies). The event drew a crowd of approximately 1500 attendees. The event was advertised through local businesses, schools and public sectors.

Other public outreach efforts include providing literature and handouts pertaining to mitigation strategies and emergency and disaster preparedness during town-sponsored events, including: CERT, FADD, and ECS training classes and general meetings; July 4th Freedom Festival; September Fall Festival and Pet Fair; October Equine Event; and other Emergency Preparedness Fairs, Health Fairs, and Safety Fairs held through the town and the Apple Valley Fire Protection District.

The following is a list of public meetings and events that have taken place during the drafting stage:

Date	Item	Location
11/4/10	Operational Area Coordinating Council County presented a report regarding the Hazard Mitigation Program. The meeting was attended by representatives of the 24 cities in the County of San Bernardino.	City of San Bernardino Public Library
10/30/2010	FADD Basic Training	Apple Valley
10/16/2010	Equine Festival	Apple Valley
10/12/2010	Town of Apple Valley Disaster Council/Citizen Corps Council	Apple Valley
10/9/2010	FADD General Meeting	Apple Valley
10/9/2010	Health and Safety Fair	Apple Valley
10/2/2010	CERT Basic Training	Apple Valley
9/25/2010	Fall Festival	Apple Valley
9/24/2010	Hospital Preparedness Committee meeting	Apple Valley
9/11/2010	Pet Fair	Apple Valley
9/4/2010	ECS general meeting	Apple Valley
8/27/2010	Rotary Club general meeting	Apple Valley
8/25/2010	Soroptimist Club general meeting	Apple Valley
8/18/2010	Apple Valley Chamber of Commerce meeting	Apple Valley
8/20/2010	Kiwanis Club general meeting	Apple Valley
8/17/2010	Apple Valley Fire Board meeting	Apple Valley
8/7/2010	CERT general meeting	Apple Valley

Date	Item	Location
8/5/2010	Operational Area Coordinating Council County presented a report regarding the Hazard Mitigation Program. The meeting was attended by representatives of the 24 cities in the County of San Bernardino.	Rancho Cucamonga
7/17/2010	Safety/ Emergency Preparedness Fair	Apple Valley
7/13/2010	Town of Apple Valley Disaster Council/Citizen Corps Council	Apple Valley
7/4/2010	Freedom Festival	Apple Valley
5/6/2010	Operational Area Coordinating Council County presented a report regarding the Hazard Mitigation Program. The meeting was attended by representatives of the 24 cities in the County of San Bernardino.	Chino
4/13/2010	Town of Apple Valley Disaster Council/Citizen Corps Council	Apple Valley
1/12/2010	Town of Apple Valley Disaster Council/Citizen Corps Council	Apple Valley
11/5/2009	Operational Area Coordinating Council County presented a report regarding the Hazard Mitigation Program. The meeting was attended by representatives of the 24 cities in the County of San Bernardino.	SB County OES
8/6/2009	Operational Area Coordinating Council CalEMA presented a report regarding the Hazard Mitigation Program. The meeting was attended by representatives of the 24 cities in the County. David Montague, Senior VP of ABS Consulting and Hope Deligson, Assoc., MMI Engineering, Inc. presented an overview of FEMA's San Bernardino County Essential Facility Risk Assessment project using HAZUS.	Ontario Police Dept.
5/7/2009	Operational Area Coordinating Council County presented a report regarding the Hazard Mitigation Program. The meeting was attended by representatives of the 24 cities in the County of San Bernardino.	Apple Valley
2/5/2009	Operational Area Coordinating Council County presented a report regarding the Hazard Mitigation Program. The meeting was attended by representatives of the 24 cities in the County of	Chino

Date	Item	Location
	San Bernardino.	
11/13/2008	Great Southern CA Shakeout/Golden Guardian Exercise - Police, Fire, Town staff and community-wide participation in the Great Southern CA Shakeout. Police, Fire, Town participation with the Golden Guardian Exercise.	
9/1/2008	Emergency Operations Plan Presented the EOP to the public to solicit comment and feedback.	
8/8/2008	Operational Area Coordinating Council County presented a report regarding the Hazard Mitigation Program. The meeting was attended by representatives of the 24 cities in the County of San Bernardino.	Big Bear
5/1/2008	Operational Area Coordinating Council County presented a report regarding the Hazard Mitigation Program. The meeting was attended by representatives of the 24 cities in the County of San Bernardino.	Victorville
2/7/2008	Operational Area Coordinating Council County presented a report regarding the Hazard Mitigation Program. The meeting was attended by representatives of the 24 cities in the County of San Bernardino.	Upland
8/9/2007	Operational Area Coordinating Council County presented a report regarding the Hazard Mitigation Program. The meeting was attended by representatives of the 24 cities in the County of San Bernardino.	Fontana
5/7/2007	Operational Area Coordinating Council County presented a report regarding the Hazard Mitigation Program. The meeting was attended by representatives of the 24 cities in the County of San Bernardino.	
2/1/2007	Operational Area Coordinating Council - County presented a report regarding the Hazard Mitigation Program. The meeting was attended by representatives of the 24 cities in the County of San Bernardino.	Upland
12/6/2006 11/22/2006	Pandemic Planning A series of meetings were held to educate the	Redlands Rialto

Date	Item	Location
11/9/2006 9/6/2006	public on the hazard and the actions the public can take to mitigate and/or reduce the impact of pandemic influenza.	Yucaipa Redlands
8/3/2006	Operational Area Coordinating Council County presented a report regarding the Hazard Mitigation Program. The meeting was attended by representatives of the 24 cities in the County of San Bernardino.	Loma Linda

Table 6 Public meetings and events

3.4 Assess the Hazard

Data collection and document review are important first steps in the identification and screening of hazards. The Planning Team identified new or emerging hazards, obtained updated hazard maps, hazard probability research studies and reports, reviewed data from new or updated local plans (i.e. safety element of the General Plan, threat assessments, disaster planning scenarios, community wildfire protection plans, etc.) and obtained information about emergencies or disasters that have occurred since the 2005 Hazard Mitigation Plan to provide insights into which parts of the risk assessment warrants updates.

The first step in this process was to identify which natural hazards are present in the community, augmenting the 2005 Hazard Mitigation Plan as necessary.

The intent of screening of hazards is to help prioritize which hazard creates the greatest concern in the community. Because the original 2005 process used to rank hazards (Critical Priority Risk Index (CPRI) software) was not utilized, the Planning Team screened hazards creating the greatest concern in the community.

The Planning Team utilized a non-numerical ranking system for the update process. This process consisted of generating a non numerical ranking (High, Medium, or Low) rating for the 1) probability and 2) impact from each screened hazard. The hazards were then placed in the appropriate/corresponding box/cell. The table below is an example of how the hazards were ranked. In this example the “Red” boxes represent the higher priority hazards; and the “Orange” and “Yellow” boxes represent additional levels of priority.

The definition of “High”, “Medium”, and “Low” probability and impacts are as follows:

Probability

High- Highly Likely/Likely
Medium- Possible
Low- Unlikely

Impact

High- Catastrophic/Critical
Medium- Limited
Low- Negligible

		Impact		
		High	Medium	Low
Probability	High			
	Medium			
	Low			

Figure 5 Hazard Ranking System

3.5 Set Goals

Project and community hazard mitigation goals and objectives for the Town of Apple Valley were set by the Planning Team to guide the development of the Plan using FEMA National Mitigation Strategies and Goals to substantially increase public awareness of natural hazard risks so that the public demands safer communities in which to live and work; and to significantly reduce the risk of loss of life, injuries, economic costs, and destruction of natural and cultural resources that result from natural hazards.

These were then commented on by the community stakeholders to refine the goals, resulting in a consensus agreement.

3.6 Review and Propose Mitigation Measures

A wide variety of mitigation measures that can be identified to help reduce the impact of the hazards or the severity of damage from hazards was examined. The projects were identified to help ensure the implementation of the Planning Team’s goals and objectives. The following categories were used in the review of possible mitigation measures:

1. Public Information and Education- Outreach projects and technical assistance.
2. Preventive Activities- Zoning, building codes, storm water ordinances
3. Structural Projects- Detention basins, reservoirs, road and bridge improvements
4. Property Protection- Acquisition, retrofitting

5. Emergency Services- Warning, sandbagging, road signs/closures, evacuation
6. Natural Resource Protection: Wetlands, protection, best management practices.

Once the projects were identified, the Planning Team utilized the STAPLEE methodology to assess and prioritize the projects.

STAPLEE stands for the following:

- **Social:** Social criteria are based on the idea that community consensus is a necessary precondition for successful implementation of mitigation measures (i.e., measures should be supported and accepted by the entire community). This also means that measures should not affect adversely a particular segment of the population or a particular neighborhood, or adversely impact local cultural values or resources.
- **Technical:** Technical criteria address the technical feasibility of the proposed measures, in terms of effectiveness, secondary impacts, and the technical capabilities of the community to implement and sustain these measures.
- **Administrative:** Administrative criteria address the administrative capabilities required to implement each mitigation measure. For example, does the City have the necessary organization, staff, and funding sources to implement and sustain the mitigation process?
- **Political:** Political criteria consider the need for political support for mitigation measures. This means that all stakeholders in the political process, especially political organizations and institutions both inside and outside of the community, should support the measure.
- **Legal:** Legal criteria are used to determine the appropriate legal authority necessary to implement each mitigation measure and whether such an authority can be delegated. The mitigation measure is examined from the standpoint of current statutes, codes, ordinances, and other regulations, as well as the possible legal ramifications of the measure's implementation.
- **Economic:** Economic criteria address the cost-effectiveness of the proposed measure and its economic impact on the community. It is only reasonable to expect that the benefits of implementation will exceed the costs incurred. Economic considerations also consider the economic impact on the community's future development.
- **Environmental:** Environmental criteria have become an important consideration in examining mitigation options. Although most mitigation measures are usually beneficial for the environment, some measures may have adverse effects, which must be considered and addressed.

Based on STAPLEE, the Planning Team addressed the following questions to determine mitigation options:

Does the Action:

1. Solve the problem?
2. Address Vulnerability Assessment?
3. Reduce the exposure or vulnerability to the highest priority hazard?
4. Address multiple hazards?
5. Address more than one (1) Goal/Objective?
6. Benefits equal or exceed costs?

Can the Action:

1. Be implemented with existing funds?
2. Be implemented by existing state or federal grant programs?
3. Be completed within the 5-year life cycle of the LHMP?
4. Be implemented with currently available technologies?

Will the Action:

1. Be accepted by the community?
2. Be supported by community leaders?
3. Adversely impact segments of the population or neighborhoods?
4. Require a change in local ordinances or zoning laws?
5. Result in legal action such as a lawsuit?
6. Positively or negatively impact the environment?
7. Comply with all local, state and federal environmental laws and regulations?

Is there:

1. Sufficient staffing to undertake the project?
2. Existing authority to undertake the project?

3.7 Draft the Hazard Mitigation Plan

The Hazard Mitigation Plan was drafted by the Planning Team members following the 2005 Hazard Mitigation Plan, the guidance document and Hazard Mitigation Plan outline provided by the consultant, and input from all stakeholders and Town departments. The Planning Team provided opportunity for public comment and input. FEMA Guidance documents for Hazard Mitigation were also used extensively as additional reference materials.

The results of the mitigation activities review are summarized in the Hazard Mitigation Plan update. The draft plan will be circulated for additional comment and review.

3.8 Adopt the Plan

After the public review, the draft plan will be submitted to Cal EMA/FEMA for review and approval. FEMA will provide the Town with an “Approval Pending Adoption” letter if the Hazard Mitigation Plan update meets all federal requirements. Upon receipt of this

letter, the final plan will be submitted to the Apple Valley Town Council for consideration and adoption. Once adopted, the final Resolution will be submitted to FEMA for incorporation into the Hazard Mitigation Plan.

The Town of Apple Valley's adoption of the Hazard Mitigation Plan is only the beginning of this effort. Town offices, other agencies, and private partners will implement the Hazard Mitigation Plan activities. The Planning Team will monitor implementation progress, evaluate the effectiveness of the actions, and periodically recommend action items. Progress of the implementation of the Plan and the recommended action/mitigation strategies will be assessed annually. The Plan will be submitted and updated to FEMA every five years, which is required by FEMA in order to remain eligible for post-disaster mitigation funding.

SECTION 4 – RISK ASSESSMENT

The goal of mitigation is to reduce the future impacts of a hazard including property damage, disruption to local and regional economies, and the amount of public and private funds spent to assist with recovery; however, mitigation should be based on risk assessment. This section discusses the risk assessment approach for the Town of Apple Valley's Hazard Mitigation Plan. FEMA defines the risk assessment process as a multi-step effort in "Understanding Your Risks: Identifying Hazards and Estimating Losses (FEMA 2001)". The steps include:

1. Identify and Screen your Hazards
2. Profile Hazard Events
3. Inventory Assets
4. Estimate Losses

The risk assessment approach for Apple Valley is composed of these four steps, and each step is organized in a separate subsection of Chapter 4. Section 4.1 (step 1) includes hazard identification and screening. During this process, all reasonably possible hazards affecting the Town are considered and ranked by the Town of Apple Valley Planning Team and stakeholders. Section 4.2 (step 2) provides a profile for each of the significant hazards identified during the screening process. In general, the hazard profiles are addressed on a regional level.

Figure 6 – 4-Step Risk Assessment-Source:FEMA

Wherever possible the profile includes a discussion of local characteristics and possible impacts on the community. Section 4.3 (step 3) discusses the process of creating an inventory of the Town's assets. This step includes the comprehensive information gathering and prioritization process essential to perform the vulnerability assessment and loss estimation. Section 4.4 (step 4) presents the methodologies and results of loss estimation for the key hazards identified in step 2.

4.1. Hazard Identification

4.1.1. Hazard Screening Criteria

The Town of Apple Valley Planning Team determined that natural hazards would be the focus at this time, in order to become eligible for mitigation funds following any future declared disaster after November 1, 2004. Through selectively identified analysis following hazard-specific meetings, the Planning Team reviewed eight natural hazards (listed below). The Planning Team determined that although seven hazards were identified, some of these hazards were ranked

low risk/low impact or medium risk/medium impact or could potentially be secondary to higher ranked hazards. As a result, it was the consensus of the Planning Team to focus on the three hazards that scored "High" in the Hazard Assessment Matrix (located on page 38 of this Plan):
Earthquake, Flooding, and ***Wildfires***.

- Dam Failure
- Drought and Water Shortage
- ***Earthquake***
- Extreme Heat
- ***Flooding***
- High Winds/Straight Line Winds
- ***Wildfires***

The hazard data was analyzed in view of how it impacts public safety, health, buildings, transportation, infrastructure, critical facilities and the economy. The discussion of the problem and vulnerability assessment for each hazard is presented in the sections for each hazard.

The identification of each hazard was based upon the following sources:

1. Historic Occurrence of the Hazard - Assessment is based on frequency, magnitude and potential impact of the hazard.

2. Mitigation Potential for the Hazard - This criterion considers if there are mitigation or counter measures possible to prevent or alleviate the risk.

3. Expert Opinion - Evaluation of threats includes a literature review and the expertise of the Planning Team.

4. Published Data and Information - Assessment is based on data and/or information from credible publications or websites. (i.e., U.S. Geological Survey, California Geological Survey, National Weather Service - National Climatic Data Center, or academic publications)

4.1.2. Hazard Assessment Matrix

Rankings used for the hazard screening were defined as follows:

Probability		**Impact**	
High:	Highly Likely/Likely	High:	Catastrophic/Critical
Medium:	Possible	Medium:	Limited
Low:	Unlikely	Low:	Negligible

High- There may or may not have been historic occurrences of the hazard in the community or region but experts feel that it is likely that the hazard will occur in

the community and the risk is significant. Citizens feel that there is a likelihood of occurrence and the consequences will be significant in terms of building damage and loss of life.

Medium- There may or may not have been a historic occurrence of the hazard in the community or region but experts feel that it is possible that the hazard could occur in the community. Citizens may feel that there is a likelihood of occurrence but the consequences will be negligible in terms of building damage and loss of life.

Low- There has been no historic occurrences of the hazard in the community or region and experts feel that it is highly unlikely that the hazard will occur in the community. The citizens agree.

Hazards Identified

The Planning Team determined that although seven hazards were identified, some of these hazards were ranked low risk/low impact or medium risk/medium impact or could potentially be secondary to higher ranked hazards. As a result, it was the consensus of the Planning Team to focus on the three hazards that scored "High" in the Hazard Assessment Matrix (located on page 38 of this Plan): ***Earthquake, Flooding***, and ***Wildfires***. The following natural hazards were reviewed and analyzed by the Planning Team:

1. Dam Failure ranked low or insignificant disaster and may be secondary to earthquakes. A dam is defined as a barrier constructed across a watercourse for the purpose of storage, control, or diversion of water. Dams typically are constructed of earth, rock, concrete, or mine tailings. A dam failure is the collapse, breach, or other failure resulting in downstream flooding or a severe natural occurrence, such as an earthquake.

   A dam impounds water in the upstream area, referred to as the reservoir. The amount of water impounded is measured in acre-feet. An acre-foot is the volume of water that covers an acre of land to a depth of one foot. As a function of upstream topography, even a very small dam may impound or detain many acre-feet of water. Two factors influence the potential severity of a full or partial dam failure: the amount of water impounded, and the density, type, and value of development and infrastructure located downstream.

   Of the approximately 80,000 dams identified in the National Inventory of Dams, the majority are privately owned, Federal agencies own 2,131; States own 3, 627; local agencies own 12,078; public utilities own 1,626; and private entities or individuals own 43,656. Ownership of over 15,000 is undetermined.

   The Inventory categorizes the dams according to their primary function: Recreation (31.3 percent), Fire and farm ponds (17.0 percent), Flood control (14.6 percent), Irrigation (13.7 percent), Water supply (9.8 percent), Tailings and other (8.1 percent), Hydroelectric (2.9 percent), Undetermined (2.3

percent) and Navigation (0.3 percent).

Each dam in the inventory is assigned a downstream hazard classification based on the potential loss of life and damage to property should the dam fail. The three classifications are high, significant and low. With changing demographics and land development in downstream areas, hazard classifications are updated continually.

The hazard classification is not an indicator of the adequacy of a dam or its physical integrity. Dam failures typically occur when spillway capacity is inadequate and excess flow overtops the dam, or when internal erosion (piping) through the dam or foundation occurs.

Dam failure can result from any one or a combination of the following causes:

- Prolonged periods of rainfall and flooding, which causes most failures;
- Inadequate spillway capacity, resulting in excess overtopping flows;
- Internal erosion caused by embankment or foundation leakage or piping;
- Improper maintenance, including failure to remove trees, repair internal seepage problems, replace lost material from the cross section of the dam and abutments;
- Improper design, including the use of improper construction materials and construction practices;
- Negligent operation, including failure to remove or open gates or valves during high flow periods;
- Failure of upstream dams on the same waterway;
- Landslides into reservoirs, which cause surges that result in overtopping; and
- High winds, which can cause significant wave action and result in substantial erosion; and Earthquakes, which typically cause longitudinal cracks at the tops of embankments that weaken entire structures.

Description:

Two major dams -- Cedar Springs Dam and Mojave Dam -- could have a significant impact on the Town of Apple Valley in the event of dam failure. Both are located in the San Bernardino National Forest in the upper portion of the Mojave River Basin, southwest of Apple Valley. The Cedar Springs Dam and the Mojave Dam are both managed and operated by the State Department of Water Resources.

DATA OF LOCAL DAMS

	Cedar Springs Dam	Mojave Dam
DWR Number	1-063	9000-021
National ID	CA00049	CA10021
Dam Type	Rock	Earth
Crest Length	2,235 ft.	2,200 ft.
Height (measured above the dam crest)	236 ft.	204 ft.
Crest Width	42 ft.	20 ft.
Total Freeboard	23 ft.	21 ft.
Reservoir	Lake Silverwood	Mojave River Forks
Reservoir Storage Capacity	78,000 acre-ft.	89,700 acre-ft.
Reservoir Drainage Area	34.0 sq. miles	70.3 sq. miles

Table 7 Local Dam Data

Fortunately, neither the Cedar Springs Dam nor the Mojave Dam have experienced dam failure. For Apple Valley to be affected by flood waters due to dam failure, both of these dams would need to fail simultaneously or the failure of the Cedar Springs Dam would need to occur at a time when rising flood waters were already a problem at the Mojave Dam. Failure of these dams during a catastrophic event, such as a severe earthquake, is considered to be an unlikely event. Both dams have performed well in past earthquakes due to the type and method of construction.

The area subject to extreme hazardous conditions due to dam failure is the area along the Mojave River.

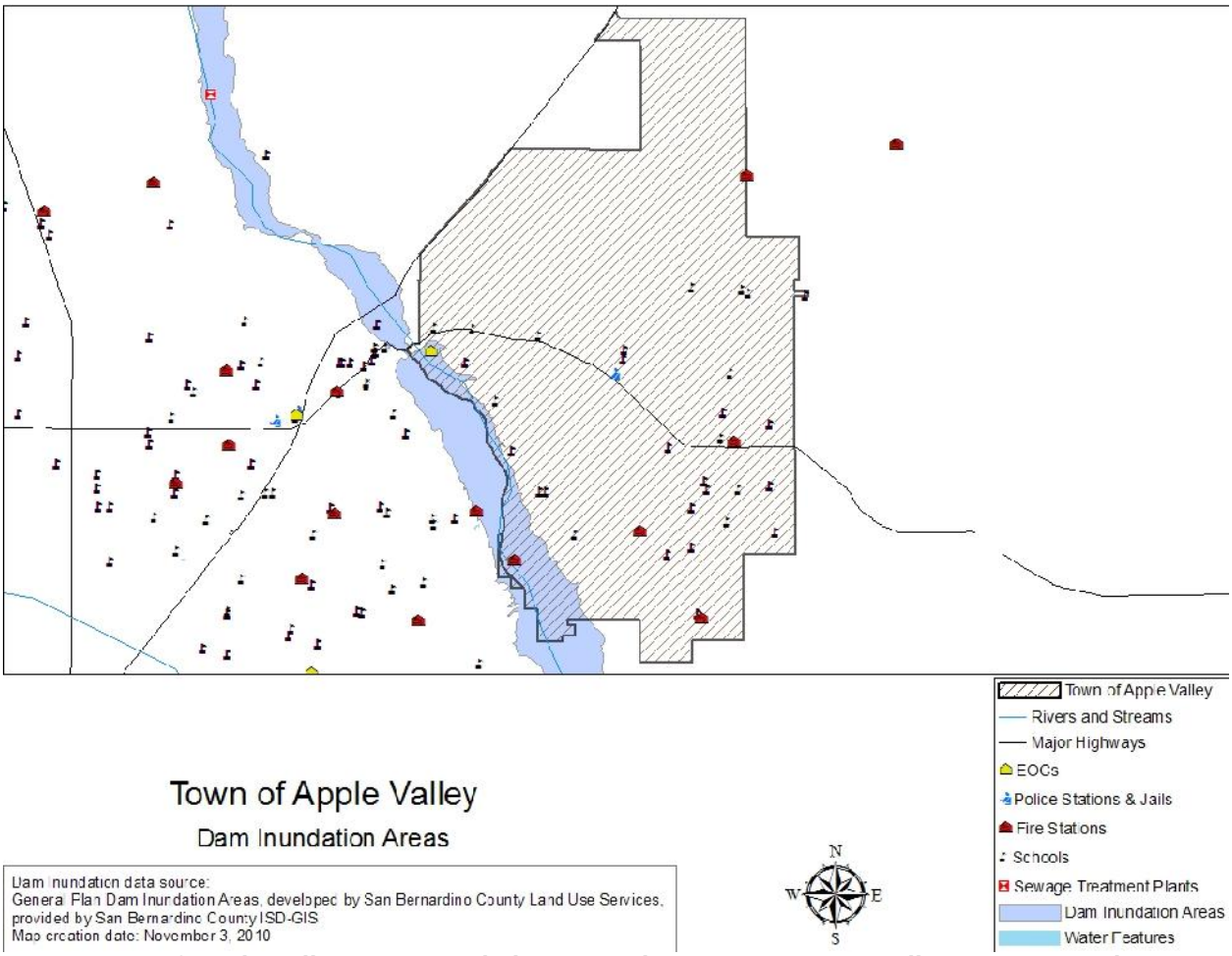

Figure 7 – Town of Apple Valley Dam Inundation Areas (Source: San Bernardino County Land Use Services)

2. Drought and Water Shortage ranked medium hazard. A drought is a period of drier-than-normal conditions that results in water-related problems. Precipitation (rain or snow) falls in uneven patterns across the country. When no rain or only a small amount of rain falls, soils can dry out and plants can die. If dry weather persists and water supply problems develop, the dry period can become a drought. Droughts differ from typical emergency events such as floods or forest fires, in that they occur slowly over a multiyear period. California has faced numerous challenges in recent years, including a nearly decade-long drought on the Colorado River, snowpacks that are below normal, and court-mandated reductions in the amount of water available for delivery by the State Water Project. Drought impacts increase with the length of a drought, as carry-over supplies in reservoirs are depleted and water levels in groundwater basins decline. Climate change, population growth, and the increasing instability of the water supplies in the delta formed by the confluence of the Sacramento and San Joaquin rivers threaten to exacerbate the crisis.

3. Earthquake ranked high hazard. A number of active and potentially active fault zones exist within the High Desert. The zones of greatest seismic hazard have been identified as Alquist-Priolo Special Studies Zones. The Alquist-Priolo Earthquake Fault Zoning Act was signed into California law in 1972, and was intended to mitigate the hazards of fault rupture by prohibiting the location of structures for human occupancy across active fault traces. As required by the Act, the State Geologist is required to delineate active (showing evidence of Holocene surface displacement along one or more of their segments) "earthquake fault zones", and are clearly detectable by a trained geologist as a physical feature at or just below the ground surface.

   An earthquake fault zone boundary is generally about 500 feet from major active faults, and 200 to 300 feet from well defined minor faults. Counties and cities are also required to condition development permit approval for sites within earthquake fault zones to perform geologic investigation that demonstrate that the sites are safe from surface displacement associated with future faulting. Of the types of development that are regulated are defined by State law, however, local regulations may prove even more restrictive.

   Currently (2008) there are no Alquist-Priolo Earthquake Fault Zones mapped within the Apple Valley corporate limits or the annexation areas. However, there are two zones extending across portions of the town's Sphere of Influence, and a third Alquist-Priolo zone approaches the Sphere of Influence from the east-southeast. It should be noted that the State Geologist periodically revises the Alquist-Priolo Earthquake Fault Zones based upon new scientific research or fault studies' data. Local agencies, either at the county or local level, can designate additional fault hazard study zone.

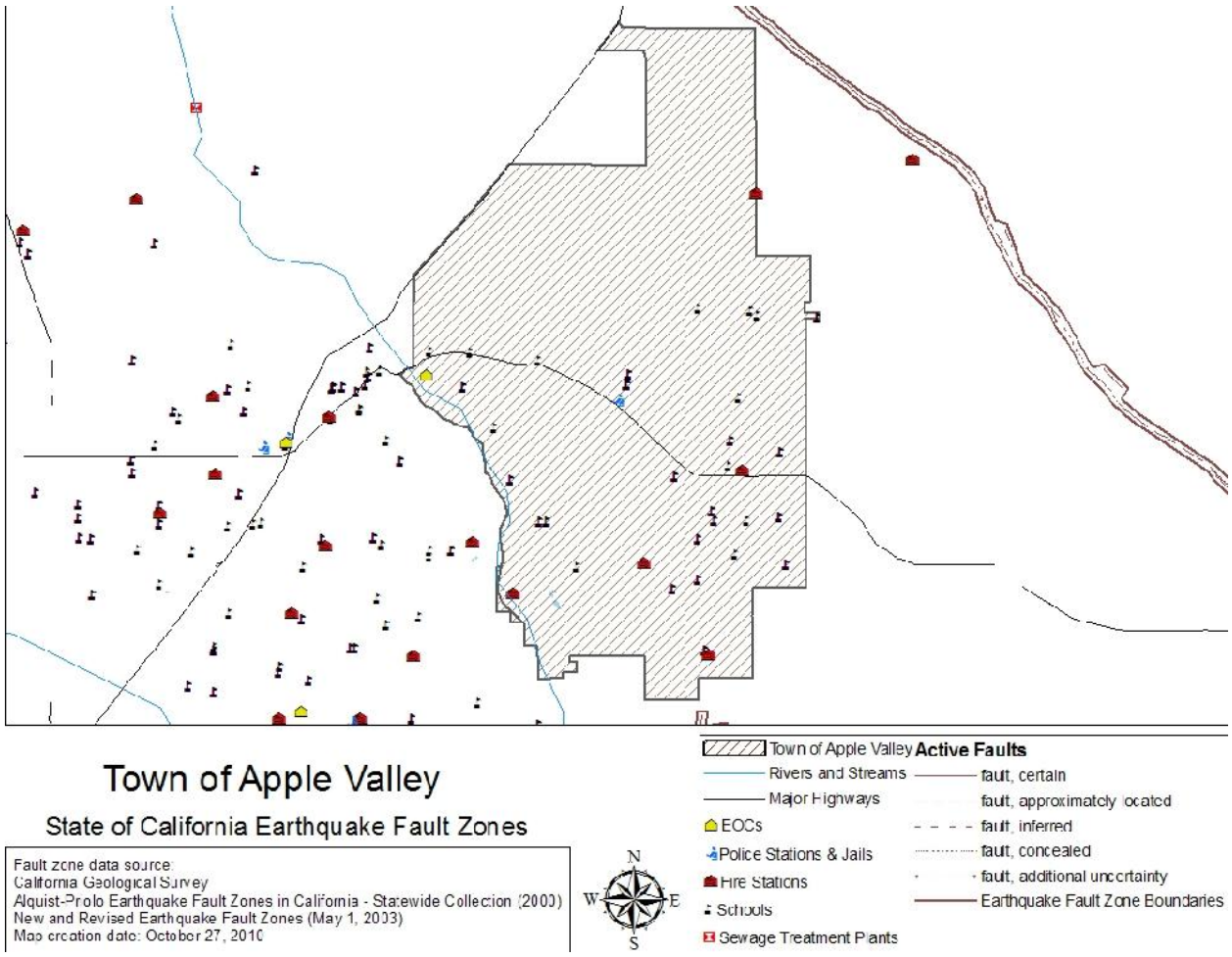

Figure 8 – Apple Valley Earthquake Fault Zones (Fault Zone Data Source: California Geological Survey)

4. Extreme Heat ranked medium hazard. Temperatures that hover 10 degrees or more above the average high temperature for the region and last for several weeks are defined as extreme heat.

5. Flooding ranked high hazard. Most of the drainages from the surrounding hills and mountains in Apple Valley terminate in desert playas (dry lakes). The Apple Valley Dry Lake is the largest playa in the area, collecting runoff from most of Apple Valley. A smaller playa (Reeves Dry Lake) is present in the central part of Fairview Valley, where it receives runoff from the adjacent mountains. In the southeast corner of Apple Valley, drainages from the Ord Mountains, including the Juniper Flats, Arrastre Canyon, and Lovelace Canyon watersheds, lead to Rabbit Dry Lake in Fifteenmile Valley. Along the eastern edge of the Sphere of Influence, drainages from the Granite Mountains flow eastward to Lucerne Dry Lake in Lucerne Valley. Drainage channels in Apple Valley's local mountains are well carved, however they lose their strong definition upon reaching the valley floor, where sediment-laden water typically spreads out into braided ephemeral

stream channels and as sheet flow. Drainages along the western side of Apple Valley eventually discharge into the Mojave River. The largest tributary to the Mojave River within Apple Valley is Bell Mountain Wash, a natural channel that collects runoff primarily in the area north and west of Bell Mountain. The area west of Catholic Hill is drained by the smaller, partially modified, Desert Knolls Wash. In the southwest corner of Apple Valley, numerous small, unnamed drainages draining the western part of the Ord Mountains flow towards the Mojave River.

6. High Winds/Straight Line Winds ranked medium hazard. High winds can result from thunderstorm inflow and outflow, or downburst winds when the storm cloud collapses, and can result from strong frontal systems, gradient winds (high or low pressure systems), or foehn winds, such as the Santa Ana's. High winds are speeds reaching 50 miles per hour or greater, either sustaining or gusting.

7. Wildfires ranked high hazard. Wildfires present a significant potential for disaster in the southwest, a region of relatively high temperatures, low humidity, and low precipitation during the summer, and during the spring, moderately strong daytime winds. Combine these severe burning conditions with people or lightning and the stage is set for the occurrence of large, destructive wildfires.

4.1.3 Hazard Prioritization

The results of the screening process described above are presented as a hazard assessment matrix in Table 2 (below). The matrix illustrates the nature and potential of threats from natural disasters to the Town of Apple Valley. The Planning Team reviewed the probability and impact for each screened hazard and the potential for implementing mitigation measures to reduce the risk. The results were reviewed and modified during stakeholder meetings and a prioritized ranking of the hazards was developed.

As shown in the table below, there are three hazards that were given a high priority: earthquake, flooding, and wildfires.

		Impact		
		High	**Medium**	**Low**
Probability	**High**	Earthquake Flooding Wildfires		
	Medium	Drought and Water Shortage	Extreme Heat High Winds Straight Line Winds	

	Low			Dam Failure

Red boxes represent the higher priority hazards; "Orange" and "Yellow" boxes represent additional levels of priority.

Figure 9 – Hazard Assessment Matrix

The following sections profile these three hazards (Section 4.2): inventories assets in the Town (Section 4.3), and estimates losses or assesses risk for significant events associated with these three hazards (Section 4.4). This Plan Update continues to describe occurrences of hazards included in the previously approved (2005) Plan and, where applicable, incorporates new occurrences of hazard events, historical records, and hazard data related to profiling hazards.

4.2 Hazard Profile

4.2.1. Earthquake

An earthquake is a sudden, rapid shaking of the Earth caused by the breaking and shifting of rock beneath the Earth's surface. For hundreds of millions of years, the forces of plate tectonics have shaped the Earth as the huge plates that form the Earth's surface move slowly over, under, and past each other. Sometimes the movement is gradual. At other times, the plates are locked together, unable to release the accumulating energy. When the accumulated energy grows strong enough, the plates break free causing the ground to shake. Most earthquakes occur at the boundaries where the plates meet; however, some earthquakes occur in the middle of plates.

Ground shaking from earthquakes can collapse buildings and bridges; disrupt gas, electric, and phone service; and sometimes trigger landslides, avalanches, flash floods, fires, and huge, destructive ocean waves (tsunamis). Buildings with foundations resting on unconsolidated landfill and other unstable soil, and trailers and homes not tied to their foundations are at risk because they can be shaken off their mountings during an earthquake. When an earthquake occurs in a populated area, it may cause deaths and injuries and extensive property damage.

Earthquakes strike suddenly, without warning. Earthquakes can occur at any time of the year and at any time of the day or night. On a yearly basis, 70 to 75 damaging earthquakes occur throughout the world. Estimates of losses from a future earthquake in the United States approach $200 billion.

There are 45 states and territories in the United States at moderate to very high risk from earthquakes, and they are located in every region of the country. California experiences the most frequent damaging earthquakes; however, Alaska experiences the greatest number of large earthquakes--most located in uninhabited areas. The largest earthquakes felt in the United States were along the New Madrid Fault in

Missouri, where a three-month long series of quakes from 1811 to 1812 included three quakes larger than a magnitude of 8 on the Richter Scale. These earthquakes were felt over the entire Eastern United States, with Missouri, Tennessee, Kentucky, Indiana, Illinois, Ohio, Alabama, Arkansas, and Mississippi experiencing the strongest ground shaking.

Much of southern California is located along the boundary between the North American and Pacific tectonic plate. This boundary, also known as the San Andreas Fault Zone, could generate strong seismic activities. The Pacific Plate is moving in a northwesterly direction, approximately 50 millimeters per year in relationship to the North American Plate. In southern California, the San Andreas Fault consists of three segments: the Mojave Desert segment, the San Bernardino Mountains segment, and the Coachella Valley segment.

The Town of Apple Valley's planning area is located near this boundary, and there are several active faults in the region. These include the Helendale fault, the San Andreas fault, the North Frontal fault, the Cleghorn fault, the Cucamonga fault, and the San Jacinto fault. Of these, the North Frontal fault has the potential to generate the strongest seismic shaking in Apple Valley.

Measuring Seismic Events

Classification of seismic events is based on their magnitude and intensity. The intensity of ground shaking is determined by several factors, such as the earthquake's magnitude, the distance from the epicenter, and the geologic composition of local soils and rocks. Seismic intensity is most commonly measured by the Modified Mercalli Intensity (MMI) scale, which includes twelve levels of damage. The MMI is derived from actual observations of damage to structures and human reactions to earthquakes. Based on this scale, an earthquake tremor at Level I earthquake tremor is generally not felt and is considered unlikely to result in damage, whereas a Level XII earthquake results in total destruction. Earthquake intensities may result in damage such as partial or complete collapse of masonry structures, severe damage to complete destruction of underground pipelines, rock and landslides, and massive damage or destruction of bridges, overpasses and other improvements.

Earthquake magnitude is measured by the Richter Scale on a continuum of one to nine, with each level-of-magnitude increase representing a tenfold increase in the amplitude of the waves on a seismogram. The most notable historic earthquake in the Apple Valley region was the Landers earthquake of 1992, which had a magnitude of 7.3 on the Richter Scale. The Landers earthquake, so named for its epicenter near the small desert community of Landers, also ruptured five other separate faults.

The largest earthquake likely to occur on a fault or fault segment within a specified period of time is considered the Maximum Probable Earthquake (MPE). The MPE is

useful during emergency and engineering planning. It provides a means to assess the potential seismic risk within a region, is referenced to establish safe construction and design parameters, and facilitates
the preparation of policies and programs that are responsive to the potential impacts of an earthquake.

Defined as the largest earthquake a fault is estimated to be capable of generating, the Maximum Credible Earthquake (MCE) also provides a useful gauge for emergency and engineering planning efforts. In the Apple Valley area, the North Frontal fault (West) is expected to generate a magnitude 7.2 earthquake with a Peak Ground Acceleration (PGA) ranging from 1.13g to 0.38g, which is equivalent to a Level XI to X on the Modified Mercalli Intensity Scale (MMI). Table IV-1 shows a list of faults that could generate significant impacts within Apple Valley and the surrounding area.

Table IV-1
Estimated Horizontal Peak Ground Accelerations and
Seismic Intensities in the Apple Valley Area

Fault Name	Distance to Apple Valley (km)	Distance to Apple Valley (mi)	Magnitude of M_{max} *	PGA (g) from M_{max}	MMI from M_{max}
North Frontal Fault (West)	<0.5 – 16.2	0.5 – 26.1	7.2	1.13 – 0.38	XI - X
Helendale – South Lockhart	<0.5 – 13.9	0.5 – 22.4	7.3	0.75 – 0.33	XI - IX
San Andreas (Whole Southern)	14.4 – 31.4	23.1 – 50.6	8.0	0.48 – 0.25	X - IX
Lenwood – Lockhart – Old Woman Springs	12.1 – 28.7	19.4 – 46.2	7.5	0.42 – 0.19	IX - VIII
San Andreas (San Bernardino – Coachella)	14.4 – 31.4	23.1 – 50.6	7.7	0.41 – 0.20	X - VIII
San Andreas (1857 Rupture or Cholame – Mojave)	16.9 – 33.2	27.2 – 53.5	7.8	0.38 – 0.20	IX - VIII
San Andreas (San Bernardino)	14.4 – 31.4	23.1 – 50.6	7.5	0.36 – 0.17	IX – VIII
Cleghorn	8.1 – 24.4	13.1 – 39.2	6.5	0.33 – 0.11	IX - VII
San Andreas (Mojave)	16.9 – 32.2	27.2 – 53.5	7.4	0.30 – 0.15	IX - VIII
Cucamonga	18 – 34.4	29 – 55.3	6.9	0.28 – 0.15	IX - VIII
Landers	17.3 – 34.5	27.9 – 55.6	7.3	0.27 – 0.14	IX - VIII
North Frontal (East)	17.3 – 32.2	27.9 – 51.9	6.7	0.26 – 0.14	IX – VIII
Sierra Madre	29.6 – 45.1	47.7 – 72.6	7.2	0.21 – 0.14	VIII
Gravel Hills – Harper Lake	20.8 – 37.5	33.5 – 60.3	7.1	0.20 – 0.11	VIII - VII
Calico – Hidalgo	29.1 – 43.6	43.1 – 70.2	7.3	0.18 – 0.11	VIII - VII
San Jacinto (San Bernardino)	18.6 – 35.7	29.9 – 57.4	6.7	0.17 – 0.09	VIII - VII
Johnson Valley (Northern)	19.9 – 32.4	32 – 52.1	6.7	0.16 – 0.10	VIII – VII
Puente Hills Blind Thrust	42.7 – 58.9	68.7 – 94.8	7.1	0.14 – 0.10	VIII - VII
Blackwater	30 – 45.2	46.8 – 72.8	7.1	0.14 – 0.09	VIII - VII
San Jacinto (San Jacinto Valley)	26.2 – 42.8	42.2 – 68.8	6.9	0.14 – 0.09	VIII - VII
Pinto Mountain	31.5 – 48.8	50.7 – 78.5	7.2	0.14- 0.09	VIII - VII
Pisgah – Bullion Mtn. – Mesquite Lake	35.5 – 51.4	57.1 – 82.7	7.3	0.13 – 0.09	VIII - VII
Emerson South – Copper Mtn.	29 – 40.6	46.7 – 65.3	7.0	0.13 – 0.09	VIII - VII

Abbreviations: mi – miles; km – kilometer; M_{max} – maximum magnitude earthquake; PGA – peak ground acceleration as a percentage of "g", which is the acceleration of gravity; MMI – Modified Mercalli Intensity.
Source: Technical Background Report to the Safety Element for the Town of Apple Valley, prepared by Earth Consultants International, 2007.

Table 8 Seismic Intensities

Potential adverse effects from earthquakes may be substantial and range from property damage, to the loss of public services and facilities, to loss of life. Apple Valley and the surrounding area are most susceptible to severe impacts associated with strong ground shaking. Strong ground shaking can cause other geologic hazards, including landslides, ground lurching, structural damage or destruction, and liquefaction, which can further disrupt affected areas through fire, the interruption of essential services or damage to facilities and infrastructure, such as water, sewer, gas, electric, transportation, communications, drainage, as well as release of hazardous materials. Dam or water tank failure brought about by seismic activity can result in flood inundation.

There are no faults mapped by the State of California within the Town's corporate limits or within either of the proposed annexation areas; however two faults occur within portions of the Town's Sphere of Influence. The following discussion describes the faults in the region that are most likely to impact Apple Valley. Faults within the Apple Valley study area are illustrated in Exhibit IV-3, Faults in Apple Valley Area.

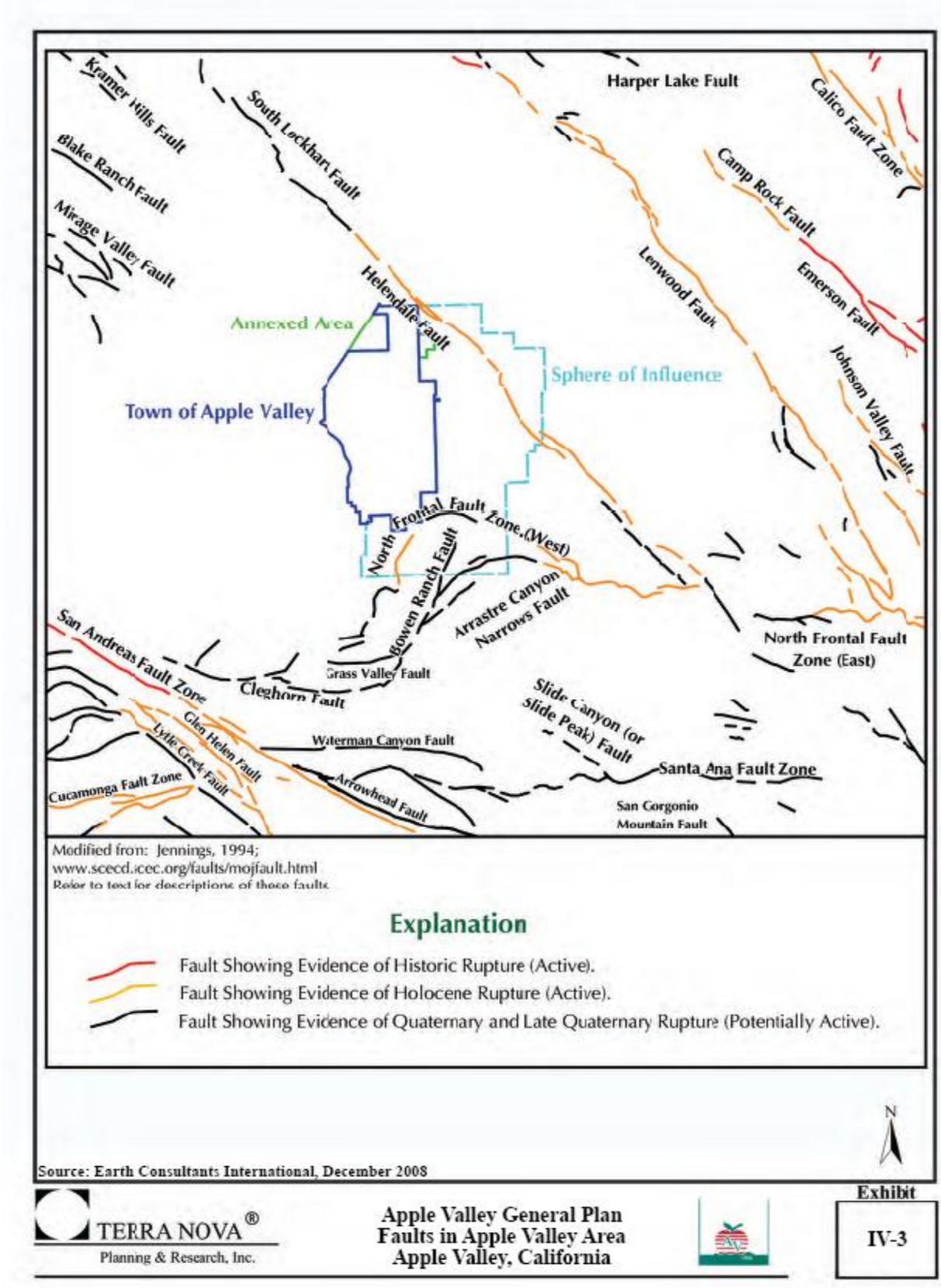

Figure 10 – Faults in Apple Valley

North Frontal Fault

The North Frontal fault is closest to and therefore has the potential to generate the strongest seismic shaking in the area. The North Frontal fault is a partially blind reverse fault zone comprised of several fault splays; it trends south along the eastern flank of the San Bernardino Mountains, and has a combined total length of approximately 40 miles. Several of the fault splays interact with other faults that traverse the region. The most significant fault with which the North Frontal relates is the Helendale fault, which offsets and divides the North Frontal into two main segments, referred to as the East and West segments. The West segment is approximately 22 miles long, and is less than 0.5 miles from Apple Valley at the closest point.

The North Frontal fault is considered an active fault, based on its having moved within the last 10,000 years. However, it has not been studied in detail, and while it is has been attributed a slip rate of approximately 0.5 mm per year, the parameters of this fault are not well understood. It is thought that movement on this fault causes an average uplift rate of the San Bernardino Mountains of about 1 mm per year. The West segment of the North Frontal fault zone is considered capable of generating a maximum magnitude 7.2 earthquake, based on its length. Such an earthquake on this fault would generate peak ground accelerations in the planning area of between about 1.1g and 0.4g, which converts to Modified Mercalli intensities as high as XI. Based on rupture of the East segment of the North Frontal fault zone in a 6.7 earthquake, ground shaking of about 0.26g to 0.14g would be felt in the planning area. This converts to Modified Mercalli intensities in the IX to VIII range.

Helendale Fault

There are several right-lateral strike-slip faults within what is known as the Eastern California Shear Zone, of which the Helendale fault is the westernmost. Approximately 9 to 23% of the total movement along the North American/Pacific plate boundary motion occurs along this zone. The Helendale fault itself is 56 miles long, but it also seems to form a continuous fault with the South Lockhart fault to the north. The southern end of the Helendale fault apparently offsets the North Frontal fault, as discussed above, forming the East and West segments. The Helendale fault extends to the northeast of the planning area, outside of Apple Valley's northeastern corporate limits and within the Sphere of Influence. The Helendale fault has an annual slip rate calculated at 0.8 mm/year; it has a recurrence interval for large surface-rupturing events of 3,000 to 5,000 years. Based on currently available data, the California Geological Survey estimates that a maximum earthquake of magnitude 7.3 along the combined Helendale-South Lockhart faults would generate horizontal peak ground accelerations in Apple Valley of between 0.75g and 0.3g, with Modified Mercalli Intensities of between XI and IX.

San Andreas Fault

The San Andreas Fault zone is located approximately 23 miles southwest of Apple Valley. The longest fault in the State of California, it extends approximately 750 miles from Cape Mendocino in northern California to the Salton Sea in southern California.

The San Andreas, a right-lateral transform fault, is regarded as a “Master Fault” that controls the seismic hazard for central and southern California. The magnitude 8.0 Fort Tejon earthquake, which occurred in 1857, is the last major earthquake to have occurred on the southern San Andreas. As previously discussed, at least one other fault occurs closer to Apple Valley and has the potential to cause stronger ground shaking, and therefore more damage, than the San Andreas Fault. Nonetheless, the San Andreas Fault is considered to have a high probability of causing an earthquake in the near future and should therefore be considered in all seismic hazard assessment studies in southern California given its.

The Fort Tejon earthquake in 1857 ruptured the Cholame, Carrizo, and Mojave segments of the San Andreas fault, and displacements occurred along of as much as 27 feet of the rupture zone. It is estimated that peak ground accelerations in Apple Valley as a result of the 1857 earthquake may have been as high as 0.38g. Another similar earthquake that ruptured the entire southern San Andreas Fault, with its epicenter along the section of fault closest to Apple Valley, could generate even higher peak ground accelerations in Apple Valley, estimated at between 0.48g and 0.25g.

Lenwood – Lockhart – Old Woman Springs Faults

Another of the Eastern California Shear Zone faults is the Lenwood fault, a right-lateral strike slip fault approximately 47 miles long. It has a slip rate of about 0.8 mm/year. Based on trenching studies, this fault has ruptured at least three times and these ruptures have occurred as recently as approximately 200 to 400 years ago. Other ruptures are estimated as occurring between 5,000 and 6,000 years ago, and 8,300 years ago. Therefore a recurrence between major surface ruptures is estimated at between 4,000 to 5,000 years. Prior to the 1992 Landers earthquake the yearly slip rate on this fault had been recorded but not verified.

The Lockhart fault is approximately 44 miles long and is north of the Lenwood fault. The North Lockhart fault, a segment that evidences no activity within the last 11,000 years, is approximately 6 miles. The Lockhart fault is estimated to have an interval of between 3,000 and 5,000 years for major surface-rupture.

The Old Woman Springs segment is about 6 miles long and is the main trace in a complex fault system where the Eastern segment of the North Frontal Fault Zone and the Lenwood fault intersect. It is considered an active fault.

The Lenwood and Lockhart faults essentially form a continuous, 90-miles long system. While there is no evidence that both of these faults have ruptured together in the past, such an event may be possible, as evidenced by rupture of five separate fault segments during the Landers earthquake. The technical background study assumes a scenario wherein the Lenwood and Lockhart faults, together with the Old Woman Springs fault, rupture together in a magnitude 7.5 maximum earthquake. Such an event would generate peak ground accelerations in Apple Valley of about 0.42g to 0.19g, with Modified Mercalli Intensities in the IX to VIII range. A smaller magnitude event involving

rupture along only one of these faults ruptures would cause lesser ground motions in Apple Valley than those reported above.

Cleghorn Fault

The Cleghorn fault, also known as the Silverwood Lake fault due to its extension across the lake, is approximately 19-miles long. Studies suggest that the fault zone has had about 650 feet of motion in the last 50,000 to 100,000 years, which results in a slip rate of 2 to 4 mm/year. A magnitude 6.5 earthquake on this fault is considered capable of generating horizontal peak ground accelerations in the Apple Valley area of between about 0.33g and 0.11g, with Modified Mercalli Intensities in the IX to VII range.

Cucamonga Fault

The Cucamonga fault zone is approximately 16-miles long. As one element of the Transverse Ranges family of thrust faults, it runs along the southern front of the San Gabriel Mountains from San Antonio Canyon eastward to the Lytle Creek area. It has a slip rate of between approximately 5.0 and 2.0 mm/year with an estimated average recurrence interval of 625 years. The Cucamonga fault is thought capable of generating a maximum magnitude 6.9 earthquake, based on length, and such a scenario would result in peak horizontal ground acceleration in the Apple Valley area of between about 0.28g and 0.15g, with Modified Mercalli intensities in the IX to VIII range.

Landers (or Kickapoo) Fault

The group of faults that ruptured during the 1992 Landers earthquake, including the Homestead Valley, Kickapoo, and Johnson Valley faults, and segments of the Burnt Mountain and Eureka Peak faults, are known as the Landers fault. The Landers fault now refers to the Kickapoo fault. These faults are part of the Eastern Mojave Shear Zone and were discovered after they ruptured the surface during the 1992 Landers earthquake. It is estimated that intervals between major ruptures is in the thousands of years, The 1992 earthquake resulted in substantial lateral displacement along some of these faults, for instance nearly 9.5 feet in the case of the Kickapoo fault. Individually, these faults could rupture in smaller earthquakes. Their combined lengths allowed for the magnitude 7.3 earthquake that shook southern California on June 28, 1992. Ground shaking in the Apple Valley area due to a Landers-type earthquake on these faults would cause horizontal ground accelerations of between 0.27g and 0.14g, with Modified Mercalli intensities in the IX to VIII range.

Sierra Madre Fault

The Sierra Madre fault zone or complex is approximately 47 miles long and extends along the base of the San Gabriel Mountains from the San Fernando Valley to San Antonio Canyon; from there it continues southeastward as the Cucamonga fault. The estimated slip rate of the Sierra Madre fault is estimated to be approximately 0.6 mm/year with a recurrence interval of about 8,000 years. Recent studies suggest that the last rupture event on the eastern segments of the fault occurred about 8,000 years ago, therefore, the Sierra Madre fault may be near the end of its cycle, and therefore it has potential generate an earthquake in the not too distant future. The Sierra

Madre fault is estimated to be capable of producing a magnitude 7.2 earthquake, resulting in peak horizontal ground accelerations in Apple Valley of between about 0.21g and 0.14g.

Gravel Hills – Harper Lake Fault

This fault zone is between 31 and 44 miles long, depending on how many fault segments are included and is considered active. The estimated annual slip rate on this fault zone is 0.9 mm/year; the recurrence interval between earthquakes is about 3,500 years. The combined fault segments are estimated to be capable of generating 7.1 magnitude earthquake, which would generate peak horizontal ground accelerations in the Apple Valley area of between 0.20g and 0.11g, with Modified Mercalli intensities in the VIII to VII range.

Previous Occurrences/Magnitude for Earthquake

The earthquakes of California are caused by the movement of huge blocks of the earth's crust- the Pacific and North American plates. The Pacific plate is moving northwest, scraping horizontally past North America at a rate of about 50 millimeters (2 inches) per year. About two-thirds of this movement occurs on the San Andreas fault and some parallel faults- the San Jacinto, Elsinore, and Imperial faults. Over time, these faults produce about half of the significant earthquakes of our region, as well as many minor earthquakes.

The last significant earthquake on the Southern California stretch of the San Andreas fault was in 1857, and there has not been a rupture of the fault along its southern end from San Bernardino to the Salton Sea since 1690. It is still storing energy for some future earthquake. Southern California has thousands of smaller earthquakes every year. A few may cause damage, but most are not even felt. And most of these are not on the major faults listed above. Earthquakes can occur almost everywhere in the region, on more than 300 additional faults that can cause damaging earthquakes, and countless other small faults.

This is mostly due to the "big bend" of the San Andreas fault, from the southern end of the San Joaquin Valley to the eastern end of the San Bernardino mountains (see Figure 11, "Big Bend" at left.) Where the fault bends, the Pacific and North American plates push into each other, compressing the earth's crust into the mountains of Southern California and creating hundreds of additional faults (many more than shown in the fault map). These faults produce thousands of small earthquakes each year, and the other half of our significant earthquakes. Examples include the 1994 Northridge and 1987 "Whittier Narrows" earthquakes.

A schematic block model of Southern California showing the motion of the Pacific and North American plates, and the big bend of the San Andreas fault where the plates squeeze together.

Figure 11 "Big Bend"

Of the 119 California earthquakes cited in the list (below), the Town of Apple Valley is in the area of potential effect of 25 of them (***as indicated below ****). This means that 20 percent of these earthquakes either had the opportunity to produce some damage to Apple Valley or may have produced injuries, fatalities and damages to surrounding communities.

2010 04 05 - Sierra El Mayor Earthquake (Northern Baja California) - M 7.2
2010 03 16 - Near Pico Rivera, Los Angeles Basin - M 4.4
2010 01 10 - Gorda Plate Earthquake - M 6.5
2010 01 10 - Offshore Northern California - M 6.5
2009 06 08 - San Francisco Bay Area, California - M 3.5
2009 05 18 - Greater Los Angeles Area, California - M 4.7
2009 04 30 - Northern California - M 3.5
2009 03 30 - Northern California - M 4.3
2009 03 08 - San Francisco Bay area, California - M 3.5
2009 01 09 - Greater Los Angeles Area, California - M 4.5
2008 07 29 - Greater Los Angeles area, California - M 5.5
2008 04 30 - Northern California - M 5.4
2007 10 31 - San Francisco Bay Area, California - M 5.6
2007 08 09 - Greater Los Angeles area, California - M 4.4
2007 07 20 - San Francisco Bay area, California - M 4.2
2007 07 02 - Central California - M 4.3
2007 05 09 - Offshore Northern California - M 5.2
2006 10 20 - Northern California - M 4.5
2005 09 22 - Central California - M 4.7
2005 06 17 - Off the Coast of Northern California - M 6.6
2005 06 16 - Greater Los Angeles Area, California - M 4.9
2005 06 15 - Off the Coast of Northern California - M 7.2
2005 06 12 - Southern California - M 5.2
2005 05 06 - Central California - M 4.1
2004 09 28 - Central California - M 6.0
2004 05 30 - Pine Mountain Club, California - M 3.0
2003 12 22 - San Simeon, California - M 6.6 Fatalities 2
2003 10 19 - near Orinda, California - M 3.5
2003 10 07 - near Imperial Beach, California - M 3.6
2003 09 13 - near Simi Valley, California - M 3.4
2003 09 05 - near Piedmont, California - M 4.0
2003 08 27 - Val Verde, California - M 3.9
2003 08 15 - Humboldt Hill, California - M 5.3
2003 05 26 - Seven Trees, California - M 3.8
2003 05 26 - Muir Beach, California - M 3.4
2003 05 25 - Santa Rosa, California - M 4.2
2003 05 24 - Brawley, California - M 4.0
2003 03 11 - Twentynine Palms Base, California - M 4.6
2003 02 22 - Big Bear City, California - M 5.2
2003 02 02 - Dublin, CA, Swarm - M 4.1

2003 01 25 - Keene, California - M 4.7
2002 12 24 - Pacifica, California - M 3.6
2002 11 24 - Swarm near San Ramon, California - M 3.9
2002 09 03 - Yorba Linda, California - M 4.8
2002 06 17 - Bayview, California - M 5.3
2002 05 14 - Gilroy, California - M 4.9
2002 03 16 - near Channel Islands Beach, California - M 4.6
2000 09 03 - Napa, California - M 5.0
1999 10 16 - Hector Mine, California - M 7.1
1994 09 01 - Cape Mendocino, California - M 7.0
1994 01 17 - Northridge, California - M 6.7 Fatalities 60
1992 06 28 - Landers, California - M 7.3 Fatalities 3
1992 06 28 - Big Bear, California - M 6.5
1992 04 25 - Cape Mendocino, California - M 7.2
1992 04 23 - Joshua Tree - M 6.2
1991 08 17 - Honeydew, California - M 7.0
1991 06 28 - Sierra Madre, California - M 5.6 Fatalities 2
1989 10 18 - Loma Prieta, California - M 6.9 Fatalities 63
1989 08 08 - Santa Cruz County, California - M 5.4 Fatalities 1
1987 11 24 - Superstition Hills, California - M 6.7
1987 11 24 - Superstition Hills, California - M 6.5 Fatalities 2
1987 10 04 - Whittier Narrows, California - M 5.6 Fatalities 1
1987 10 01 - Whittier Narrows, California - M 5.9 Fatalities 8
1986 07 21 - Chalfant Valley, California - M 6.2
1986 07 08 - North Palm Springs, California - M 6.1
1984 11 23 - Round Valley, California - M 5.8
1984 04 24 - Morgan Hill, California - M 6.2
1983 05 02 - Coalinga, California - M 6.4
1980 11 08 - Humboldt County, California - M 7.2
1980 05 27 - Mammoth Lakes, California - M 6.0
1980 05 25 - Mammoth Lakes, California - M 6.2
1980 01 27 - Livermore, California - M 5.8
1980 01 24 - Livermore Valley, California - M 5.8
1979 10 15 - Imperial Valley, Mexico - California Border - M 6.4
1979 08 06 - Coyote Lake, California - M 5.7
1975 08 01 - Oroville, California - M 5.8
1971 02 09 - San Fernando, California - M 6.6 Fatalities 65
1969 10 02 - Santa Rosa, California - M 5.7 Fatalities 1
1966 09 12 - Truckee, California - M 5.9
1966 06 28 - Parkfield, California - M 6.1
1957 03 22 - Daly City, California - M 5.3 Fatalities 1
1955 10 24 - Concord, California - M 5.4 Fatalities 1
1954 12 21 - Eureka, California - M 6.5 Fatalities 1
1952 08 22 - Kern County, California - M 5.8 Fatalities 2
1952 07 21 - Kern County, California - M 7.3 Fatalities 12
1940 05 19 - Imperial Valley, California - M 7.1 Fatalities 9

1934 06 08 - Parkfield, California - M 6.1
1933 03 11 - Long Beach, California - M 6.4 Fatalities 115
1932 06 06 - Eureka, California - M 6.4 Fatalities 1
1927 11 04 - Lompoc, California - M 7.1
1926 10 22 - Monterey Bay, California - M 6.1
1926 06 29 - Santa Barbara, California - M 5.5 Fatalities 1
1925 06 29 - Santa Barbara, California - M 6.8 Fatalities 13
1923 01 22 - Humboldt County, California - M 7.2
1922 03 10 - Parkfield, California - M 6.1
1922 01 31 - Eureka, California - M 7.3
1918 04 21 - San Jacinto, California - M 6.8 Fatalities 1
1915 06 23 - Imperial Valley, California - M 6.3 Fatalities 6
1911 07 01 - Calaveras fault, California - M 6.5
1906 04 18 - San Francisco, California - M 7.8 Fatalities 3000
1901 03 03 - Parkfield, California - M 6.4
1899 12 25 - San Jacinto, California - M 6.7 Fatalities 6
1899 04 16 - Eureka, California - M 7.0
1898 04 15 - Mendocino County, California - M 6.8
1898 03 31 - Mare Island, California - M 6.3
1897 06 20 - Calaveras fault, California - M 6.3
1892 04 21 - Winters, California - M 6.4
1892 04 19 - Vacaville, California - M 6.4 Fatalities 1
1892 02 24 - Imperial Valley, California - M 7.8
1890 02 24 - Corralitos, California - M 6.3
1873 11 23 - California - Oregon Coast - M 7.3
1872 03 26 - Owens Valley, California - M 7.4 Fatalities 27
1868 10 21 - Hayward, California - M 6.8 Fatalities 30
1865 10 08 - Santa Cruz Mountains, California - M 6.5
1857 01 09 - Fort Tejon, California - M 7.9 Fatalities 1
1838 06 - San Francisco area, California - M 6.8
1836 06 10 - South San Francisco Bay region, California - M 6.5
1812 12 21 - West of Ventura, California - M 7.1 Fatalities 1
1812 12 08 - Southwest of San Bernardino County, California - M 6.9 Fatalities 40

Table 9 - California Earthquakes

The following provides information on the probability of future events. In addition, the data provides an overall summary of the Town's vulnerability and impact of each hazard.

The entire geographic area of California is prone to the effects of an earthquake. Figure 12 represents the UCERF probabilities of having a nearby earthquake rupture (within 3 or 4 miles) of magnitude 6.7 or larger in the next 30 years. As shown in the table, the chance of having such an event somewhere in California exceeds 99%. The

30-year probability of an even more powerful quake of magnitude 7.5 or larger is about 46%.

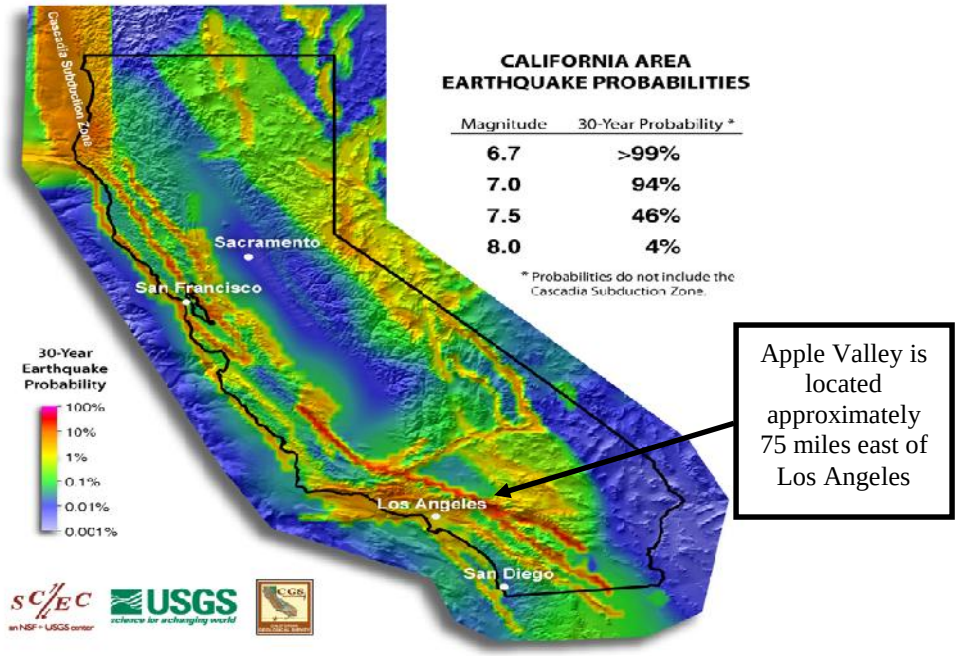

Figure 12 - UCERF Earthquake Probability Mapping

Liquefaction

Where loose, saturated, sandy sediments are subjected to ground vibrations greater than 0.2 g, liquefaction may occur. causing the total or substantial loss of shear strength in the affected sediments. During this process, wherein soils behave like a liquid or semi-viscous substance, structural distress or failure due to ground settlement can occur. These conditions may cause foundation soils to lose load-bearing capacity in foundation soils and the buoyant rise of buried structures.

Liquefaction is induced by three general conditions: 1) strong ground shaking over a relatively long period; 2) the presence of unconsolidated granular sediments; and 3) the occurrence of water-saturated sediments within 50 feet of the ground surface. These general conditions appear to occur in the planning area, thereby allowing the potential for liquefaction. There are a number of active faults in the region that could potentially generate earthquake characterized by strong ground shaking of long durations. Along major drainages in the planning area and vicinity, granular loose sediments occur. The alluvium underlying Apple Valley is coarsely granular and percolates well; the water table is below 50 feet of the ground surface throughout most of the area, with the exception of locally within the Mojave River floodplain, where water-saturated sediments

occur within about 50 feet of the surface. These areas are likely vulnerable to liquefaction during an earthquake.

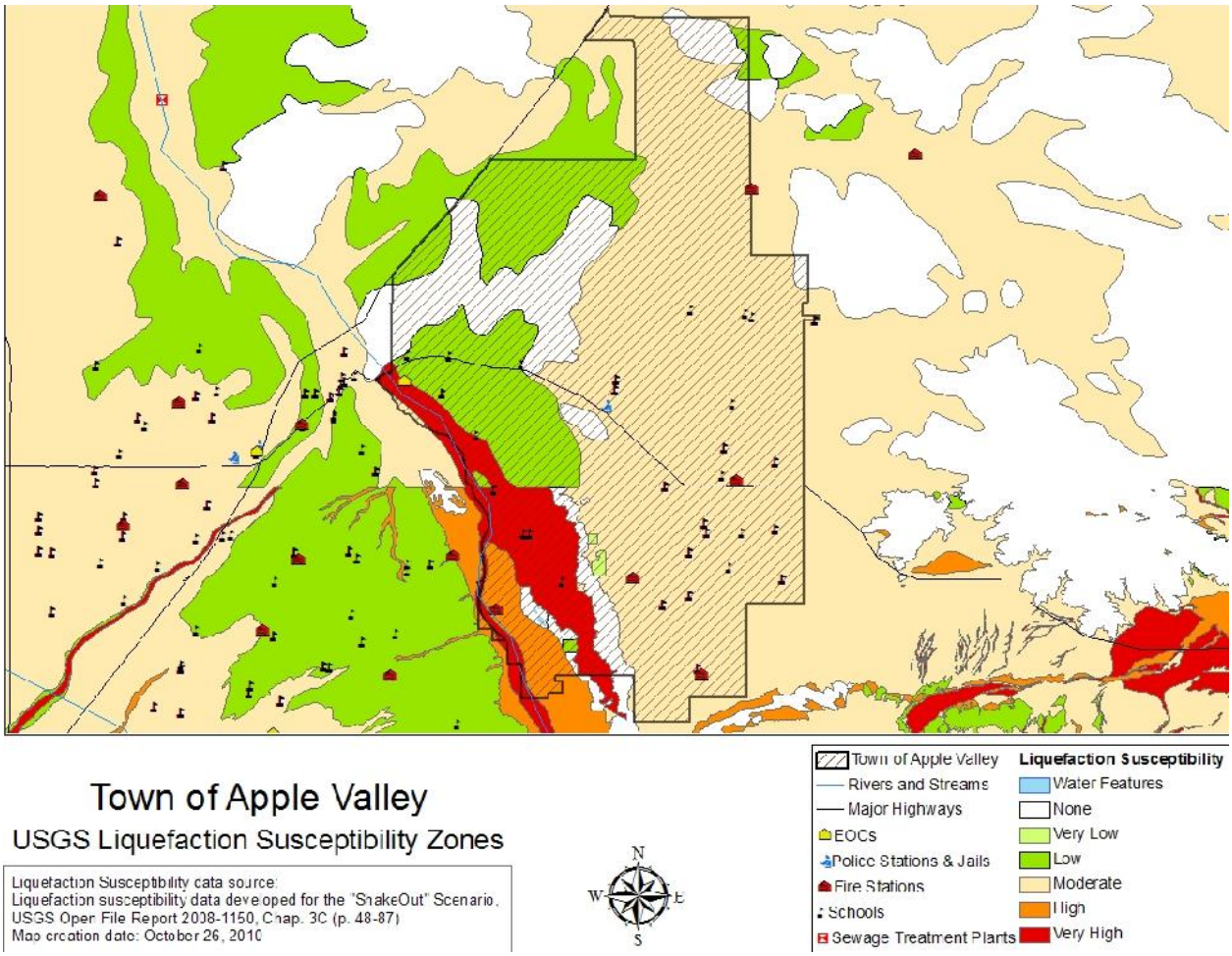

Figure 13 Apple Valley Liquefaction Susceptibility Zones

4.2.2 Flooding

Floods are the most common and widespread of all natural disasters--except fire. Most communities in the United States have experienced some kind of flooding, after spring rains, heavy thunderstorms, or winter snow thaws.

A flood, as defined by the National Flood Insurance Program is:

"A general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties (at least one of which is your property) from:

**Overflow of inland or tidal waters,*Unusual and rapid accumulation or runoff of surface waters from any source, or a mudflow.*

The collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels that result in a flood."

Floods can be slow or fast rising but generally develop over a period of days. Mitigation includes any activities that prevent an emergency, reduce the chance of an emergency happening, or lessen the damaging effects of unavoidable emergencies. Investing in mitigation steps now, such as engaging in floodplain management activities, constructing barriers such as levees, and purchasing flood insurance will help reduce the amount of structural damage to your home and financial loss from building and crop damage should a flood or flash flood occur.

Flooding tends to occur in the summer and early fall because of the monsoon and is typified by increased humidity and high summer temperatures.

The standard for flooding is the so-called "100-year flood," a benchmark used by the Federal Emergency Management Agency to establish a standard of flood control in communities throughout the country. Thus, the 100-year flood is also referred to as the "regulatory" or "base" flood. Actually, there is little difference between a 100-year flood and what is known as the 10-year flood. Both terms are really statements of probability that scientists and engineers use to describe how one flood compares to others that are likely to occur. In fact, the 500-year flood and the 10-year flood are only a foot apart on flood elevation-which means that the elevation of the 100-year flood falls somewhere in between.

The term 100-year flood is often incorrectly used and can be misleading. It does not mean that only one flood of that size will occur every 100 years. What it actually means is that there is a one percent chance of a flood of that intensity and elevation happening in any given year. In other words, it is the flood elevation that has a one percent chance of being equaled or exceeded each year. And it could occur more than once in a relatively short period of time. (By comparison, the 10-year flood means that there is a ten percent chance for a flood of its intensity and elevation to happen in any given year.) Rod Bolin, The Ponca City News, July 18, 2002. Page 5-A

While not considered a "high risk area", the Town does have areas that are considered "flood potential". The most crucial areas pertaining to flooding are the dry lake bed (consisting of limited residential) and Desert Knolls. Flooding is expected to occur within the general location of these risk areas, and not expected to threaten or endanger the safety or well being of the entire community. It is noted that flooding in the risk areas can occur rapidly depending on the heaviness and severity of rainfall and run-off. However, since the installation of dry wells in low-lying areas, severe flooding occurrences have become less frequent.

Since incorporation in 1988, the Emergency Operations Center has activated more often due to flooding than any other type disaster. The Town's emergency responders

continue to rely on the National Weather Service for weather advisories, storm watch conditions, and storm warnings.

National Flood Insurance Program (NFIP)

The Town joined the National Flood Insurance Program (NFIP) on June 16, 1995. The federal government administers the NFIP with communities that have been identified as flood prone. The Federal Emergency Management Agency (FEMA), through the Federal Insurance Administration, makes flood insurance available to the residents of Apple Valley provided the Town adopts and enforces adequate floodplain management regulations that meet the minimum NFIP requirements.

FEMA scheduled a Community Assistance Visit (CAV) with the Town to evaluate the effectiveness of local floodplain management practices and to offer assistance if needed. A CAV was conducted on March 23, 2006. The purpose of the meeting was to provide Town staff with the most current information on the NFIP, give them an opportunity to discuss concerns they may have, and assess the Town's enforcement of local ordinance #249 that was adopted to meet requirements of the NFIP.

There are 193 flood insurance policies in force for residential and commercial buildings in the Town of Apple Valley providing $37,730,300 in insurance coverage.

Previous Occurrences/Severity of Flooding

Winter storms in the past have caused waters in one or more of the natural drainage channels to overflow onto Town streets, parks and private property. Street embankments adjacent to the storm channels have been damaged and required road closure. Normal traffic flow is significantly affected by water and silt deposits in the low water crossings.

Flash Flooding

Historical Events: The following describes the historical events associated with this hazard:

1. Series of Rainstorms; 1/22/10 (FEMA-1844-DR)

   A series of severe rainstorms occurred in southern California on or about January 17, 2010 to February 6, 2010. A local declaration was issued by the Town Manager on January 21, 2010 (Resolution #2010-08). Governor Schwarzenegger proclaimed a State of Emergency for San Bernardino County on January 22, 2010, and President Bush declared a major for public assistance. The local Emergency Operations Center was activated to a level 1.

The series of rainstorms caused 0.43 inches of rainfall in Apple Valley over one 24-hour period. About 6,000 sandbags were issued throughout the week. A Sewer Lift Station suffered major damage to the facility, sewer pipes, and manhole. Other work throughout the community included:

- Debris removal
- Sandbagging and road closures
- Remove/replace asphalt and curbing
- Repair severe road edge erosion
- Base fill, grade, and recompact

Source: Town of Apple Valley records; Daily Press newspaper

Hazard: Flooding
Deaths: 0
Injuries: 0
Displaced People: unknown

2. Series of Rainstorms; 1/8/2005 (FEMA-1577-DR)

A series of severe rainstorms occurred in southern California on or about December 27, 2004 to January 11, 2005. A local declaration was issued by the Town Manager on January 21, 2005 (Resolution #2005-06), and ratified by the Town Council on January 25, 2005 (Resolution #2005-07). Governor Schwarzenegger proclaimed a State of Emergency for San Bernardino County on January 15, 2005, and President Bush declared a major disaster on February 4, 2005 for public assistance. The local Emergency Operations Center was not activated.

The series of rainstorms caused 0.43 inches of rainfall in Apple Valley over one 24-hour period. About 3,000 sandbags were issued throughout the week. The rainstorms caused the release of up to 5,500 CFS of water from Silverwood Lake reservoir over a 3-4 day period. At one point the water in the Mojave River measured at 6-feet, and caused minor damage to rear yard properties along the west side of Riverside Drive. Sewer Lift Station 3-A suffered major damage (approximately $500,000) to the facility, sewer pipes, and manhole. Other work throughout the community included:

- Debris removal
- Sandbagging and road closures
- Remove/replace asphalt and curbing
- Repair severe road edge erosion
- Base fill, grade, and recompact

Source: Town of Apple Valley records; Daily Press newspaper

Hazard: Flooding
Deaths: 0
Injuries: 0
Displaced People: 0

3. 7/11/1999 (NDAA 99-04; OES #99-04-010)

On or about 4:00 p.m. on July 11, 1999, local flooding due to heavy rains occurred at various locations throughout the community. Resolution #99-27 confirming existence of a local emergency was signed by the Mayor. The Emergency Operations Center was partially activated.

Flooding led to multiple road closures, including the major arterial of Highway 18 and Tao Road. Approximately 29 other areas of road damage were noted. Water and mud damage destroyed three apartment units forcing the evacuation of residents. Apple Valley Fire Protection District conducted numerous rescues from stranded motorists. Apple Valley Chamber of Commerce went door-to-door to businesses in the Desert Knolls area (hardest hit area) to assist as necessary with storm damage. Approximately 14 businesses suffered moderate damage, as well as 34 single family residences.

Activities included:

- Sandbagging and road closures
- Remove/replace asphalt and curbing
- Repair severe road edge erosion
- Base fill, grade, and recompact

Source: Town of Apple Valley records; Daily Press newspaper

Hazard: Flash Flooding
Deaths: 0
Injuries: Unknown
Displaced People: Unknown

4. El Nino Conditions; 2/23/1998 (FEMA-1203-DR; NDAA-OES #98-01-285)

On or about 10:00 p.m. on February 23, 1998, local flooding due to heavy rains occurred at various locations. Resolution #98-13 confirming existence of a local emergency was issued, and the Emergency Operations Center was activated.

A total of 2.87-inches of rain poured on the High Desert in a 24-hour period. It was thought to be the third wettest month in Apple Valley since 1938 as the rain

total for the month was 5.03-inches! Major damage occurred to 6 businesses and 21 apartment units and minor damage to another 35 apartment units, for a total of $8.9 million in damages.

Activities included:

- Sandbagging and road closures
- Debris removal; barricade placement
- Road shoulder erosion protection
- Repair to concrete casing for sewer line crossing at the wash
- Clean manholes and repair potholes
- Remove/replace asphalt

Source: Town of Apple Valley records, Daily Press Newspaper, Apple Valley News

Hazard: Flash Flooding
Deaths: 0
Injuries: 0
Displaced People: Unknown

5. 1/12/1993

On or about midnight on January 12, 1993, local flooding due to heavy rains occurred at various locations throughout the community. Resolution #93-05 confirming existence of a local emergency was signed by the Mayor.

The rainstorm dumped nearly 9-inches of water in two days, with a constant rain lasting 11 days. The conditions worsened when there was a release of water from the Lake Silverwood reservoir.

Activities included:

- Sandbagging and road closures
- Debris removal
- Rescue of two rafters in the Mojave River (AVFPD)
- Construction of embankment to redirect flow of the Mojave River (San Bernardino County Flood Control)

Source: Town of Apple Valley records and Daily Press Newspaper

Hazard: Flash Flooding
Deaths: 0
Injuries: Unknown
Displaced People: Unknown

6. 12/7/1992

On or about 8:00 a.m. on December 7, 1992, local flooding due to heavy rains occurred at various locations throughout the community. Town of Apple Valley Resolution #92-80 confirming existence of a local emergency was signed by the Mayor. In fact, all four cities in the High Desert proclaimed a local emergency.

A total of 2.4-inches of rain poured down in the High Desert in an 18-hour period. It was thought to be the most rain to drop in the High Desert in the past ten years.

Activities included:

- Evacuation of residents (6 apartment units)
- Sandbagging and road closures
- Debris removal

Source: Town of Apple Valley records; Daily Press Newspaper

Hazard: Flash Flooding
Deaths: 0
Injuries: 0
Displaced People: Unknown

7. El Nino Conditions; 2/12/1992

On or about 7:30 p.m. on February 12, 1992, local flooding due to heavy rains occurred at various locations throughout the community. A resolution proclaiming existence of a local emergency was signed by the Assistant Director of Emergency Services and the Deputy Town Manager.

Activities included:

- Sandbagging and road closures
- Debris removal
- Barricade placement and placement of cold mix asphalt into potholes
- Remove/replace asphalt, repaint stop bars/legends; replace striping
- Asphalt overlay and asphalt berms

Source: Town of Apple Valley records and Daily Press Newspaper

Hazard: Flash Flooding
Deaths: 0
Injuries: Unknown
Displaced People: Unknown

The following table summarizes the occurrences, impact and costs of this hazard. "Other" is costs associated with the Apple Valley Fire Protection District.

Hazard: Flash Flooding	Response and Recovery Costs (dollar amounts in thousands)						
Name	Date	Town	County	State	Federal	Other	Total
Series of Severe Rainstorms	12/27/04-1/11/05	$684	Unk	Unk	Unk	$2	$686
N/A	7/11/1999	$60	$0	$0	$0	$98	$158
El Nino Conditions	2/23/1998	$2,027	$0	$0	$0	$0	$2,027
N/A	1/12/1993	$0	$0	$0	$0	$0	$0
N/A	12/7/1992	$150	$0	$0	$0	$160	$310
El Nino Conditions	2/12/1992	$423	$0	$0	$0	$149	$572
Totals:		$3,344	$0	$0	$0	$409	$3,753

Table 10 Flooding impact and costs

The following map illustrates FEMA Flood Hazards located within the Town of Apple Valley.

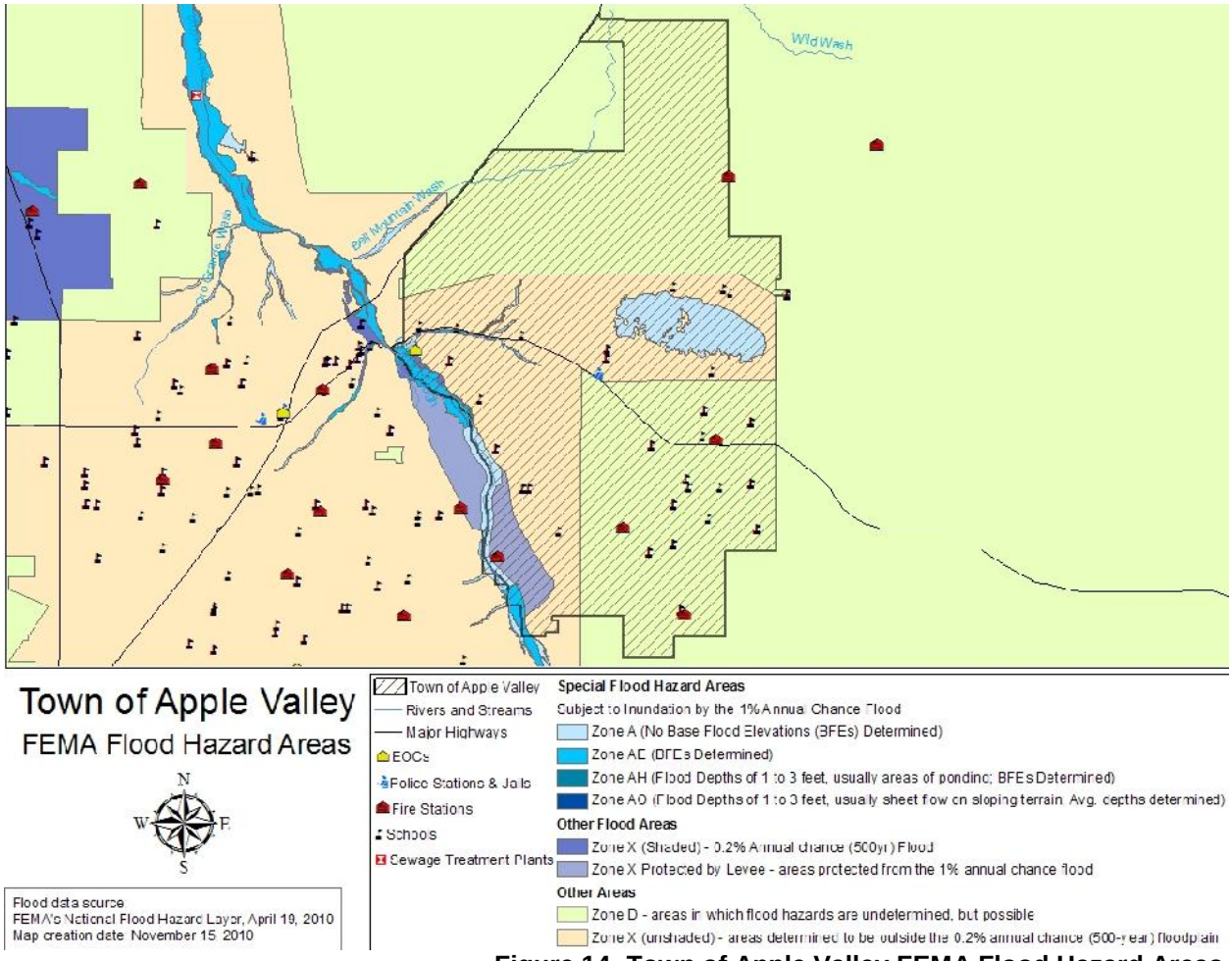

Figure 14- Town of Apple Valley FEMA Flood Hazard Areas

4.2.3 Wildfires

A wildland fire is a type of fire that spreads through all types of vegetation. It often begins unnoticed, spreads quickly, and is usually signaled by dense smoke that may be visible from miles around. Wildland fires can be caused by human activities (such as arson or campfires) or by natural events such as lightning. Wildland fires often occur in forests or other areas with ample vegetation. In addition to wildland fires, wildfires can be classified as urban fires, interface or intermix fires, and prescribed burns.

The following three factors contribute significantly to wildland fire behavior and can be used to identify wildland fire hazard areas:

- Topography: As slope increases, the rate of wildland fire spread typically increases. South facing slopes are also subject to more solar radiation, making them drier and thereby intensifying wildland fire behavior. However, ridge tops may mark the end of wildland fire spread, since fire spreads more slowly or may even be unable to spread downhill.
- Fuel: The type and condition of vegetation plays a significant role in the occurrence and spread of wildland fires. Certain types of plants are more susceptible to burning or will burn with greater intensity. Dense or overgrown vegetation increases the amount of combustible material available to fuel the fire (referred to as the “fuel load”). The ratio of living to dead plant matter is also important. The risk of fire is increased significantly during periods of prolonged drought as the moisture content of both living and dead plant matter decreases. The fuel’s continuity, both horizontally and vertically, is also an important factor.
- Weather: The most variable factor affecting wildland fire behavior is weather. Temperature, humidity, wind, and lightning can affect chances for ignition and spread of fire. Extreme weather, such as high temperatures and low humidity, can lead to extreme wildland fire activity. By contrast, cooling and higher humidity often signals reduced wildland fire occurrence and easier containment.

Fire Hazard Severity

Wildfires present a significant threat in the unincorporated area of Apple Valley, particularly in the summer months when temperatures are high and precipitation is rare. The period between June and September is typically considered "fire season".

The area known as the Marianas in the southern foothill area of Apple Valley is a fire hazard area due to the abundance of brush and mountainous terrain, which makes it difficult to gain access to fight fire. This area is primarily in the unincorporated region of Apple Valley with homes scattered throughout the vegetation.

The Mojave Riverbed is the second significant threat of wildland fire in the Apple Valley

area. Because of its significant slope to the bottom of the riverbed and the soft soil, it is difficult to gain access to this area to fight fire. The Mojave River is the Town's western boundary with residential properties along Riverside Drive. Schools are located on the southernmost and northernmost ends of the natural extension of Riverside Drive.

The CPRI and wildfire statistics in this plan pertain to a potential fire in the Marianas.

Previous Occurrences of Wildfires

Historical Events: The following section lists and describes the historical events associated with this hazard in Town of Apple Valley.

1. Old Fire; 10/27/2003 (FEMA-1498-DR)

On or about 2:00 p.m. on October 27, 2003, the Old Fire started threatening the mountain communities near Big Bear Lake forcing the evacuation of the entire community. The only passageway off the mountain at this point was through the High Desert and Apple Valley. The Emergency Operations Center was activated to accommodate the evacuated residents.

While monitoring the direction and rate of spread of the Old Fire, the Town was never in a real or direct threat. However, the EOC supported many activities for the evacuees from Big Bear.

Activities included:

- Emergency shelter for livestock-type animals at Horseman's Center; secured 24-hours a day; opportunity for the first time to test the Town's new animal evacuation plan; over 100 animals were sheltered over a 6 day period
- Coordination with American Red Cross to open a shelter at Apple Valley High School for six days averaging a daily attendance of 160 evacuees and 10 staff
- Apple Valley Unified School District closed its schools for 2.5 days because of the inability of the possible threat of fire, disruption to transportation services throughout the High Desert (as neighboring cities were sheltering Crestline and Running Springs residents), and due to the severe unhealthful smokey conditions in the area
- Public information -- press releases, web site updates, telephone recording updates, shelter flyers, evacuation flyers
- Voluntary evacuation notice for the southern portion of unincorporated and incorporated Apple Valley with preparation for large volume evacuation operations, non-ambulatory evacuations, and animal evacuations

Source: Town of Apple Valley records; Apple Valley Fire Protection District records

Hazard: Wildfires
Deaths: 0
Injuries: 0
Displaced People: 0

2. Willow Fire; 8/29/1999

On or about 3:30 p.m. on August 29, 1999, the Willow Fire that had been burning in the San Bernardino National Mountains near Lake Arrowhead was threatening the Town of Apple Valley. The Emergency Operations Center was partially activated at that time.

While the Willow Fire did not make its way into the Town boundaries, it did affect the unincorporated area south of Apple Valley. Ultimately, a few homes were lost in this area.

Activities included:

- Coordinating requests for information
- Coordination with the American Red Cross to open a shelter at Apple Valley High School
- Evacuations by Apple Valley Police Department and Town of Apple Valley Animal Control
- Fire response by Apple Valley Fire Protection District
- Activation of Apple Valley Radio Amateur Civil Emergency Services

Source: Town of Apple Valley records; AVFPD records

Hazard: Wildfires
Deaths: Unknown
Injuries: Unknown
Displaced People: Unknown

The following table summarizes the occurrences, impact and costs of this hazard. "Other" is cost associated with the Apple Valley Fire Protection District.

Hazard: Wildfires		**Response and Recovery Costs (dollar amounts in thousands)**					
Name	Date	City Town	County	State	Federal	Other	Total
Old Fire	10/27/2003	$4	$0	$0	$0	$97	$101
Willow Fire	8/29/1999	$0	$0	$0	$0	$0	$0
Totals:		$4	$0	$0	$0	$97	$101

Table 11 Wildfires Occurrences and Costs

Hazard Summary for Wildfires

Fire prevention strategies concentrate on educating the public and enforcement of fire codes. Fire suppression strategies focus around containment and control while protecting structures in the threatened areas. Suppression activities may utilize natural firebreaks; direct suppression of the fire by hose lines, aircraft, bulldozers and hand crews; increasing defensible spaces around homes; utilizing fire suppression foams; and mop up and total extinguishment of the fire.

The following map illustrates the Fire Hazard Severity Zones for the Town of Apple Valley.

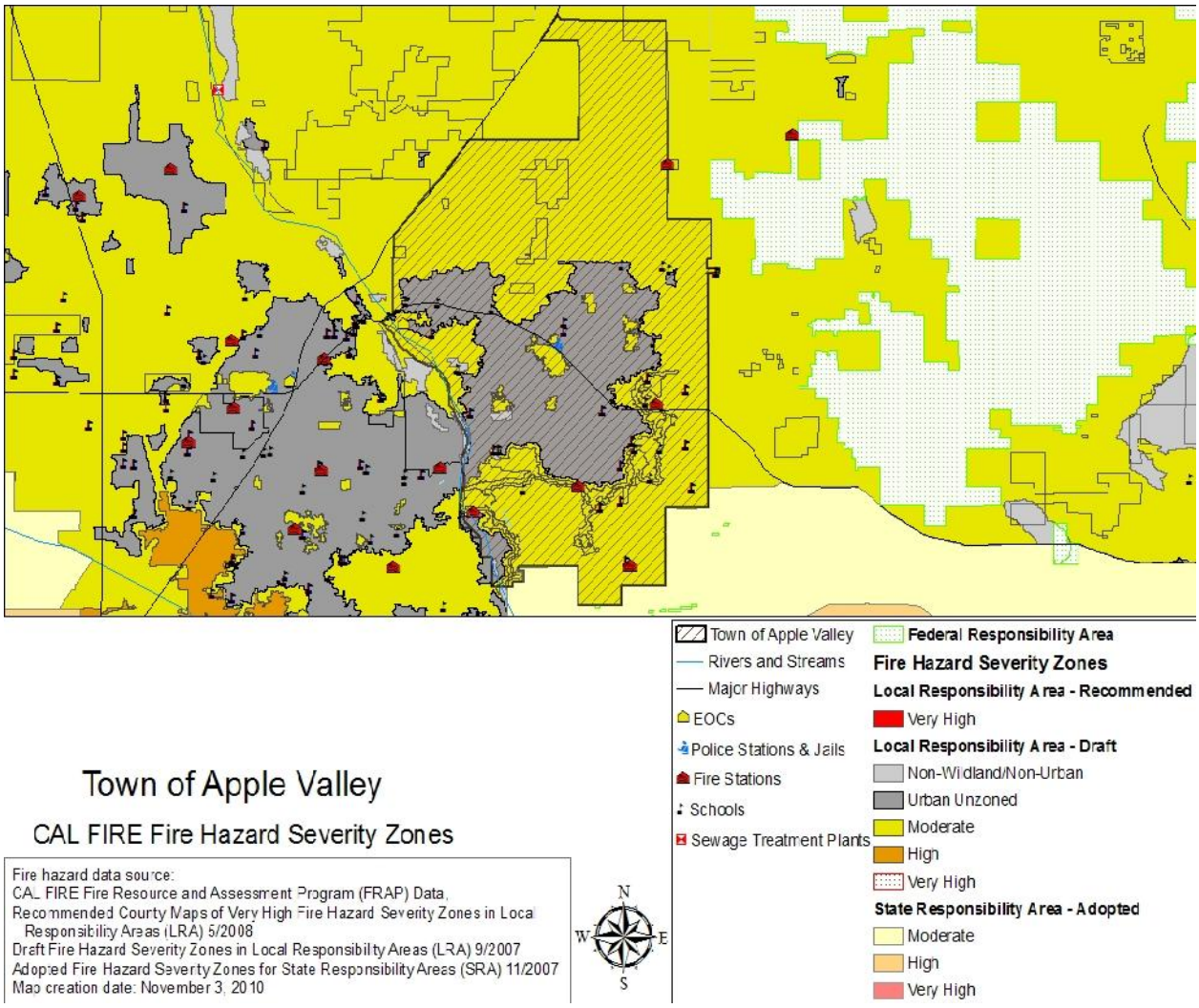

Figure 15 Fire Hazard Severity Zones

4.3 Inventory Assets

Step three in the risk assessment process involves inventorying assets located in the community. Section 4.1 profiled the hazards in Apple Valley. This information was used to identify the assets at risk from those hazards. Some hazards (such as earthquakes) may affect the entire community while some affect limited areas (flooding incidents). This section provides a description of the inventory development and prioritization process.

4.3.1 Population

The population statistics for the Town of Apple Valley are based on US Census data.

	Town of Apple Valley, California
Total Population	
July 1, 2009	70,109
July 1, 2008	69,731
July 1, 2007	69,594
July 1, 2006	67,791
July 1, 2005	64,338
July 1, 2004	61,872
July 1, 2003	59,555
July 1, 2002	57,516
July 1, 2001	55,967
July 1, 2000	54,597
April 1, 2000 (Estimates Base)	54,254
April 1, 2000 (Census 2000)	54,239

Table 12 Town Population Source: US Census Bureau, Population Estimates Program

4.3.2 Buildings

HAZUS default building inventory indicates there are about 21,396 buildings in the Town of Apple Valley and a total estimated replacement value of buildings of $13.8 billion, excluding building contents. Approximately 96% of the buildings are residential, and 28% of the building value is associated with residential housing. More than 90% of the structures are wood. Table 13 provides the building counts by occupancy and structure type for the Town of Apple Valley (HAZUS).

Building Inventory Information by General Occupancy	Building Replacement Value ($1,000)	Contents Replacement Value ($1,000)	Building Square Footage (1,000 Sq. Ft.)	Building Count
Residential	$3,845,815	$1,922,862	38,863	20,559
Commercial	$9,694,660	$9,702,272	86,145	313
Industrial	$27,624	$41,432	367	40
Other	$259,945	$123,505	1,625	484
TOTAL	**$13,828,044**	**$11,790,071**	**127,000**	**21,396**

Selected Building Inventory Data by General Building Type	Building Replacement Value ($1,000)	Building Replacement Value (%)	Estimated Building Count	% of Building Count
Concrete	$1,065,909	7.7%	77	0%
Manufactured Housing	$53,502	0.4%	1,186	6%
Precast Concrete	$904,295	6.5%	64	0%
Reinforced Masonry	$3,036,080	22.0%	293	1%
Steel	$506,147	3.7%	48	0%
Unreinforced Masonry	$155,132	1.1%	5	0%
Wood Frame (Other)	$4,503,771	32.6%	487	2%
Wood Frame (Single-family)	$3,603,208	26.1%	19,236	90%
TOTAL	**$13,828,044**		**21,396**	

Table 13 - HAZUS Building Counts by Occupancy and Structure Type (Earthquake)

4.3.3 Critical Facility List

The Apple Valley Emergency Operations Plan lists critical facilities as "essential facilities". They are defined as structures, areas, or systems that significantly or directly affect the public health and safety of the community, i.e., police and fire stations, hospitals, utilities, and shelters/schools. A list of critical facilities with their respective organizations includes:

- Fire Stations (7) - Apple Valley Fire Protection District
- Hospital (1) - St. Mary Regional Medical Center
- Police Station (1) - San Bernardino County Sheriff's Department
- Shelter/Community Center (1) - Town of Apple Valley
- Shelter/Schools (14) - Apple Valley Unified School District
- Utility/Electrical (2) - Southern California Edison
- Utility/Natural Gas (2) - Southwest Gas Corporation
- Utility/Sewer (8) - Town of Apple Valley
- Utility/Telephone (6) – Verizon

- Utility/Water (7) - Southern California Water Company
- Utility/Water (30) - Apple Valley Ranchos Water Company
- Utility/Water (3) - Rancheritos Mutual Water Company

Name	Facility Type	Critical Rank
St. Mary Medical Center	Medical Facilities	Critical
Apple Valley Fire District – Station #331	Fire Stations	Critical
Apple Valley Fire District – Station #332	Fire Stations	Critical
Apple Valley Fire District – Station #333	Fire Stations	Critical
Apple Valley Fire District – Station #334	Fire Stations	Critical
Apple Valley Fire District – Station #335	Fire Stations	Critical
Apple Valley Fire District – Station #336	Fire Stations	Critical
Apple Valley Fire District – Station #337	Fire Stations	Critical
Apple Valley Police Department	Police Stations	Critical
James A. Woody Community Center	Government Facilities	Critical
Southwest Gas Corporation	Other	Critical
Apple Valley Ranchos Water Co.	Water and Sewer	Critical
Rancheritos Mutual Water Company	Water and Sewer	Critical
Southern California Water Company	Water and Sewer	Critical
TAV Sewer Lift Station – Jess Ranch #1	Water and Sewer	Critical
TAV Sewer Lift Station – Jess Ranch #2	Water and Sewer	Critical
TAV Sewer Lift Station - Kissell	Water and Sewer	Critical
TAV Sewer Lift Station 2-A-1	Water and Sewer	Critical
TAV Sewer Lift Station 2-A-2	Water and Sewer	Critical
TAV Sewer Lift Station 2-B	Water and Sewer	Critical
TAV Sewer Lift Station 3-A-1	Water and Sewer	Critical
TAV Sewer Lift Station 3-A-2	Water and Sewer	Critical
Apple Valley High School	Child Care Facilities	Critical
Desert Knolls Elementary School	Child Care Facilities	Critical
Granite Hills High School	Child Care Facilities	Critical
High Desert Premier Academy	Child Care Facilities	Critical
Lewis Center	Child Care Facilities	Critical
Mariana Elementary School	Child Care Facilities	Critical
Mojave Mesa Elementary School	Child Care Facilities	Critical
Phoenix Academy	Child Care Facilities	Critical
Rancho Verde Elementary School	Child Care Facilities	Critical
Rio Vista Elementary School	Child Care Facilities	Critical
Sandia Elementary School	Child Care Facilities	Critical
Sitting Bull Elementary	Child Care Facilities	Critical
Sitting Bull Middle	Child Care Facilities	Critical
Sycamore Rocks Elementary School	Child Care Facilities	Critical

Vanguard Preparatory	Child Care Facilities	Critical
Vista Campana Middle School	Child Care Facilities	Critical
Willow Park High School	Child Care Facilities	Critical
Yucca Loma Elementary School	Child Care Facilities	Critical
Apple Valley Animal Control Facility	Other	Critical
Apple Valley Public Works	Other	Critical
Apple Valley Town Hall	High Economic Importance	Critical
Apple Valley Unified School Dist	High Economic Importance	Critical

Table 14 Critical Infrastructures

St. Mary Medical Center
Medical Facilities
Size: 250000
Facility Description: St. Mary Medical Center is a 186-bed acute care hospital serving residents of Apple Valley, Adelanto, Hesperia, Lucerne Valley, and Victorville. The hospital was constructed prior to 1973 and is non-conforming to California seismic requirements enacted with Senate Bill 1953. The building consists of two separate additions to the original main hospital that are joined together. The building is extremely irregular in plan with several wings and re-entrant corners. Estimated square feet of main building and related campus buildings (MOB, Finance, Education/IS, and Marketing/Communications buildings) is 250,000 square feet.
Primary Contact:
Robert Suchomel, Director of Facilities
18300 Highway 18, Apple Valley, CA 92307
Phone: 760-242-2311 Ext. 8139
E-mail: Robert.suchomel@stjoe.org
Lon: 117.26
Lat: 34.5427

Apple Valley Fire Protection District
Fire Stations:

Apple Valley Fire Station 331 & Headquarters
Fire Station
Size: 10,060
Facility Description: Station 331 and the adjoining headquarters facility are of wood frame construction with a 6-unit bay area. The station side is a typical fire station with office, kitchen, sleeping, and restroom facilities. The 6-unit bay has six bay doors and meets California safety guidelines for fire stations. The headquarters side of the building contains various office space and restrooms, and also includes a large training room and small conference room. The training room serves as the Town's Emergency Operations Center upon its activation.

Primary Contact:
Laura Whitehead Emergency Services Officer
22400 Headquarters Drive, Apple Valley, CA 92307
Phone: 760-247-7618
E-mail: lwhitehead@applevalleyfd.com

Apple Valley Fire Station 332
Fire Station
Size: 3,250
Facility Description: Station 332 is of wood frame construction with a 4-unit bay area. The station includes a small office, kitchen, sleeping, and restroom facilities. The 4-unit bay has two bay doors and meets California safety guidelines for fire stations. Station 335 was constructed over 40 years ago.
Primary Contact:
Laura Whitehead Emergency Services Officer
22400 Headquarters Drive, Apple Valley, CA 92307
Phone: 760-247-7618
E-mail: lwhitehead@applevalleyfd.com

Apple Valley Fire Station 333
Fire Station
Size: 10,060
Facility Description: Station 333 is of wood frame construction with a 4-unit bay area. The station includes a small office, kitchen, sleeping, and restroom facilities. The 4-unit bay has two bay doors and meets California safety guidelines for fire stations. Station 335 was constructed over 50 years ago.
Primary Contact:
Laura Whitehead Emergency Services Officer
22400 Headquarters Drive, Apple Valley, CA 92307
Phone: 760-247-7618
E-mail: lwhitehead@applevalleyfd.com

Apple Valley Fire Station 334
Fire Station
Size: 5,615
Facility Description: Station 334 is of wood frame construction with a 4-unit bay area. The station includes a small office, kitchen, sleeping, and restroom facilities. The 4-unit bay has two bay doors and meets California safety guidelines for fire stations.
Primary Contact:
Laura Whitehead Emergency Services Officer
22400 Headquarters Drive, Apple Valley, CA 92307
Phone: 760-247-7618
E-mail: lwhitehead@applevalleyfd.com

Apple Valley Fire Station 335
Fire Station
Size: 4,100
Facility Description: Station 335 is of metal construction with a 4-unit bay area. The station includes a small office, training room, kitchen, sleeping, and restroom facilities. The 4-unit bay has four bay doors and meets California safety guidelines for fire stations. Station 335 was constructed over 40 years ago.
Primary Contact:
Laura Whitehead Emergency Services Officer
22400 Headquarters Drive, Apple Valley, CA 92307
Phone: 760-247-7618
E-mail: lwhitehead@applevalleyfd.com

Apple Valley Fire Station 336
Fire Station
Size: 9,762
Facility Description: Station 336 is of wood frame construction and was built in 2003. The station includes an office area with kitchen, sleeping, and restroom facilities. The station also has a large training/community room that serves as the Town's alternate Emergency Operations Center upon its activation. The 6-unit bay has six bay doors and meets California safety guidelines for fire stations.
Primary Contact:
Laura Whitehead Emergency Services Officer
22400 Headquarters Drive, Apple Valley, CA 92307
Phone: 760-247-7618
E-mail: lwhitehead@applevalleyfd.com

Apple Valley Fire Station 337
Fire Station
Size: 9,762
Facility Description: Station 337 is of wood frame construction and was built in 2007. The station includes an office area with kitchen, sleeping, and restroom facilities. The 6-unit bay has six bay doors and meets California safety guidelines for fire stations.
Primary Contact:
Laura Whitehead Emergency Services Officer
22400 Headquarters Drive, Apple Valley, CA 92307
Phone: 760-247-7618
E-mail: lwhitehead@applevalleyfd.com

Apple Valley Police Department
Police Stations
Size: 13,000 square feet
Facility Description: The Apple Valley Police Department facility consists

of 13,000 square feet.
Primary Contact:
Susan Ward
14931 Dale Evans Parkway, Apple Valley, CA 92307
Phone: 760-240-7000 Ext. 7601
Fax: 760-961-6240
E-mail: sward@applevalley.org
Lon: 117.12
Lat: 34.31

James A. Woody Community Center
Government Facilities
Size: 8,500
Facility Description: The James A. Woody Community Center includes an auditorium with stage, kitchen, two meeting rooms, second floor conference room, storage area, and office space. The original facility was constructed over 50 years ago, but has since undergone improvements. The facility is also an approved shelter site for the American Red Cross.
Primary Contact:
Ralph Wright, Parks/Rec Manager
13467 Navajo Road, Apple Valley, CA 92307
Phone: 760-240-7884
Fax: 760-240-7887
E-mail: rwright@applevalley.org
Lon: 117.11
Lat: 34.29

Southwest Gas Corporation
Utility
Facility Description: Southwest Gas Corporation, a private utility, owns a natural gas high pressure system within the Town of Apple Valley, consisting of approximately 120 miles of underground pipelines. The system also includes some aboveground facilities.
Primary Contact:
Roy Meyers, Superintendent/Construction
13471 Mariposa Road, PO Box 1498, Victorville, CA 92393-1498
Phone: 760-951-4023

Apple Valley Ranchos Water Company
Water and Sewer
Facility Description: Apple Valley Ranchos Water Company, a private utility, is the largest water purveyor in the Town of Apple Valley with the following facilities:

- Active Deep Wells (22)
- Reservoirs (11)
- Booster Pump Sites (5)

Primary Contact:
Jeff Kinnard, production Supervisor
21760 Ottawa Road, PO Box 7005, Apple Valley, CA 92307
Phone: 760-240-8323
E-mail: jeff@avrwater.com

Rancheritos Mutual Water Company
Water and Sewer
Facility Description: Rancheritos Mutual Water Company owns three deep wells in southwest Apple Valley that provides water to 238 customers.
Primary Contact:
Frank Aubel, Jr., General Manager
10382 Caribou Road, PO Box 348, Apple Valley, CA 92307
Phone: 760-247-3730
Fax: 760-247-3730
E-mail: Waterboy7F8@msn.com

Southern California Water Company
Water and Sewer
Facility Description: Southern California Water Company, a private water utility, owns a number of water facilities in the Town of Apple Valley:

- Anoka Plant (well, booster pumps, and reservoir)
- Bear Valley Plant (well and chlorine building)
- Mesquite Plant (well and pressure tank)
- Mohawk Plant (well, booster pumps, reservoir, and chlorine buildings)
- Central Plant (wells and chlorine buildings)
- Central Tanks (reservoirs)
- Papago Plant (well and chlorine building)
- Yucca Booster (booster pumps)

Primary Contact:
Daniel Juare
13608 Hitt Road, Apple Valley, CA 92308
Phone: 760-247-3391 Ext. 710

Town of Apple Valley Sewer Lift Station - Jess Ranch #1
Water and Sewer
Size: 1,500
Facility Description: Contains duplex, submersible pumps.
Primary Contact:
Mike Cady, Supervisor
18878 Town Center Drive, Apple Valley, CA 92308
Phone: 760-240-7500
Fax: 760-240-7599
E-mail: mcady@applevalley.org
Lon: 117.15
Lat: 34.28

Town of Apple Valley Sewer Lift Station - Jess Ranch #2
Water and Sewer
Facility Description: Contains duplex, submersible pumps.
Primary Contact:
Mike Cady, Supervisor
10900 Apple Valley Road, Apple Valley, CA 92308
Phone: 760-240-7500
Fax: 760-240-7599
E-mail: mcady@applevalley.org
Lon: 117.14
Lat: 34.27

Town of Apple Valley Sewer Lift Station - Kissell
Water and Sewer
Size: 2,500
Facility Description: Contains duplex, submersible pumps.
Primary Contact:
Mike Cady, Supervisor
22484 Hurons Road, Apple Valley, CA 92307
Phone: 760-240-7500
Fax: 760-240-7599
E-mail: mcady@applevalley.org
Lon: 11.1
Lat: 34.31

Town of Apple Valley Sewer Lift Station 2-A-1
Water and Sewer
Size: 600
Facility Description: Contains a duplex, submersible pump.
Primary Contact:
Mike Cady, Supervisor
Valley Drive, Apple Valley, CA 92307
Phone: 760-240-7500
Fax: 760-240-7599
E-mail: mcady@applevalley.org
Lon: 117.89
Lat: 34.3

Town of Apple Valley Sewer Lift Station 2-A-2
Water and Sewer
Size: 625
Facility Description: Contains a duplex, submersible pump.
Primary Contact:
Mike Cady, Supervisor
22458 Ottawa Road, Apple Valley, CA 92308

Phone: 760-240-7500
Fax: 760-240-7599
E-mail: mcady@applevalley.org
Lon: 117.1
Lat: 34.29

Town of Apple Valley Sewer Lift Station 2-B
Water and Sewer
Size: 2,500
Facility Description: Concrete block building.
Primary Contact:
Mike Cady, Supervisor
21012 Otoe Road, Apple Valley, CA 92307
Phone: 760-240-7500
Fax: 760-240-7599
E-mail: mcady@applevalley.org
Lon: 117.1
Lat: 34.31

Town of Apple Valley Sewer Lift Station 3-A-1
Water and Sewer
Size: 6,300 square feet
Facility Description: Concrete block building.
Primary Contact:
Mike Cady, Supervisor
13980 Riverside Drive, Apple Valley, CA 92307
Phone: 760-240-7500
Fax: 760-240-7599
E-mail: mcady@applevalley.org
Lon: 117.15
Lat: 34.3

Town of Apple Valley Sewer Lift Station 3-A-2
Water and Sewer
Size: 5,000
Facility Description: Concrete block building.
Primary Contact:
Mike Cady, Supervisor
15036 Riverside Drive, Apple Valley, CA 92307
Phone: 760-240-7500
Fax: 760-240-7599
E-mail: mcady@applevalley.org
Lon: 117.16
Lat: 34.3

Apple Valley High School
Child Care Facility/School
Size: 199,266
Facility Description: Apple Valley High School (AVHS) is a 9-12th grade school with a student population of approximately 1,900. AVHS is also an approved shelter site for the American Red Cross.
Primary Contact:
Pat Schlosser
11837 Navajo Road, Apple Valley, CA 92308
Phone: 760-247-7206
Fax: 760-247-2092
E-mail: Pat_schlosser@avusd.org

High Desert Premier Academy
Educational Support Services Complex/Police Department
Child Care Facility/School
Size: 93,600
Facility Description: High Desert Premier Academy is a K-12 grade school with a student population of approximately 500. HDPA is also an approved shelter site for the American Red Cross.
Primary Contact:
Dale Folkens- Principal
12555 Navajo Road, Apple Valley, CA 92308
Phone: 760-247-7267
Fax: 760-247-1226
E-mail: dale_folkens@avusd.org

Desert Knolls Elementary School
Child Care Facility/School
Size: 43,337
Facility Description: Desert Knolls Elementary school is a K-6 school with a student population of approximately 700. Desert Knolls is also an approved shelter site for the American Red Cross.
Primary Contact:
Claudia Schmitt, Principal
18213 Symeron Road, Apple Valley, CA 92307
Phone: 760-242-3441
Fax: 760-242-7274
E-mail: claudia_schmidt@avusd.org

Granite Hills High School
Child Care Facility/School
Size: 186,357
Facility Description: Granite Hills High School is a 9-12th grade school with a student population of approximately 1,975. Granite Hills is also an approved shelter site for the American Red Cross.

Primary Contact:
Michael Kincaid, Principal
22900 Esaws Road, Apple Valley, CA 92307
Phone: 760-961-2290
Fax: 760-961-7555
E-mail: michael_kincaid@avusd.org

Mariana Elementary School
Child Care Facility/School
Size: 47,984
Facility Description: Mariana Elementary School is a K-6th grade school with a student population of 675. Mariana is also an approved shelter site for the American Red Cross. The school was originally constructed about 50 years ago.
Primary Contact:
Viola Sims, Principal
10601 Manhasset Road, Apple Valley, CA 92308
Phone: 760-247-7258
Fax: 760-247-4406
E-mail: viola_sims@avusd.org

Rancho Verde Elementary School
Child Care Facility/School
Size: 47,360
Facility Description: Rancho Verde Elementary School is a K-6 grade school with a student population of approximately 650. Rancho Verde is also an approved shelter site for the American Red Cross.
Primary Contact:
Claudia Dimit, Principal
14334 Pioneer Road, Apple Valley, CA 92307
Phone: 760-247-2663
Fax: 760-247-4947
E-mail: claudia_dimit@avusd.org

Rio Vista Elementary School
Child Care Facility/School
Size: 51,703
Facility Description: Rio Vista Elementary School is a K-6 grade school with a student population of approximately 725. Rio Vista is also an approved shelter for the American Red Cross.
Primary Contact:
Theda Smith, Principal
13590 Havasu Road, Apple Valley, CA 92307
Phone: 760-240-0280

Fax: 760-240-0899
E-mail: theda_smith@avusd.org

Sandia Elementary School
Child Care Facility/School
Size: 49,933
Facility Description: Sandia Elementary School is a K-6 grade school with a student population of approximately 525. Sandia is also an approved shelter site for the American Red Cross.
Primary Contact:
Pat Shelby, Principal
21331 Sandia Road, Apple Valley, CA 92308
Phone: 760-240-5125
Fax: 760-240-0515
E-mail: pat_shelby@avusd.org

Sycamore Rocks Elementary School
Child Care Facility/School
Size: 55,972
Facility Description: Sycamore Rocks Elementary School is a K-6 grade school with a student population of approximately 725. Sycamore Rocks is also an approved shelter site for the American Red Cross.
Primary Contact:
Jane Beckman, Principal
23450 South Road, Apple Valley, CA 92307
Phone: 760-240-3332
Fax: 760-240-3440
E-mail: jane_beckman@avusd.org

Phoenix Academy (Upper and Lower Campus)
Family Preschool Center
Child Care Facility/School
Size: 100,850
Facility Description: Phoenix Academy is a K-8th grade school with a student population of approximately 2,100. PA is also an approved shelter site for the American Red Cross.
Primary Contact:
Daryl Bell, Principal
20700 Thunderbird Road, Apple Valley, CA 92307
Phone: 760-242-7011
Fax: 760-242-7005
E-mail: daryl_bell@avusd.org

Sitting Bull Academy (Upper and Lower Campus)
Child Care Facility/School
Size: 100,850
Facility Description: Phoenix Academy is a K-8th grade school with a student population of approximately 2,100. PA is also an approved shelter site for the American Red Cross.
Primary Contact:
Phyllis Carnahan, Principal
19445 Sitting Bull Rd., Apple Valley, CA 92308
Phone: 760-961-8479
Fax: 760-2408763
E-mail: phyllis_carnahan@avusd.org

Vanguard Preparatory
Child Care Facility/School
Size: 47,863
Facility Description: Vanguard Preparatory is a K-8 grade school with a student population of approximately 625. The school is also an approved shelter site for the American Red Cross.
Primary Contact:
Brian Goodrow, Principal
12951 Mesquite Road, Apple Valley, CA 92308
Phone: 760-961-1066
Fax: 760-961-1069
E-mail: brian_goodrow@avusd.org

Willow Park High School
Child Care Facility/School
Size: 33,409
Facility Description: Willow Park High School is a 9-12th grade school with a student population of approximately 175 students. Willow Park is also an approved shelter site for the American Red Cross. These statistics take into consideration the Alternative Education Center located on campus.
Primary Contact:
Dale Folkens
21950 Nisqually Road, Apple Valley, CA 92308
Phone: 760-240-4252
Fax: 760-240-1261
E-mail: dale_folkens@avusd.org

Yucca Loma Elementary School
Child Care Facility/School
Size: 55,294

Facility Description: Yucca Loma Elementary School is a K-6 grade school with a student population of approximately 850. Yucca Loma is also an approved shelter site for the American Red Cross. The school was originally constructed over 50 years ago.
Primary Contact:
Rey Rodriguez, Principal
21351 Yucca Loma Road, Apple Valley, CA 92307
Phone: 760-247-2623
Fax: 760-247-4300
E-mail: rey_rodriguez@avusd.org

Apple Valley Municipal Animal Shelter
Other – Government Building
Size: 36,000
Facility Description: The Animal Services facility includes office space for field and shelter services, including indoor/outdoor runs for animals, cat adoption colonies, exotic habitats, livestock holding space and a public education room.
Primary Contact:
Gina Schwin-Whiteside, Animal Services Manager
22131 Powhatan Road, Apple Valley, CA 92308
Phone: 760-240-7000 Ext. 7060
E-mail: gwhiteside@applevalley.org

Apple Valley Public Works
Other – Government Building
Size: 24,073
Facility Description: Apple Valley Public Works facility includes office and warehouse space.
Primary Contact:
Mike Cady, Supervisor
13450 Nomwakett Rd, Apple Valley, CA 92307
Phone: 7602407542
E-mail: mcady@applevalley.org

Apple Valley Town Hall & Development Services buildings
High Economic Importance
Size: 61,115
Facility Description: Apple Valley Town Hall houses the daily activities of a municipality. The building is a 25,000 square foot single-story facility. Apple Valley Development Services building is a new facility that houses the daily activities of a municipality to serve the community. This building is also a conference center and is equipped with a kitchen facility. The building is a 26,115 square foot single-story facility.

Primary Contact:
Susan Ward
14955 Dale Evans Parkway, Apple Valley, CA 92307
Phone: 760-240-7000 Ext. 7601
Fax: 760-961-6241
E-mail: sward@applevalley.org
Lon: 117.12
Lat: 34.31

Apple Valley Unified School District
High Economic Importance
Size: 54,500
Facility Description: The administration buildings for the Apple Valley Unified School District include offices, warehousing, and the bus transportation terminal
Primary Contact:
Lynette Kachelmeyer, Director of Facilities
22974 Bear Valley Road, Apple Valley, CA 92308
Phone: 760-247-8001
Fax: 760-247-8907
E-mail: lynette_kachelmeyer@avusd.org

James A. Woody Gymnasium
Other – Sports/Government Facility
Size: 8,811
Facility Description: The James A. Woody Gymnasium consists of hardwood floors, office space, weight room, storage, and restrooms. The facility is used by the general public on a daily basis.
Primary Contact:
Ralph Wright, Parks/Recreation Manager
13413 Navajo Road, Apple Valley, CA 92308
Phone: 760-240-7884
Fax: 760-240-7887
E-mail: rwright@applevalley.org
Lon: 117.11
Lat: 34.29

4.4 Vulnerability Assessment

This section provides an assessment of vulnerability for the three hazards (earthquake, flooding, and wildfires) that pose significant threats to the Town of Apple Valley. This is the final step in the four-step risk assessment process and utilizes data and information collected from the Town and various external agencies. It provides loss estimates and vulnerability of general buildings, key facilities with critical functions and governance

relationships, and people living and working in the Town of Apple Valley. The vulnerability assessment provides a solid basis for analyzing the risk, the potential exposure, and consequences to Town operations and safety.

The following were taken into account when assessing the vulnerability:

- Updates to inventories of existing structures in hazard areas, including new development, redeveloped areas or structures located in annexed areas
- Potential impacts of future land development, including areas that may be annexed in the future
- New buildings that house special high-risk populations (i.e., elderly, low-income, disabled)
- Completed mitigation actions that reduced overall vulnerability

4.4.1. Methodology

To conduct the vulnerability assessment, a combination of quantitative and qualitative approaches was used. A quantitative assessment of earthquake risk was performed with Town provided data and FEMA's HAZUS software. For flooding, the Town used reports available from the Town and various other public sources.

4.4.2. Methodology and Results for Earthquakes

Regional earthquake loss estimates and critical facility damage and functionality have been estimated using the latest version of HAZUS (HAZUS-MH MR-4), with the improved regional building and essential facility inventory databases developed under FEMA funding for the San Bernardino County Essential Facilities Risk Assessment (SBEFRA) Project. The risk assessment of critical facilities considers those essential facilities (fire stations, police facilities, EOC's and schools) for which HAZUS-compatible databases have been developed.

Given an earthquake fault or epicenter, magnitude, and location as input, the HAZUS earthquake module produces quantitative estimates of losses to buildings and lifeline infrastructure, estimates of impact on the functionality of facilities, and casualty and other population impacts. Alternatively, the users may import "user-supplied" hazard data, such as a ShakeMap generated by the USGS. Output from HAZUS includes several items. Losses are presented as direct economic losses from building and lifeline damage, as well as selected indirect economic losses. Functionality estimates are calculated in terms of restoration time for critical facilities, such as highway bridges, water treatment plants, and electric power substations, and system restoration assessments for potable water and electrical power networks.
Casualty estimates are provided as various levels of injury severity and death. The model also estimates losses due to fire-following earthquake and the quantity of earthquake-related debris generated.

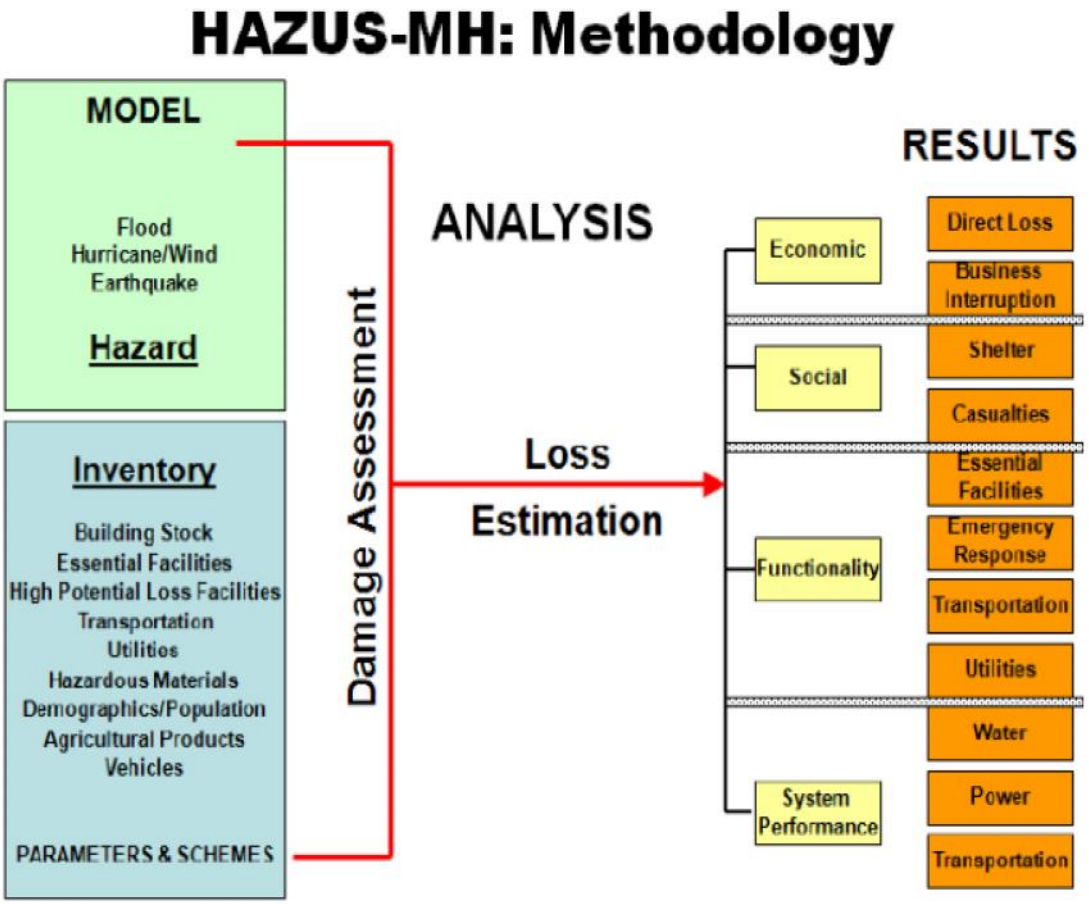

Figure 16 - HAZUS Methodology

Damage to Vital Public Services, Systems & Facilities

Medical

Emergency Management, upon proclamation of local emergency, will notify the San Bernardino County Director of Public Health through designated channels, and participate in evacuation and treatment of victims and casualties in accordance with his directives.

Medical communications will be established and coordinated through the San Bernardino County Communications Center. Emergency medical management on a local level will be coordinated through the local EOC communications system.

It is anticipated that transportation resources normally utilized in medical movement will be unable to readily respond due to highway damage and requirements of hospital facilities. Therefore, utilization of public and private vehicle resources will be required. Medical supplies should be consumed at a rapid rate and requests will be made, through the local EOC, to county level Emergency Management.

Local emergency management will establish tactical divisions of operation based upon severity of the event and assessed needs. These divisions will include a designated local Casualty Collection Point (CCP). Divisional commanders shall appoint a divisional medical officer for purposes of medical coordination and management.

Communications

Communications effected by a major earthquake would include telephone systems and governmental radio systems, primarily. Loss to the telephone system would be through damages to utility poles, vaults and microwave repeaters. It is virtually certain that telephone systems will fail with the onset of the event. Repair to the system in this area will attain 25% effectiveness three days after the event, with first service being returned to emergency and governmental facilities. A major element in post-event effectiveness deals with the amount of overload by non-essential usage. Usage should be limited to life-threatening or emergency situations.

Governmental and emergency radio systems will be primarily impacted by loss of repeater stations and power failures. While the impact of power failure can be somewhat mitigated by use of portable and permanent electrical generators, the loss of repeater stations will have a more lasting effect and will require mitigation through planning procedures.

Electric Power

Major power plants are expected to sustain some damage due to liquefaction and the intensity of the earthquake. Up to 60% of the system load may be interrupted immediately following the initial shock. According to representatives of Southern California Edison Company, the electrical power will not be rerouted and will be lost for an undefined period of time. Much of the imported power is expected to be lost. In

some areas of greatest shaking it should be anticipated that some of the distribution lines, both underground and surface, will be damaged. Much of the affected area may have service restored in days; damaged area with underground distribution may require a longer time. Loss of Edison transmission lines is possible.

Natural Gas Pipelines
Damage to pipeline facilities will consist primarily of (a) some isolated breaks in major transmission lines, and (b) innumerable breaks in mains and individual service connections within the distribution systems, particularly in the areas of intense ground shaking. These many leaks in the distribution system will affect a major portion of the community, resulting in a loss of service for extended periods. Fires should be expected at the sites of a small percentage of ruptures both in the transmission lines and the distribution system.

Fire Operations
Although total collapse of fire stations is not expected, possible disruption of utilities, twisted doors and loss of power can create major problems. Numerous fires due to disruption of power and natural gas networks can be expected. The area's water supply may be greatly impacted. Connections to major water sources, water mains and storage facilities may be damaged resulting in an unstable water supply for fire and rescue operations. Fire and rescue personnel will need to complete a preliminary assessment to determine and establish response and recovery needs. In addition, Fire and rescue operations may take days because of the disruption to the transportation corridors.

Secondary response by the fire service after assessment will be to accomplish search and rescue of trapped persons. Major problems the fire service should expect are loss of power and water, jammed doors, restricted mobility due to debris, possible loss of primary dispatch capability and delays in reaching maximum effectiveness due to personnel shortages.

Highways and Bridges
Damage to freeway systems and bridges is expected to be major. Inner surface transportation routes could be subject to delays and detours. A major portion of surface streets in the vicinity of freeways will be blocked due to collapsed overpasses.

4.4.3 Methodology and Results for Flooding

The Town used a model which represents the County level results of the FEMA-funded SBEFRA Project. This model can be used to assess both riverine and coastal flooding and estimates potential damage to buildings, essential facilities, transportation lifelines, utility lifelines, vehicles, and agricultural crops. The model addresses building debris generation and shelter requirements. Direct losses are estimated based on physical damage to structures, contents, and building interiors. The effects of flood warning are taken into account, as are flow velocity effects. The flood model provides a dam/levee

analysis capability and incorporates NFIP entry dates that permit the Flood model to distinguish between census blocks that are Pre-FIRM and those that are Post-FIRM; modifies topological data for Census Track and Census Block geometrics; provides for consistent generation of debris results.

Results of the FEMA-funded SBEFRA Project completed in 2009 include county-wide flood loss estimates for areas subject to the 100-year flood (with and without levee protection) and the 500-year flood. The county level results are listed below:

		Flood Scenario		
	Regional Risk Assessment Results	**100-year Flood (1% Annual Chance Flood)**	**100-yr Flood (without levee protection)**	**500-year Flood (0.2% Annual Chance Flood)**
Regional Risk	Economic loss due to building damage ($B)	0.46	1.6	2.7
	Total building-related direct economic loss ($B)	1.4	5.4	8.6
	Number of buildings in the Complete Damage State	345	350	1,105
	Total # Displaced Households	14,828	52,856	86,062
	Total # people needing short-term shelter	32,095	138,991	231,452
	Debris Generated (million tons)	0.1	0.23	0.37
Essential Facilities	Fire Stations - # Non-functional buildings	2	5	12
	EOCs - # Non-functional buildings	0	0	2
	Police facilities - # Non-functional buildings	0	0	1
	Schools - # Non-functional buildings	149	466	791

Source: FEMA's San Bernardino County Essential Facilities Risk Assessment (SBEFRA) Study (2009)

Table 15 - FEMA's San Bernardino County Essential Facilities Risk Assessment

4.4.4 Methodology and Results for Wildfires

Fire Hazard Severity Zone Model (***Adapted from California Department of Forestry and Fire Protection May 2007 "FACT SHEET: Fire Hazard Severity Zone Model - A Non-technical Primer)***

Most of the highest wildfire losses take place during hot, windy days or nights when flames spread so fast that many buildings catch fire and overwhelm available firefighting forces. Many buildings ignite when burning embers land on wood roofs, blow in through vents, pile up in cracks, or become lodged under boards. By

constructing buildings in a way that reduces the ability of embers to intrude, a major cause of structure ignition is reduced.

Recently adopted building codes reduce the risk of burning embers igniting buildings. Standards are already in effect for roofs and attic vents. Application of roofing standards depends on the Fire Hazard Severity Zone of a property. New building codes for California, will require siding, exterior doors, decking, windows, eaves, wall vents and enclosed overhanging decks, to meet new test standards. These standards apply throughout areas where the State has financial responsibility for wildland fire protection and for local responsibility areas zoned as very high fire hazard severity.

While all of California is subject to some degree of fire hazard, there are specific features that make some areas more hazardous. California law requires CAL FIRE to identify the severity of fire hazard statewide. These fire zones, called Fire Hazard Severity Zones are based on factors such as fuel, slope of the land and fire weather. There are three zones, based on increasing fire hazard: medium, high and very high.

Model Behind Fire Hazard Severity Zone Mapping

The zone designation for each specific parcel is initially assigned by a computer model. The model is based both on existing fire behavior modeling techniques used by fire scientists throughout the United States and on new methodologies and data developed by the Fire Center at the University of California in Berkeley. The model evaluates land area using characteristics that affect the probability that the area will burn and the potential fire behavior that is expected should the area burn in a wildfire. Many factors are considered such as fire history, existing and potential fuel, flame length, blowing embers, terrain, and typical weather for the area.

Hazard versus Risk

As required by law, the model evaluates “hazard” not “risk”. Hazard refers to physical conditions that cause damage. “Hazard” as calculated in the model is based on the physical conditions that give a likelihood that an area will burn in the future, the heat produced when it does burn, and a prediction of the embers that spread the fire. It is based on the potential vegetation that will grow in the area over the next 30 – 50 years.

Risk, on the other hand, is the potential damage a fire can do to values at risk in the area under existing and future conditions. Risk does consider modifications that affect susceptibility of property to damage, such as defensible space, irrigation and sprinklers, and building construction that reduces the risk of burning embers igniting buildings. Hazard does not equal risk, but is an important factor in determining risk.

Zones and Parcels

Mapping an area as large as California requires the creation of spatial units called zones. Zones are areas that form the spatial building blocks for constructing a map. They are akin to the pieces in a jig-saw puzzle. Zones are created by computer from

areas of similar terrain, vegetation, and fuel types. They are areas that have relatively similar burn probabilities and fire behavior characteristics. The zone size varies from 20 acres and larger in urbanized areas to 200 acres and larger in wildland areas. Urban areas are treated differently in mapping due to the significant changes in both fuel conditions and burn probability that happen as areas become urbanized.

Wildland zones are areas of similar terrain and fuel conditions created by using computer techniques to build the boundaries. Areas dominated by brush lands on steep slopes will generally occur in different zones than flat grassland areas.

Urban zones are delineated based on minimum area and average parcel size. They must be at least 20 acres in size, and contain average parcel sizes that are less than two acres per parcel. In most counties, urban zones were developed using parcel data. Where such data was not available parcel density was interpreted using 2000 census data and statewide vegetation map data. In practice, the majority of areas mapped as urban zones have parcel sizes less than one acre, with highly developed infrastructure and ornamental vegetation.

Fundamental to understanding the map is that hazard zones do not exist at scales smaller than those used to create the zones. Thus when looking at the map, one needs to know how information is averaged across the zone to derive the final hazard ranking. The zones will have smaller areas within them of different hazard characteristics. This detail is lost when scores are averaged over the entire area of the zone to obtain a zone-wide description of hazard.

Focus on Characterizing Fire Behavior and Fire Hazard to Buildings

Since new building standards seek to reduce the chance that buildings will ignite in a wildfire, the model focuses on those descriptions of fire behavior that influence structure ignition. The model uses fire behavior characteristics that describe the intensity of both radiation and convection from nearby flame sources (using flame length as a measure) and mass transport of firebrands due to convection lifting and wind).

Intrinsic to hazard, consequently, is the estimation of probability, or chance. Further, the conditions that give rise to hazard for an area are not solely a function of conditions in that particular area. Firebrands landing in an area may be produced some distance away, and hence the hazard for an area is influenced by hazards off-site.

Terms Used

Fire Hazard Severity has two key components: probability of burning and expected fire behavior. The factors considered in determining hazard are: 1) how often an area will burn; and 2) when it does burn, what characteristics might lead to buildings being ignited?

Fire behavior refers to the physical characteristics of the fire – examples include rate of spread, length of flames, and the ability to produce firebrands or embers.

Burn probability describes the average chance of a fire burning an area in any given year. It is based on the fire records spanning the last 55 years. Some areas of the state have much higher chances of burning, and this is reflected in the hazard zones.

Zoning and Scoring

The model uses building blocks to derive FHSZ classes based on a two-step process:

Zoning and Scoring (See Figure 17). Urban areas are treated differently from wildlands due to the significant changes in both fuel conditions and burn probability that happen as areas become urbanized. Each wildland zone gets scores that tie together the burn probability with the expected flame sizes predicted by fuels, slope, and expected fire weather. Since it describes potential hazard to buildings, the model characterizes the fuel potential of the area over a 30-50 year period and the maximum expected hazard value is used.

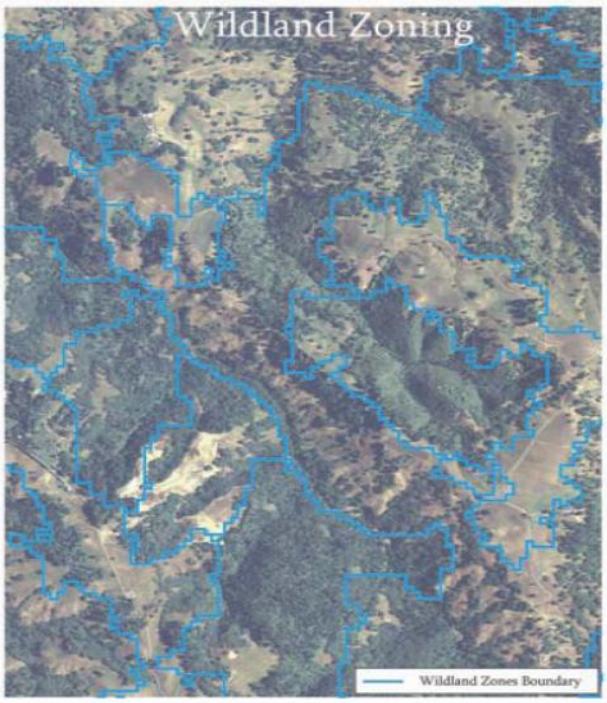

Figure 17 - Wildland Zoning

While some areas may have recently been treated and currently have only moderate hazard, buildings in that area will be exposed to increasing hazards as these vegetation fuels develop, hence the use of “climax” or fuel potential in the model. As with the chance of fire, expected flame size varies significantly from one fuel type to the next.

Areas also receive a score for the amount of firebrands (burning embers transported by the wind) that are expected to land on an area. In the model, firebrands are produced based on fuel types and a model describing the distribution of firebrands transported from the source area. The firebrand score is a function of the number of brands that are expected to land on a given area, and are consequently influenced by areas around them where the embers are produced.

Each wildland zone gets an area-averaged classification for flaming and firebrands, which together determine the final hazard ranking for the zone: moderate, high or very high.

Urban zones are scored based on their proximity to wildland zones and the flame score for that wildland zone, the number of firebrands being produced in the wildlands and received in the urban area, and the amount of vegetation fuels present in the urban zone. Urban areas immediately next to wildland zones typically have the highest hazard, and areas more removed from the wildlands have lower hazards.

The influence of wildland fire hazard into urban areas can range from only about 200 feet in low hazard conditions, to nearly a mile in very high hazard areas. The nature and depth of the zones are a function of both how likely a flame front will penetrate, and how many firebrands are expected to land in the urbanized areas.

Results of the Model

Results of the model lead to revised maps of fire hazard severity. To summarize, classification of a zone as moderate, high or very high fire hazard is based on the severity of fire behavior that leads to building ignition. Each area of the map gets a score for flame length, embers, and the likelihood of the area burning. Scores are averaged over the zone areas. Final FHSZ class (moderate, high and very high) is determined based on the averaged scores for the zone. Model results were tested and validated in four counties with very different conditions: Butte, Calaveras, Sonoma, and San Diego. Further, draft maps have been reviewed by the 21 CAL FIRE units and six contract counties; their recommendations for changes were evaluated and incorporated when appropriate. Updated information and support documents for FHSZ are available on CAL FIRE's Fire and Resource Assessment Program's website at http://frap.cdf.ca.gov/fhsz/review.html."

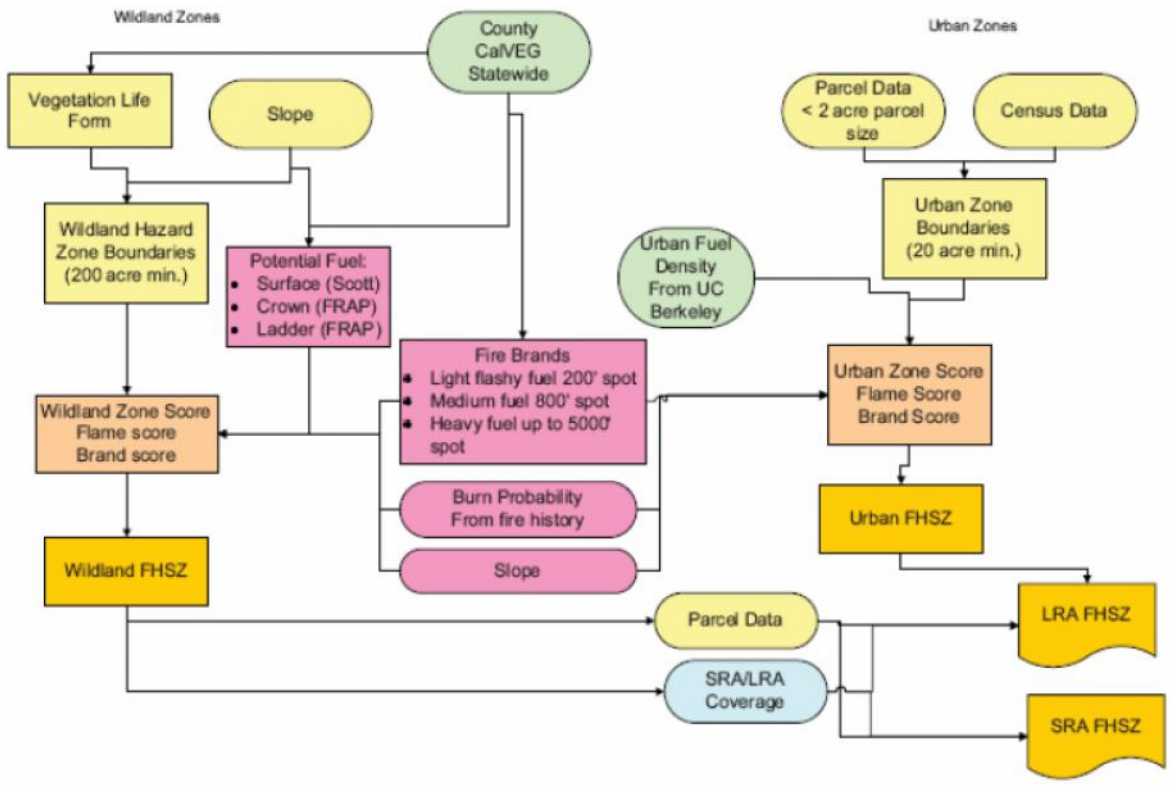

Figure 18 - FHSZ Structure

Water Supply and Distribution

In some areas of the community, water supply can become marginal during time of heavy emergency usage. Residents wetting their roof and properties during times of fire activity heavily impact water stored in hilltop reservoirs. Many times this practice takes place when the fire activity is a long distance from the property. Widespread use of this practice robs emergency fire equipment of needed water reserves in the fire area.

Some rural canyon structures and residences are built at a considerable distance from roadways and water distribution systems. This requires the laying of supply lines by fire companies, or the use of fire department water tenders to physically transport water to the area requiring protection. These practices become extremely dangerous when faced with the crowded street and driveways mentioned previously.

Some water may be obtained from private swimming pools in the area, through the use of portable pumps. These sources are relatively few, and should not be considered a reliable water source.

Roadways

Naturally occurring topographic restrictions lead to severe restrictions and congestion. Residents trying to evacuate the area, sightseers, and emergency equipment trying to enter have the potential of creating complete blockages on the roadways. Rapid response of law enforcement is crucial to the management of adequate traffic flow.

Evacuation and Shelter Needs

In most cases, wildfires are fast moving and present momentary dangers of intense proportions. When this situation exists, the need for evacuation takes a high priority, but the need for shelter areas is usually minimal. This is contingent on the ability of fire forces to adequately protect the homes of those residents evacuated. When the danger has subsided, the area can usually be re-entered. Should these residences be destroyed, then the need for shelters becomes evident.

SECTION 5 – COMMUNITY CAPABILITY ASSESSMENT

The Town of Apple Valley strives to protect and maintain the health, safety and welfare of the community on a day-to-day basis, and takes extra measures to reduce the impacts of natural or technological hazards. The Town can use a variety of different tools, assets, and authorities to effectively prepare for, mitigate toward, respond to and recover from emergencies and disasters. These include voluntary and mandatory measures; individual and community efforts; private and public actions; and preventive as well as responsive approaches. Mitigation activities include educating citizens, enforcing building and development codes, constructing capital improvement projects, adopting plans, establishing incentive programs, and improving emergency preparedness and response.

The capabilities available to the Town of Apple Valley fall into the following broad categories: Agencies and People; Existing Plans; Regulations, Codes, Policies, and Ordinances; Mitigation Programs and Fiscal Resources. Identifying and documenting these capabilities provides the basis for developing future mitigation opportunities and how they can be implemented within existing Town programs.

Town of Apple Valley Capability Assessment

- Storm Water Management Ordinances: Yes
- Stream Management Ordinances: No
- Zoning Management Ordinances: Yes
- Subdivision Management Ordinances: Yes
- Erosion Management Ordinances: Yes
- Floodplain Management Ordinances: Yes
- Floodplain Management Plan Published Date: 10/2008
- Floodplain Management Last Delineation Date: 10/2008
- Elevation Certificates Maintained: Yes
- National Flood Insurance Program Community: Yes
- National Flood Insurance Join Date: 06/19/95
- NFIP Number: TAV 060752
- NFIP Rating: None
- NFIP Rating Date: 10/2008
- Land Use Plan: Yes
- Land Use Plan Last Update: 2009
- Community Zoned: Yes
- Zoned Date: 4/27/10
- Established Building Codes: Yes
- Building Codes Last Updated: 11/13/07
- Type of Building Codes: California Building Code
- Local Electric Utilities: Southern California Edison
- Local Water Utilities:
    - Apple Valley Ranchos Water Company

    - Mariana Ranchos County Water District
    - Rancheritos Mutual Water Company
    - Southern California Water Company
    - Spring Valley Lake CSA 64
- Local Sewage Treatment Utilities: Victor Valley Wastewater Reclamation Authority
- Local Natural Gas Utilities: Southwest Gas Corporation
- Local Telephone Utilities: Verizon
- Fire Insurance Rating: Apple Valley Fire Protection District, a self-governing special district, provides fire-related services to the Town of Apple Valley and its sphere of influence. The District's fire insurance rating for the suburban area is 4, and the rural area received a rating of 9.
- Fire Insurance Rating Date: 06/01/03
- Previous Mitigation Plans: 2005
- Flood Insurance Claims: The Town has never made private claims to its insurance company. Reimbursement for hazardous occurrences has always been received via State OES and/or FEMA.

5.1 Agencies and People

Key Personnel

The Town's departments have specific responsibilities and related activities/actions assigned to them for each identified hazard and threat. Each department is responsible for ensuring coordination with the other departments. In an emergency, all employees are disaster service workers. "Subject to such disaster service activities as may be assigned to them by their supervisors, or by law." (CA CG §3100) The Town Manager of Apple Valley is responsible for identifying key management personnel, with alternates, and alternative facilities to conduct government operations, based on the hazard analysis. Each department will be responsible for identifying key departmental personnel with backups and alternates for each position in the Town's organization.

Alert List

The Town's Emergency Services Officer is responsible for developing and maintaining an emergency alert list, which will be used to notify the key Town personnel. Each department will develop their own departmental alert list, which will be used by the departments to alert departmental personnel. Special rules related to disaster service workers are outlined in California Labor Codes Sections 3211.9, 3352.94, 4351, 4381, 4453, and 4702.

Special Districts

Special Districts with responsibilities under this plan will coordinate all planning efforts with the Town's Emergency Services Officer.

Town EOC

The Town Manager of Apple Valley has overall responsibility for coordinating the Town's response to each emergency.

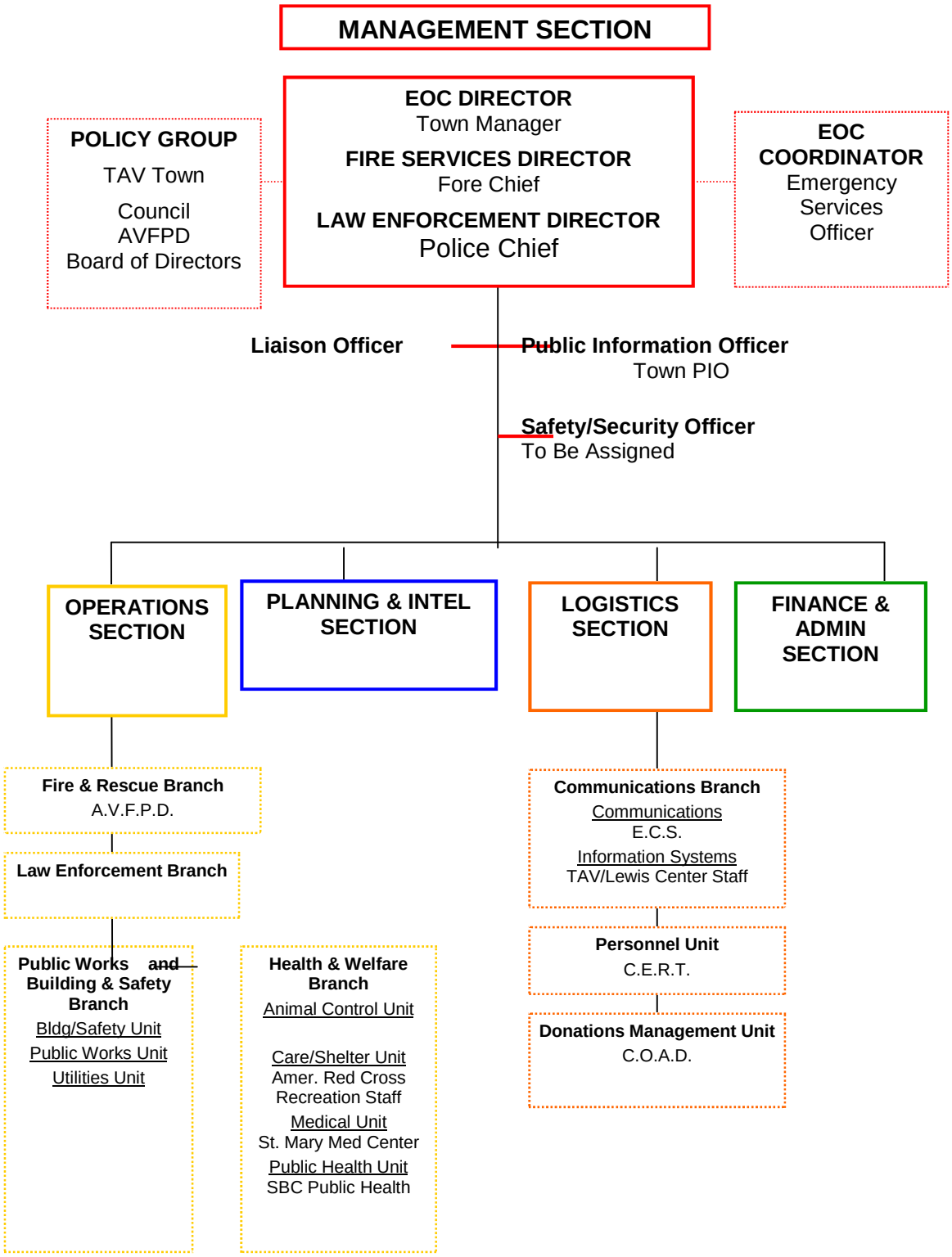

Figure 19 - Town Departments and Staff Involved in Disaster Management

5.2 Existing Plans

The Town of Apple Valley has adopted the philosophy that Plan integration is an essential element to future and long-term community sustainability. The Town's long-term goal is to integrate all aspects of comprehensive planning and development to correlate with a continuum of adopted codes and standards to support this philosophy. Current and future Plans will define important Town policies and support the ordinances and activities described below. For example, the goal is to enhance the objectives of hazard mitigation, including the Health and Safety Element of the General Plan. Other Plans focus on different aspects of disaster management such as emergency response. Other Plans have implications that are relevant to hazard mitigation, such as plans related to spending on public facilities and storage of hazardous materials. This section lists the existing plans, policies, and ordinances for the Town of Apple Valley.

Existing Community Plans/Documents:

- U.S. Department of Housing & Urban Development (HUD) Consolidated Plan
- Apple Valley/Victorville Consortium Consolidated Plan 2002-2006
- Apple Valley Annual Action Plan
- Apple Valley Development Code
- Apple Valley Municipal Code
- Apple Valley Master Plan
- Apple Valley General Plan
- Apple Valley Emergency Operations Plan (including annexes pertaining to Animal Evacuations/Sheltering, Citizen Corps, Disaster Service Workers, and Terrorism)

5.3 Regulations, Codes, Policies, and Ordinances

The Town has adopted codes and regulations to govern development, construction and land use activities. They include construction standards, siting requirements, use limitations, study requirements and mitigation requirements which help directly or indirectly minimize the exposure of people and property to loss or injury resulting from disasters. As such, they are an effective tool and capability which the Town may continue to use to reduce the amount of damage or harm arising from disasters. This plan provides an opportunity to review existing regulations to determine if they are effective or whether they need to be revised in certain areas to more adequately prevent loss or injury from disasters.

Zoning Regulations

The Development Code regulates the use of land and buildings, the height, bulk, location of structures, the amount of open space and the density of population by establishing zone classifications.

Subdivision Regulations
The Town's subdivision regulations are outlined in section 9.28.050 of the Development Code, which establishes standards to regulate the division and merger of land and defines minimum lot sizes, densities and development standards.

Building Code
Chapter 8.12.010 of the Apple Valley Municipal Code adopted the California Building Code Volumes 1 and 2, 2007 Edition (Part 2, Title 24, California Code of Regulations) by reference, and amending part 2 of Title 24 of the California Code of Regulations, comprising the California Building Code, Volumes 1 & 2, 2007 Edition.

Flood Hazards Regulations
The Legislature of the State of California has in Government Code Sections 65302, 65560, and 65800 conferred upon local governments the authority to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry. Therefore, the Town of Apple Valley has adopted flood hazard regulations in Chapter 9.62 of the Development Code. The purpose of this regulation is to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:
A. To protect human life and health;
B. To minimize expenditure of public money for costly flood control projects;
C. To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
D. To minimize prolonged business interruptions;
E. To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard;
F. To help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future blighted areas caused by flood damage;
G. To insure that potential buyers are notified that property is in an area of special flood hazard; and
H. To insure that those who occupy the areas of special flood hazard assume responsibility for their actions.

In order to accomplish its purposes, this District includes methods and provisions for:
A. Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or flood heights or velocities;
B. Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;

C. Controlling the alteration of natural flood plains, stream channels, and natural protective barriers, which help accommodate or channel flood waters;
D. Controlling filling, grading, dredging, and other development which may increase flood damage; and,
E. Preventing or regulating the construction of flood barriers

5.4. Mitigation Programs

Fire Hazard Abatement

The Town Council adopted an Ordinance pertaining to the regulation of refuse abatement and approved a contract with the Apple Valley Fire Protection District (AVFPD) to provide administrative services associated with that regulation. Pursuant to the contract, the AVFPD provides the following services to the City:

1. Conduct initial property survey twice per year, in early fall and spring to locate and identify fire hazards.
2. Prepare and mail abatement notices to the owners of the properties in violation.
3. Conduct follow-up inspections to determine owner compliance.
4. Conduct enforcement operations for properties that have not been brought into compliance, including but not limited to, issuance of administrative citations that subject the owners to civil, monetary penalties and conducting court-authorized abatement of the properties at the owner's expense.
5. Respond to "calls for service" consisting generally of complaints received from the public concerning properties with fire hazards.
6. All town-owned parcels will be treated in the same manner as private property and billed separately from the contract.
7. Abatement of weeds along roadsides or alleys within the town boundaries will be performed at the discretion of the AVFPD and only when determined by the ABFPD to be a fire hazard.

"California Winter Storms 2010"
State announces tax break for 2010 winter-impacted residents:

sbsun.com

State announces tax break for winter-impacted residents

Joe Nelson, Staff Writer

Posted: 03/09/2010 02:11:55 PM PST

The state Franchise Tax Board (FTB) on Tuesday announced special tax relief for California taxpayers, including those residing in San Bernardino and Riverside counties, impacted by recent winter storms.

It came a day after the Federal Emergency Management Agency issued a federal disaster declaration for the counties of San Bernardino, Riverside, Siskiyou, Los Angeles, Calaveras and Imperial. They can now apply for reimbursement by the federal government to offset costs for damage caused by flooding, debris and mud flows.

San Bernardino County suffered about $30 million in damage from winter storms that hammered the region from Jan. 17 through Feb. 6. The Big Bear Valley and High Desert cities of Hesperia, Victorville and Apple Valley received the brunt of the damage, said Denise Benson, division manager for the county Office of Emergency Services.

Now, property owners can write off flood damage on their 2009 or 2010 tax returns.

"California families who suffered property damage can find quick relief through their tax returns, state Controller and FTB Chairman John Chiang said in a statement.

Claiming losses on 2009 tax returns will allow the FTB to issue refunds quickly. Taxpayers who have already filed their returns for 2009 can file an amended return.

Those claiming losses on their returns should write "California Winter Storms 2010" in red ink at the top of their returns to alert the FTB to expedite the refund. If e-filing, taxpayers should follow the software instructions to enter the disaster information.

Forms are available on the FTB Web site: ftb.ca.gov

Taxpayer needing copies of lost or damaged state returns should complete the Form FTB 3516, "Request for Copy of Tax Return," which is available online.

Anyone who has questions about their accounts can call the FTB at 800-852-5711 from 8 a.m. to 5 p.m. Monday through Friday.

For more information, go to taxes.ca.gov

U.S. Small Business Administration

DISASTER NEWS

Loans for Homeowners, Renters and Businesses of All Sizes

Release Date: February 17, 2010
Release Number: CA 12038-01

Media Contact: Richard Jenkins
Phone: (916) 735-1500

SBA Offers Disaster Assistance to California Residents and Businesses Affected by Flooding, Debris Flows, Mudslides and Heavy Snow

Sacramento, CA – Low-interest federal disaster loans are now available in California for residents and business owners affected by the severe winter storms which generated heavy rain, snow and high winds causing flooding, debris flows and mudslides beginning January 17, U. S. Small Business Administration (SBA) Administrator Karen G. Mills said today. SBA acted under its own authority to declare a disaster in response to a request received from Governor Arnold Schwarzenegger on February 11.

The disaster declaration makes SBA assistance available in the counties of **Kern, Los Angeles, Orange, San Bernardino** and **Ventura**.

"The U. S. Small Business Administration is strongly committed to providing the most effective and customer-focused response possible to assist California residents and businesses with federal disaster loans," said Mills. "Getting our businesses and communities up and running after a disaster is our highest priority at SBA."

"Low-interest federal disaster loans are available to homeowners, renters, businesses of all sizes and private, non-profit organizations whose property was damaged or destroyed by the disaster," said Alberto G. Alvarado, SBA's Acting Regional Administrator. "Beginning Thursday, February 18, SBA customer service representatives will be on hand at the following SBA Disaster Loan Outreach Centers to issue loan applications, answer questions about SBA's disaster loan program, explain the application process and help each individual complete their application." Alvarado continued. The centers will be open on the days and times indicated. No appointment is necessary. Additional centers will be announced to serve disaster victims in Los Angeles County.

San Bernardino County
SBA Disaster Loan Outreach Center
City of Big Bear Lake City Hall
39707 Big Bear Boulevard
Big Bear Lake, CA

Opens Thursday, February 18 at 8:30 am

Mondays through Fridays,
From 8:30 am to 4:30 pm

Open Until further notice

San Bernardino County
SBA Disaster Loan Outreach Center
Hesperia City Hall
9700 7th Avenue
Hesperia, CA

Opens Thursday, February 18 at 9:00 am

Mondays through Thursdays,
From 9:00 am to 5:00 pm

Fridays, From 8:00 am to 4:00 pm

Open Until further notice

Disaster loans up to $200,000 are available to homeowners to repair or replace damaged or destroyed real estate. Homeowners and renters are eligible for up to $40,000 to repair or replace damaged or destroyed personal property.

Businesses of any size and private, non-profit organizations may borrow up to $2 million to repair or replace damaged or destroyed real estate, machinery and equipment, inventory, and other business assets. SBA can also lend additional funds to homeowners and businesses to help with the cost of making improvements that protect, prevent or minimize the same type of disaster damage from occurring in the future.

For small businesses and most private, non-profit organizations of any size, SBA offers Economic Injury Disaster Loans (EIDLs) to help meet working capital needs caused by the disaster. EIDL assistance is available regardless of whether the business suffered any property damage.

Interest rates can be as low as 2.562 percent for homeowners and 4 percent for business with terms up to 30 years. Loan amounts and terms are set by SBA and are based on each applicant's financial condition.

Disaster loan information and application forms are also available from SBA's Customer Service Center by calling SBA toll-free at (800) 659-2955, emailing disastercustomerservice@sba.gov, or visiting SBA's Web site at www.sba.gov/services/disasterassistance. Hearing impaired individuals may call (800) 877-8339. Applicants may apply online using the Electronic Loan Application (ELA) via SBA's secure Web site at https://disasterloan.sba.gov/ela.

The filing deadline to return applications for property damage is **April 19, 2010**. The deadline to return economic injury applications is **November 16, 2010**.

Below is a partial listing of mitigation programs that may be available to property owners and small business owners through other agencies:

Agency	Program	Details
FEMA	National Flood Insurance Program (NFIP)	Enables property owners to purchase insurance as a protection against flood losses in exchange for state and community floodplain management regulations that reduce future flood damages. http://www.fema.gov/business/nfip/
HUD	Community Development Block Grants (CDBG)	Grants to develop viable communities, principally for low and moderate income persons. CDBG funds available through Disaster Recovery Initiative. http://www.hud.gov/offices/cpd/communitydevelopment/programs/
HUD	Disaster Recovery Assistance	Disaster relief and recovery assistance in the form of special mortgage financing for rehabilitation of impacted homes. http://www.hud.gov/offices/cpd/communitydevelopment/programs/dri/assistance.cfm
HUD	Neighborhood Stabilization Program	Funding for the purchase and rehabilitation of foreclosed and vacant property in order to renew neighborhoods devastated by the economic crisis. http://www.hud.gov/offices/cpd/communitydevelopment/programs/neighborhoodspg/
U.S. Small Business Administration	Small Business Administration Loan Program	Low-interest, fixed rate loans to small businesses for the purpose of implementing mitigation measures. Also available for disaster damaged property. http://www.sba.gov/services/financialassistance/index.html

Table 16 Mitigation Programs

Additional Programs

The following programs are sponsored by the Town of Apple Valley to mitigate the potential effects of excess materials that could impact waste disposal and landfill capabilities following a major catastrophic event:

- Annual Household Hazardous Waste Events
- Residential Recycling Program
- Household Hazardous Waste Collection Centers

- Curbside-Residential Bulky Item Service
- Curbside Waste Oil/Recycling Program
- Free Mulch and Compost Program
- Reuse and Recycle Guide
- How to Reduce Junk Mail
- Tire Disposal

5.5 Fiscal Resources

General Fund Sources

Town of Apple Valley - Budgeted Revenues & Expenditures
Fiscal Year 2010/11 - Summary of General Fund

Revenues:		Estimated Revenue
Local Taxes		14,755,000
Motor Vehicle In-Lieu		250,000
Fines & Fees		285,000
Public Services/Events		829,500
Planning, B & S, Engineering		524,000
Other Revenues		600,100
Total Revenues	$	17,243,600

Expenditures:		Estimated Expenditures
General Government		2,675,042
Public Safety		10,520,750
Public/Community Services		2,631,491
Planning, B & S, Engineering		1,699,480
Total Expenditures	$	17,526,763

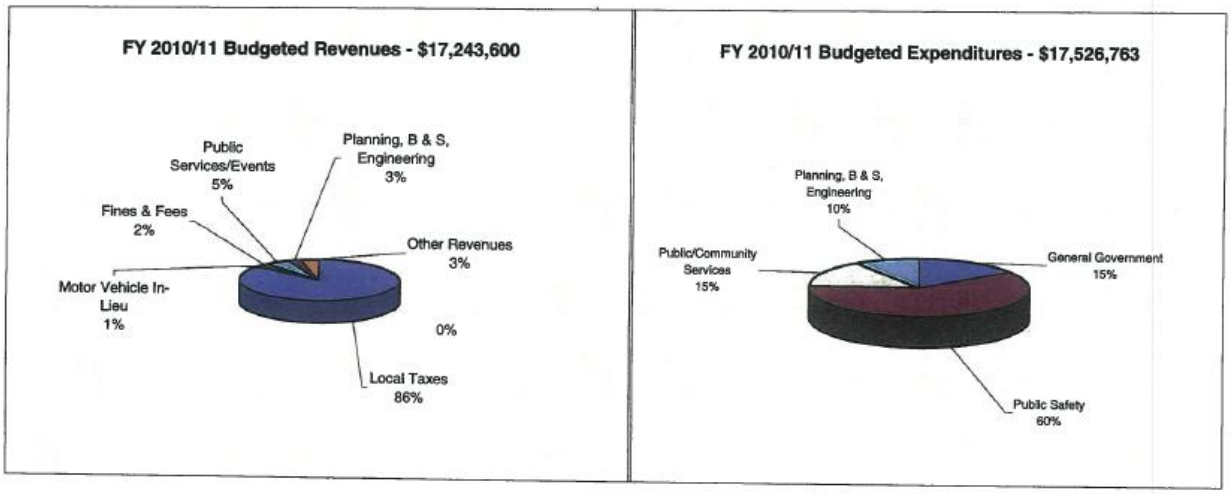

Figure 20 Town Revenues and Expenditures

One of the key analytical tools used during the budget process is a comprehensive seven-year financial forecast for the General Fund. This forecast considers key revenue and expenditure projection factors such as population, increases in the consumer price index (CPI) and other growth factors. The trending of these key factors and their effect on revenues and expenditures for the past ten years provides a historical basis for the seven-year financial forecast.

As part of the mid-year budget review process, the revenue assumptions included in the forecast are comprehensively reexamined based on actuals for the prior year, as well as emerging trends at the mid-point of the year. Accordingly, with a few notable

exceptions, the revenue projections reflected in the Budget rely heavily on the projections made as part of the seven-year forecast.

Sources used in developing these revised projections include economic trends as reported in the national media, forecast data for San Bernardino County, economic and fiscal information developed by the State Legislative Analyst and the State Department of Finance, and materials prepared by the League of California Cities and State Controller's Office. Ultimately, however, the revenue projections reflect the staff's best judgment about the performance of the local economy over the next two years and how it will affect Town revenues.

The following provides a brief description of the Town's top general revenue sources along with the general assumptions used in preparing revenue projections. These sources account for over 80% of total general revenues.

General Property Taxes
Under Proposition 13 (adopted in June of 1978) property taxes for general purposes may not exceed 1% of market value. Property tax assessment, collection and apportionment are performed by the County. The Town receives approximately 20%-25% of the levy within its limits. Assessment increases to reflect current market value are allowed when property ownership changes or when improvements are made; otherwise, increases in assessed value are limited to 2% annually.

Sales and Use Tax
The Town receives 1% from all taxable retail sales occurring in its limits. This is collected for the City by the State of California, along with their component of the sales tax (6.75% for the State General Fund and 1% for local transportation purposes, for a total sales tax rate in San Bernardino County of 8.75%).

Franchise Fees
Franchise Fees are levied by the Town on a variety of utilities at various rates. The State sets franchise fees for utilities regulated by them (most notably gas and electricity): 1% of gross sales or 2% of revenues attributable to their investment in infrastructure, whichever is greater.

Motor Vehicle In-Lieu
The State Revenue and Taxation code imposes an annual license fee of 2% of the market value of motor vehicles in lieu of a local motor vehicle property tax. Cities and counties equally share 81.25% of the total tax collected statewide; the State then distributes this revenue to cities and counties on a per capita basis. Motor Vehicle In-Lieu taxes have increased over the last several years, but were reduced during 2000/01 due to the calculation method imposed by the State to utilize actual population estimates.

Development Related Fees
Development related fees recover costs for planning, building and safety, engineering, and fire plan check services. Cost recovery for these services is generally set at 100% of total costs.

Hazard Mitigation Grant Program (HMGP)
Hazard Mitigation Grant Program (HMGP): This FEMA administered program provides grants to states and local governments following a presidential disaster declaration. The funds can be used to implement long-term hazard mitigation measures. According to the Disaster Mitigation Act of 2000, communities must have a Local Hazard Mitigation Plan (LHMP) approved to receive HMGP funds after May 1, 2005. Funds will be granted only to projects that conform to local and state mitigation plans. Federal grant funds can provide 75% of a project's total cost; other sources must provide 25% matching funds. After any federally declared disaster, up to 20% of the amount spent by FEMA on disaster response and relief costs is made available in the form of HMGP grants to communities in the affected state.

Flood Mitigation Assistance Program (FMA)
FMA provides funding to assist states and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the National Flood Insurance Program.

Pre-Disaster Mitigation Program (PDM)
FEMA developed the PDM program to coincide with the requirements of the Disaster Mitigation Act of 2000 that requires communities to prepare local hazard mitigation plans, such as this plan. Funds are authorized by Congress on an annual basis for PDM competitive grants, technical assistance and program support. FEMA grants can fund 75 percent of a project; other non-federal sources must provide 25 percent matching funds. Funds are only granted to communities with an approved LHMP, and supported projects must be identified in those plans.

Severe Repetitive Loss (SRL)
According to the National Flood Insurance Program, the Town of Apple Valley has three repetitive loss properties within its jurisdiction. These include one 4-Plex property and two single family homes.

Community Development Block Grants
Block grants are administered by the Department of Housing and Urban Development to fund housing, economic development, public works, community facilities and public service activities serving lower income people. These funds can be used for mitigation works. CDBG funds are considered local funds once they are received, and thereby are eligible to provide the 25 percent local match required for receipt of the HMGP funds.

There are other federal programs that support emergency and rebuilding costs in communities, such as FEMA's Public and Individual Assistance Programs which are activated following federally declared disasters. These funds primarily support repair projects, but may also include the cost of code upgrades or other mitigation measures as part of the repair if they are cost effective.

SECTION 6 - MITIGATION STRATEGIES

6.1 Overview

The Town of Apple Valley's mitigation strategy is derived from the in-depth review of the existing vulnerabilities and capabilities outlined in previous sections of this plan, combined with a vision for creating a disaster resistant and sustainable community for the future. This vision is based on informed assumptions, recognizes both mitigation challenges and opportunities, and is demonstrated by the goals and objectives outlined below. The mitigation measures identified under each objective include an implementation plan for each measure. The measures were individually evaluated during discussions of mitigation alternatives and the conclusions used as input when priorities were decided. All priorities are based on consensus of the Planning Team.

Mitigation measures are categorized generally for all hazards and specifically for the three high risk hazards facing the Town that were extensively examined in the risk assessment section: earthquakes, floods, and wildfires.

6.2 5-Year Progress Report

The following identifies the completed, deleted, or deferred actions or activities from the previously approved 2005 plan.

Mitigation Action	Completed	Deferred	Ongoing	Comments
Seismic retrofit on the Bear Valley Road bridge at the Mojave River	X			
Asphalt berm project at various locations throughout the community, especially those areas in the dry lake bed prone to flooding	X			
Installation of dry wells at various locations in the dry lake bed area as well as on Navajo Road and Yucca Loma/Kiowa Road	X			
Asphalt berm project at various locations in Desert Knolls susceptible to flash flooding;	X			
Construction of a retention basin on Sitting Bull Road to mitigate new residential development in the area	X			
Continue working with the California Department of Water Resources to ensure proper notification of water release from the dams.			X	Ongoing process
Continue working with the Army Corps of Engineers and the County of San Bernardino Flood Control regarding grading operations in			X	Channeling the river water away from adjacent properties can

Mitigation Action	Completed	Deferred	Ongoing	Comments
the Mojave Riverbed.				be improved with strategic grading. Grading operations need to continue after each release of water into the river or after severe rains.
Continue maintaining and enforcing the building code regulations pertaining to seismic and earthquake standards.			X	By maintaining and enforcing building code regulations pertaining to seismic and earthquake standards, new development will be seismically safer. Up-to-date building codes are also applied to existing structures for tenant improvements
Install dry wells in areas that are susceptible to flooding due to heavy rains.			X	Ongoing process
Construct a bridge or mitigate the area in another area on Rock Springs Road where it crosses the Mojave River.		X		
Construct concrete water channels in areas that are susceptible to flooding due to heavy rains.		X		
Extend the current Desert Knolls concrete wash east to Tao Road and west to the Mojave River.		X		

Table 17 Mitigation 5 year progress report

6.3 Mitigation Goals, Objectives, Actions, and Projects

The 2005 Mitigation Goals included overall mitigation goals established by the Town (contained within the Town's General Plan, adopted in 2004) to guide the establishment and priorities of specific goals, objectives, and mitigation measures for each high risk hazard. In reviewing and updating mitigation objectives and actions, it was the Planning Team's consensus that these goals remain in this Plan update.

The Town of Apple Valley's General Plan is on file at Town Hall, 14955 Dale Evans Parkway, Apple Valley, CA 92307, and is available for inspection during normal business hours. The General Plan is also available online at www.applevalley.org.

6.3.1 Emergency Preparedness Goals

(Tables and exhibits referenced in this section are contained in the Town's General Plan)

Goal 1: Support and expand disaster response programs, and initiate a program for post-disaster planning.

Objectives: Policies

A. The Town shall encourage involvement in the emergency preparedness programs already in place in the region, as well as emergency preparedness education in the schools and in the media.
B. Establish comprehensive procedures for post-disaster planning in affected areas.
C. Because emergency preparedness is crucial to the protection of the public in case of disaster, the following actions shall be implemented:

1. Coordinate with the County Office of Emergency Services, and maintain and update the Emergency Preparedness Management Plan for use by the Town to protect the citizens of Apple Valley.
2. Coordinate with public and private agencies, and initiate coordination in residential areas through Neighborhood Watch, homeowners associations and other neighborhood groups.
3. Provide for the needs of dependent and immobile populations in emergency response and recovery operations through identification and prioritization of rescue needs.
4. Require disaster plans and provisions in the design, location and management of all public facilities.
5. Plan, design and use public facilities according to the requirements of the Emergency Management Plan.
6. Assure adequate access routes to and from potential devastation areas as required by the Emergency Management Plan.

Because the Town's ultimate post-disaster survival will depend not only on the effectiveness of hazard mitigation and disaster response programs, but also on how quickly and how well the Town is rebuilt after a major disaster, the Town shall initiate a program for post-disaster planning. All options, from redevelopment to opportunities for upgrading, shall be included. Such measures as revised street and traffic patterns, parking, architectural and landscape design, and general land use compatibility, as well as building code improvements, shall be addressed.

1. Establish a standing committee for disaster recovery to plan for a disaster by providing contingency planning for the rapid and effective

reconstruction of affected areas. The committee shall include representatives of Planning, Engineering, Flood Control, Community Services and Building and Safety, as well as liaisons to the local utilities and any State and Federal redevelopment, housing and reconstruction programs.

2. Develop guidelines through the committee for the exercise of emergency authorities for such purposes as the following.

   a. Rapid designation of redevelopment areas through pre-preparation of emergency ordinances

   b. Possible revision of land use, circulation and parking requirements, and institution of other programs for improving the community environment

   c. Adaptation and institution of special programs for disaster recovery

   d. Funding of disaster recovery measures.

   e. Moratoria on reconstruction in any high-hazard areas where damage could be repeated

   f. Upgrading of the building code

   g. Establishment of Geologic Hazard Abatement Districts, as appropriate

   h. Designation of sites for temporary housing (e.g., travel trailers and pre-fabricated construction) of households made homeless in the disaster, in cooperation with the Disaster Housing Program of the Federal Emergency Management Agency.

6.3.2 Earthquake

Goal 1: Continuously integrate new data on natural and manmade hazards into overlay mapping and the review of land use proposals and applications and the enforcement of development standards through the use of mapping overlays, policies and land use designations.

Objectives: Because strong technical input is needed to refine, enlarge and improve the knowledge of geologic hazards in Apple Valley, the Town shall implement the following actions.

1. Establish a geotechnical information collection, storage and retrieval system. Coordinate with the countywide information gathering effort, and ensure that the Town's system will accomplish the following tasks.
   a. Solicit and coordinate geological studies by the United States Geological Survey (USGS), the California Division of Mines and Geology (DMG), the County and other local agencies, and make the resultant data available to the public and other agencies.
   b. Incorporate all new research for the prediction and mitigation

of geologic hazards.
c. File and coordinate with the County Geologist.
d. Maintain clear and comprehensive mapping of all geological hazards.

2. Utilize the County Geologist, the Geotechnical Advisory Committee or professional consultants to establish criteria, standards, guidelines and format for required geologic reports, and formulate standardized mitigation measures. A professional Geologist shall review and approve all required geologic reports.
3. Incorporate newly acquired data and technology into the mapping, policies and procedures of this General Plan.

Because of the potential for liquefaction impacts to certain areas in the Town, an inventory and analysis of such areas with liquefaction potential shall be undertaken.

Because of the potential relationship between seismic activity and landsliding effects, the Town shall require that a seismic analysis be included as a part of landslide stability studies when required by the City Engineer.

Because individual developments may be subject to spot flooding from all streams or unmapped areas adjacent to mapped flood areas, the Town shall require specific hydrology and hydraulic studies to be prepared at the time developments are proposed, as follows.

1. Identify existing drainage conditions, upstream and downstream drainage conditions at build out of the General Plan, and measures which must be taken within the development project or downstream from the project to preclude impacts on the proposed development or increased impacts to downstream development. These studies should be submitted and reviewed by the Engineering Department.
2. Fully account for all planned flood-control facilities within or adjacent to the project site. Where sections of flood-control facilities cannot be constructed, provision should be made for their ultimate construction, that is, right-of-way reserved and construction funds secured. Additionally, interim facilities must be provided which will be able to handle the additional runoff from the proposed development until the planned flood control facilities are constructed.

Goal 2: Minimize the potential risks resulting from the exposure of Town residents to manmade and natural hazards.

Objectives: Because the risks from many geologic hazards can be successfully mitigated through a combination of engineering, construction, land use

and developmental standards, the Town shall implement the following actions:

1. Require the formation of geologic hazard abatement districts as authorized by Public Resources Code Section 26500 et seq. where existing or proposed development is threatened by such hazards, and prevention, mitigation, abatement or control of a geologic hazard is deemed feasible.
2. Require sites to be developed and all structures designed in accordance with recommendations contained in any required geotechnical or geologic reports, through conditions, construction plans and field inspections.
3. Require that all recommended mitigation measures be clearly indicated and described on all grading and construction plans.
4. Require that clearances around structures and road widths in geologic hazard areas, as shown on the Hazard Overlay Map, meet the requirements found in Policy Y, Action 1 for this Goal, S-1.
5. Require all facilities to meet appropriate geologic hazard specifications as determined by the Town Engineer for discretionary and ministerial authorizations.

Because increased public awareness of geologic hazards can reduce the risk of those hazards, the Town shall implement the following actions:

1. Develop a geologic educational program for use by schools, developers and the public at large, covering hazards, abatements, and emergency plans and procedures as part of the Town's Emergency Preparedness Management Plan.
2. Make geotechnical data and mapping readily available to the public through the County-wide Geotechnical Information System coordinated by the County Geologist as described in the General Plan Policy C for Goal S-2.

Because the County is traversed by many major active faults resulting in a relatively high level of risk, the Town shall implement the following actions:

1. Adopt all future upgrading of the seismic design section of the Uniform Building Code.
2. Require new structures and facilities to be designed and constructed to meet seismic safety and related design requirements of the most recent Uniform Building Code, or more stringent requirements if indicated by site investigations.
3. Require all new critical, essential or high occupancy facilities to

be designed and operated in such a manner as to remain standing and functional during and after a disaster as determined by the Division of Building and Safety.

Because of the potential for displacement along faults not classified as active, the Town shall reserve the right to require site-specific geotechnical analysis and mitigation for development located contiguous to potentially active faults, if deemed necessary by the Town Engineer.

Because some structures were built prior to both 1933 and 1971 seismic standards, they are considered unlikely to withstand a seismic event of the predicted intensity. The Town shall undertake studies and develop programs to minimize the risk of potential seismic disaster in areas where inadequate structures exist in the following ways:

1. Initiate a structural hazards identification and abatement program through the Division of Building and Safety, with priority given to the identification and abatement of hazards in critical, essential and high occupancy structures, in structures located within areas of severe geologic hazard and in structures built prior to the enactment of applicable local or state earthquake design standards. This program shall be in accordance with SB 547, enacted in Chapter 250, statutes of 1986, requiring local jurisdictions to develop structural hazard reduction programs for such buildings by January 1, 1990.
2. Require periodic inspection by the Office of Building and Safety of all critical, essential and high occupancy buildings to identify potential hazards in the event of a major earthquake. When hazards are identified, require mitigation by the owner.
3. Bring all existing critical, essential, and high occupancy structures found to be hazardous into conformance with applicable seismic and related safety (fire, toxic materials storage and uses, etc.) standards through rehabilitation, reconstruction, demolition, reduction of occupancy levels, or change in use.
4. Require rehabilitation of private unfit structures through implementation of the Uniform Building Code and Hazardous Building Ordinance. Priorities for critical, essential or high occupancy buildings shall be based on hazard to life, type of occupancy, method of construction, physical condition and location.
5. Require the upgrading of buildings and facilities to achieve compliance with the latest earthquake standards as a condition of granting building permits for major additions and repairs.
6. Establish and administer incentives for seismic retrofitting, including but not limited to the following.

    a. Area-wide revitalization programs

b. Community Development Block Grants

c. US Small Business Administration loans

d. Public Purpose Bonds

e. Marks History Bonds

f. Local-General Funds

g. Local-General Obligation Bonds

h. Making seismic safety a major factor in selecting future areas for redevelopment

i. Tax reductions for building rehabilitation to minimize personal economic costs

j. Providing relocation assistance to persons and businesses temporarily or permanently dislocated from hazardous old buildings

k. Requesting Federal and/or State financial assistance to implement corrective measures

Support regional or statewide programs providing funding or technical assistance to local governments to allow accurate identification of existing structural hazards in private development and providing assistance to public and private sectors to facilitate and to minimize the social and economic costs of abatement.

Because many structures with important functions and potentially severe consequences of failure do not fall under Town control (i.e., dams, utility installations, transportation structures) the Town shall implement the following actions:

1. Continue to work with public utilities, school districts, the State Department of Transportation (Caltrans) and other agencies supplying critical public services to ensure that they have incorporated structural safety and other measures to be adequately protected from seismic hazards for both existing and proposed facilities.
2. Encourage Caltrans and all utilities to review all their facilities within the Town to assess potential impacts of seismic hazards; comments based on this review should be forwarded to the Town.
3. Encourage utility companies to institute orderly programs of installing cut-off devices on utility lines, starting with the lines that appear to be most vulnerable and those which serve the most people. Adequate emergency water supplies shall be established and maintained in areas dependent upon water lines which cross active fault zones.

Because the ground in close proximity to a fault is subject to rupture during an earthquake, exposing occupants and structures to high levels of risk, those areas identified by the Alquist/Priolo Special Studies Zone Act (Public Resources Code, Division 2, Chapter 7.5) shall be designated on the Hazards Overlay Map, and the following actions shall be implemented:

1. Apply definitions, provisions and mapping of the Alquist/Priolo Special Studies Zone Act.
2. Apply the Land Use Compatibility Chart for Special Studies Zones when reviewing all discretionary and ministerial actions (Table X-2).
3. Maintain a minimum 50-foot setback from an identified fault for all new structures. For an inferred fault area, a 250-foot setback shall be maintained. However, critical, essential or high occupancy structures and facilities shall not be located in Special Studies Zones unless there is no feasible alternative, as determined by staff review, in which case these facilities shall maintain a 150-foot setback from an identified fault. (A 200-foot setback shall be maintained if the fault is inferred.)
4. Withhold public financing from buildings within the Studies Zone where there is a confirmed fault trace unless it can be established that there is no potential for surface fault displacement or ground rupture which would injure the public investment or fulfillment of its purpose.
5. Do not create new lots within the Studies Zone unless an appropriate geologic investigation establishes sufficient and suitable land area for development according to existing zoning and other applicable Town ordinances.
6. Plan transportation facilities (i.e., roads, freeways, rail, rapid transit) and utility systems to cross active fault traces a minimum number of times and to be designed to accommodate fault displacement without major damage that would cause long term and unacceptable disruption of service. Utility lines shall be equipped with such mechanisms as flexible units, valving, redundant lines or auto valves to shut off flows in the event of fault rupture.

Because the purpose of the Alquist/Priolo Special Studies Zone Act is only applicable to fault rupture areas (in close proximity to faults) and because the entire San Bernardino Valley area is subject to severe hazard from the effects of shaking due to an earthquake, the Town shall implement the following actions:

1. Require special studies, including dynamic analysis for all major

structures (critical, essential and high occupancy land uses) within areas determined by the Town Engineer to be subject to significant seismic shaking.
2. Design and construct all structures in areas determined by the Town Engineer to be subject to significant seismic shaking to withstand ground shaking forces of a minor earthquake without damage, of a moderate earthquake without structural damage, and of a major earthquake without collapse. Critical, essential, and high occupancy structures shall be designed and constructed to remain standing and functional following a major earthquake and shall be so engineered as to withstand maximum probable ground motion accelerations.
3. Require all new construction to meet the most current and applicable lateral force requirements.
4. Strengthen earthquake resistance standards for non- structural components of structures including exterior veneers, internal partitions, lighting fixtures, elevators and equipment.

Because liquefaction can cause devastating structural damage and because there is a high potential for saturation when the groundwater level is within the upper 50 feet of alluvial material, the Town shall implement the following actions:

1. Require that each site located within the Liquefaction Hazard Overlay shall be evaluated by a licensed geologist prior to design, land disturbance or construction for soil type, history of the water table's fluctuation and adequacy of the structural engineering to withstand the effects of liquefaction.
2. Apply the Land Use Compatibility Chart for Liquefaction Areas (Table X-3) when reviewing all discretionary and ministerial actions.

Because portions of the Town have moderate landslide potential, posing measurable risk to life and property, and because once landslides are recognized, many can be safely mitigated, the Town shall implement the following actions:

1. Require that a stability analysis be required in Landslide Hazard areas designated "Generally Susceptible" and "Mostly Susceptible" on the Hazards Overlay Maps and where required by the Geologist.
2. Require site development and construction in compliance with soil and geologic investigation report recommendations.
3. Apply the Land Use Compatibility Chart for Landslides (General Plan Table X-4) when reviewing all discretionary and ministerial actions.

4. Fund and prepare a land use plan that is in conformance with the Land Use Compatibility Chart for landslides in designated high landslide hazard areas as they are identified.
5. Restrict avoidable alteration of the land which is likely to increase the hazard within areas of demonstrated or potential landslide hazard, including concentrations of water through drainage or septic systems, removal of vegetative cover, steepening of slopes and undercutting the base of a slope.
6. Restrict grading to minimal amounts necessary to provide access, and require grading permits to have an approved site plan which minimizes grading and conforms to the recommendations of any required geologic investigation.
7. Require development on hillsides to be sited in the least obtrusive fashion, thereby minimizing the extent of topographic alteration required.
8. Restrict development in areas of known landslides or landslide-prone deposits on steep slopes, except where engineering and geologic site investigations indicate such sites are stable or can be made stable by the application of appropriate mitigating measures. In such cases, it must be shown to the satisfaction of the Town that the risk to persons, property and public liability can be reduced to an acceptable degree.
9. Require that foundation and earth work be supervised and certified by a geotechnical engineer and, where deemed necessary, an engineering geologist, in projects where evaluations indicate that state-of-the-art measures can correct instability.
10. The Town shall generate ma-specific (where appropriate) hillside development plans on the basis of baseline inventory and geotechnical analysis related to landsliding potential.

Because of limited specific information on the extent of subsidence in the Town, the Town shall implement the following actions:

1. Undertake a program of subsidence hazard identification that will outline the extent of the hazard in the Town and propose mitigation measures through the office of the Town Engineer.
2. Restrict the construction of any facility which is needed for public safety or for the provision of needed emergency services where an interruption in service could result from structural failure due to settlement or subsidence unless the only alternative sites would be so distant as to thereby jeopardize the safety of the community served.
3. Require that all site-specific geotechnical investigations conducted for proposed development include an assessment of potential impacts and mitigation measures related to expansive

reactive soils and erosion.

Projects: To coordinate and support the State of California Multi-Hazard Mitigation Plan Strategies to reduce risks, the Town of Apple Valley proposes the following projects:

- **Mobile Home Seismic Retrofit Program**

  - ☐ Develop and sponsor projects and programs to brace new or relocated mobile homes to resist earthquakes

- **General Earthquake Mitigation Projects**

  - ☐ Develop projects and programs to install automatic gas shut-off valves in residential, commercial, and public buildings
  - ☐ Develop and construct seismic retrofit of critical facilities
  - ☐ Develop residential and commercial seismic retrofit programs
  - ☐ Develop earthquake mitigation public outreach education programs
  - ☐ Develop and construct seismic retrofit of Town-owned transportation and utilities infrastructure

6.3.3 Flood

Goal 1: Minimize the potential risks resulting from the exposure of Town residents to manmade and natural hazards.

Objective: Because the Town has entered into an agreement to participate in the National Flood Insurance Program (NFIP) which provides flood insurance within designated floodplains, the following actions shall be implemented by the Town:

1. Floodway and Floodplain areas as identified by the Federal Emergency Management Agency (FEMA) on Flood Insurance Rate Maps and Flood Boundary Maps shall be designated as Floodway (FW) on the Land Use Maps and Floodplain Overlays on the Hazards Overlay Maps.
2. Designated floodway areas shall be preserved for non-structural uses through restrictions of the FW land use district.
3. All new development, including filling, grading and construction, proposed within designated floodplains shall require submission of a written assessment

prepared by a qualified hydrologist or engineer, in accordance with the latest "San Bernardino County Hydrology Manual" and the various detention basin policies (General Plan Policy X for this Goal, S-1) to determine whether the development will significantly increase flood hazard and to show that all new structures will be adequately protected. Development shall be conditioned on receiving approval of this assessment by the Town Engineer.

4. All new construction in the Floodplain Overlay areas shall be required to be flood-proofed and shall be located and designed to allow unrestricted flow of floodwaters.
5. The Land Use Compatibility Chart for the 100-Year Flood Plains (General Plan Table X-5) shall apply when reviewing all discretionary and ministerial actions in the designated floodplain.
6. Lands within floodplain areas may be developed with non- critical and non-essential uses if mitigation measures are incorporated so as to ensure that the proposed development will not be hazardous, increase flood depths or velocities downstream, or degrade water quality.
7. Known flood hazard information shall be provided with every discretionary ministerial action application.
8. When no mapped data exists, existing topographical, watershed, and drainage course data shall be evaluated for a determination of potential flood hazard for every discretionary and ministerial action.

Because the FEMA mapping and studies do not yet identify all flood hazard areas in the entire Town, the following shall actions shall be implemented:

1. As new overflow studies and mapping are completed and approved by either the Town Engineer or the San Bernardino County Flood Control District, they shall supplement the FEMA mapping and shall be incorporated into Flood Hazard Overlay mapping.
2. Programs for the continuous elevation and designation of floodway, floodplain and drainage areas shall be initiated and financed.
3. Timely application for FEMA mapping changes shall be initiated to reflect any additions to or alterations in identified Floodways or Floodplains by the Town's Floodplain Management Administrator.
4. The siting of residential and other types of development

requiring substantial structures shall be prohibited on playas or dry lake beds as shown on the Floodplain Overlay Map. Industrial, commercial, recreational, or transportation and other uses which utilize the playa or dry lake as a resource may be permitted.

5. All Town areas shall be continuously evaluated through the application of development conditions in the pre-construction flood hazard inspection process.
6. Site studies shall be performed in areas where development is proposed which have been tentatively identified as subject to flooding.
7. Construction shall take place in compliance with study recommendations as described in site study required under action item #6 above.

Because dam failure as a result of earthquake or other causes results in severe risk to downstream properties, the Town shall implement the following actions:

1. Require an engineering geology report for all new or proposed public and private reservoirs. This report shall be completed by a registered engineering geologist, conform to Town standards, and be approved by the Town Engineer.
2. Include reservoirs as Dam Inundation areas on the Hazard Overlay Map as required by the State of California.
3. Prohibit new dams and reservoirs in areas designated as Geologic Hazards on the Hazard Overlay Map.
4. Seek elimination of potentially hazardous dams and reservoirs.
5. Initiate programs to increase the earthquake resistance of dams and reduce the potential impacts of seismically-induced dam failures.
6. Prohibit critical, essential and high-risk land uses from Dam Inundation areas as shown on the General Plan Hazard Overlay Map and Table X-5.

Because substantial development has already occurred in floodways and floodplains, the Town shall implement the following actions:

1. Continue to identify natural drainage courses and designate Town of Apple Valley Drainage Easements as a means to preserve natural drainage flow paths and/or constructed drainage facilities.

2. Require identification, improvement and upgrading of critical facilities in flood hazard areas through such measures as anchorage to prevent flotation, water tight barriers over openings, reinforcement of walls to resist water pressures, use of materials to reduce wall seepage and installation of pumping facilities for internal and subsurface drainage.
3. Require implementation of flood protection measures when any additions to the original structure are proposed.
4. Establish funding mechanisms when flood control facilities are warranted.

Because drainage from adjacent development contributes to fire hazards, the following actions shall be implemented:

1. The run-off provisions of the Erosion and Sediment Control Ordinance shall apply Town-wide.
2. Surface run-off from new development shall be controlled by on-site measures including but not limited to the following.

   a. Structural controls
   b. Restrictions regarding changes in topography, removal of vegetation, creation of impervious surfaces, and periods of construction such that the need for off-site flood and drainage control improvements is minimized and such that run-off from the development will not result in downstream flood hazards

Because public education plays a vital role in minimizing flood hazards, the Town shall implement the following actions:

1. Establish a public information system through the Office of Emergency Services outlining emergency operations plans and measures to reduce personal losses in the event of a flood disaster.
2. Develop a flood warning system, where possible, through the County Flood Control District.
3. Develop dam failure and flood plain inundation evacuation plans through the County Office of Emergency Services.

Because flood protection is both local and regional in nature, the Town shall implement the following actions:

1. Continue the development of intergovernmental coordination with cities, adjacent counties, the Army Corps of Engineers, and other agencies which have an interest in flood control projects that cross-jurisdictional boundaries.
2. Coordinate land use and flood control planning through staff contacts between the County Flood Control District, Special Districts and cities within the County, and through the annual review of the Capital Improvements Program.

Because the funding of necessary flood control and drainage facilities is a major concern, the Town shall coordinate with the County in the preparation of local area drainage plans and establish funding mechanisms to provide the backbone drainage system for watershed areas within and affecting the Town.

Because the proliferation of private detention basins is not desirable, safe or economical, the following policies and criteria shall be supported by the Town:

- San Bernardino County Detention Basin Policy
- San Bernardino County Detention Basin Maintenance Financing Policy
- San Bernardino County Detention Basin Submittal Procedures
- Detention Basin Design Criteria for San Bernardino County
- Town of Apple Valley Master Plan of Drainage

Goal 2: Continuously integrate new data on natural and manmade hazards into overlay mapping and the review of land use proposals and applications and the enforcement of development standards through the use of mapping overlays, policies and land use designations.

Objectives: Because of the need for additional flood control measures in the Town and the opportunity presented by existing floodway areas as open space for human recreation and wildlife use, the Town shall initiate a study for a revised Town of Apple Valley Master Plan of Drainage. This study shall include an investigation into the feasibility of combining flood control and open space use and a cost comparison with the existing plan.

1. Based on the findings of the proposed flood control study, the Town shall initiate an effort to fund the

construction of a system approved by the Town Council.

Projects: **Detention Basins**

To provide a 100-year (or greater) level of flood protection through adoption and support of the Town of Apple Valley Master Plan of Drainage.

- ☐ Vicinity of Navajo and Ottawa Roads
- ☐ Vicinity of Huasna Road and Chippewa Roads
- ☐ Vicinity of Bear Valley and Mohawk Roads

Dry Wells

A proposed Dry Well Installation Project that includes installation of Apple Valley Standard Dry Well Structures at various locations in the vicinity of:

- ☐ Quapaw Road near Eyota Road
- ☐ Seneca Road near Rancherias Road
- ☐ Pocomoke Road near Minnetonka Road
- ☐ Algonquin Road near Lone Eagle Road
- ☐ Mohawk Road near Laguna Road
- ☐ Little Beaver Road near Mesquite Road
- ☐ Entire neighborhood bordered by Dale Evans Parkway, Otoe Road, Thunderbird Road, and Rancherias Road

- **Community Rating System (CRS) and the National Flood Insurance Program (NFIP)**

  Attain and maintain Community Rating System (CRS) Status including, but not limited to, development of the Town of Apple Valley's on-line Geographic Information System (GIS) as a public education tool and develop and sponsor programs and projects in support of the CRS.

  - ☐ Maintain participation in the National Flood Insurance Program

6.3.4 Wildfire

Goals: Support and expand disaster response programs and education, and initiate a program for post-disaster planning.

Objectives: 1) Because an integrated approach is needed to coordinate the Town's present and future needs in fire protection

services in response to fire hazards and risks and to serve as a basis for program budgeting, identification and implementation of optimum cost- effective solutions, the Town shall implement the following actions.

a. Participate in the creation of a County-Wide Fire Protection Master Plan based upon land use districts.
b. Develop, adopt, and implement a recommended schedule of fees to finance the fire protection infrastructure that is tied to land use categories and specific community needs as prescribed by the County-Wide Fire Protection Master Plan.
c. Continue to coordinate fire protection services for the City, with the County, the California Department of Forestry and Fire Protection, (CAL FIRE), the United States Forest Service, the Bureau of Land Management, and all City and special districts with fire protection powers.
d. Require development applicants, in areas of identified fire risk, to prepare a site-specific fire protection plan.
e. Require applicants to fund expansion of local fire protection services by payment of appropriate impact fees.
f. Implement monitoring of fire-prevention measures (such as fuels reduction) to prevent damage to biological habitats in chaparral areas.

2) Because public education is a vital part of fire hazard abatement, prevention and mitigation, the Town shall implement the following action:

a. Continue to support existing Apple Valley Fire Protection District education programs in the areas of vegetation modification and management, fire-safe site design techniques and fire prevention, including smoke detector distribution.

3) Because fire exists as a hazard Town-wide, the following requirements shall apply Town-wide unless superseded by the Apple Valley Fire Protection District.

a. The Peak load Water Supply System guidelines contained in Table X-1 shall be met for all new development or be adequately served by water supplies for domestic use and community fire protection in accordance with standards as determined by the Town and the Apple Valley Fire Protection District.
b. Provide adequate fire protection facilities and services in accordance with standards of the Town and the Apple Valley Fire Protection District for all development, existing and proposed.
c. Require structures, features of structures or activities determined to be hazardous in terms of fire potential to be brought into conformance with current applicable fire and safety standards.
d. Limit or prohibit development or activities in areas lacking water and fire fighting facilities.
e. Approve high intensity uses such as theaters, motels, restaurants, and schools, and uses requiring the handling or storage of large amounts of flammable materials only in areas with adequate water systems with hydrants.
f. Continue to evaluate and amend as necessary development standards for location, building separations, structural design and detection hardware.
g. Require adequate visible designation of all streets, roads and buildings, to the standards of the Apple Valley Fire Protection District.
h. The Town shall ensure that successive uses of individual buildings comply with appropriate building and fire standards.
i. Adopt common standards for building safety and construction.

Projects

- ☐ Partner with Victor Valley Community and the Apple Valley Fire Protection District to design, develop and construct mitigation programs and facilities that provide training opportunities in support of multihazard/multijurisdictional emergency incidents
- ☐ Develop and sponsor an enhanced public education program based on targeted needs that encourages the public to take responsibility for wildfire protection
- ☐ Develop and support land use policies and standards that protect life, property, and natural resources.

6.4 Mitigation Priorities

During the development of the risk assessment for the Town of Apple Valley, the Planning Team proposed and discussed alternative mitigation goals, objectives, and specific mitigation measures that the Town should undertake to reduce the risk from the three high risk hazards facing the Town.

Multiple factors were considered to establish the mitigation priorities included in this plan. The Planning Team utilized the STAPLEE system (identified in Section 3.6) to help assess mitigation priorities and determined that the highest priority rankings would be assigned to those mitigation measures that met three primary criteria:

1. Greatest potential for protecting life and property
2. Greatest potential for maintaining critical Town functions and operability following a disaster; and
3. Achievability in terms of community support and cost effectiveness

All rankings were determined by the consensus of the Planning Team. As described in the previous section on hazard and risk assessment, clearly earthquakes have the potential to affect the largest number of people, critical facilities, and buildings and to cause the greatest economic losses. This fact, combined with the relatively high probability of an earthquake occurrence in the next several decades, makes increasing disaster resistance and readiness to earthquakes a high priority. Given the extreme importance of maintaining critical government functions in times of disaster and the large number of the population who depend and rely on government services and infrastructure, those mitigation measures that improve government disaster resistance, readiness, or recovery capacity are generally given higher priority than mitigation of privately owned buildings in which the loss or damage affects relatively few.

Earthquake, flooding, and wildfire mitigation actions are identified and assigned a priority according to their importance, cost, funding availability, to what degree project planning has been completed, and the anticipated time to implement the measures.

Using the above rationale for establishing mitigation priorities, each mitigation measure is assigned a priority ranking as follows:

- High – Projects that will be the primary focus of implementation over the next five years
- Medium – Projects that may be implemented over the next five years
- Low – Projects that will not be implemented over the next five years unless conditions change (new program/funding source)

The Team discussed alternative mitigation strategies and mitigation measures during workshops, provided their preferences, and also suggested additional mitigation measures that the City should consider. National literature and sources were

researched to identify best practices measures for each hazard considered by the Town. The Planning Team reviewed the list of possible objectives and mitigation measures, made a final selection, and then prioritized the individual mitigation measures considered the most appropriate for Apple Valley.

6.5 Implementation Strategy

An implementation strategy is the key to any successful planning effort. The implementation strategy identifies who has lead responsibility for the action, the estimated timeframe for completion, and potential funding source(s) to support implementation, and the priority ranking, defined as follows:

- Lead Agency: Town of Apple Valley and/or other agency assigned lead responsibility
- Timeframe: Short-term (less than 2 years); long-term (more than 2 years)
- Funding source(s): Potential internal and external funding source(s)
- Priority Ranking: High, Medium or Low

Action	Lead Agency	Hazard	Funding Source	Timeline	Priority Ranking
Develop projects and programs to install automatic gas shut-off valves in residential, commercial, and public buildings	Apple Valley	Earthquake	PDM HMGP HUD	Long Term	Low
Develop and construct seismic retrofit of critical facilities	Apple Valley	Earthquake	PDM HMGP DIF	Long Term	Low
Develop residential and commercial seismic retrofit programs	Apple Valley	Earthquake	PDM HMGP	Long Term	Low
Develop earthquake mitigation public outreach education programs	Apple Valley	Earthquake	EMPG	Long Term	High
Develop and construct seismic retrofit of city-owned transportation and utilities infrastructure	Apple Valley	Earthquake	PDM HMGP DOT ARRA	Long Term	Low
Develop and sponsor projects and programs to brace new or relocated mobile homes to resist earthquakes	Apple Valley	Earthquake	PDM HMGP	Long Term	Low
Install detention basins Navajo and Ottawa Roads	Apple	Flood	PDM	Long	Low

Action	Lead Agency	Hazard	Funding Source	Timeline	Priority Ranking
	Valley			Term	
Install detention basins Huasna Road and Chippewa Rd	Apple Valley	Flood	PDM	Long Term	Low
Install detention basins Bear Valley and Mohawk Roads	Apple Valley	Flood	PDM	Long Term	Low
Install Dry Wells Quapaw Rd / Eyota Rd	Apple Valley	Flood	PDM	Long Term	Low
Install Dry Wells Seneca Rd / Rancherias Road	Apple Valley	Flood	PDM	Long Term	Low
Install Dry wells Pocomoke Rd / Minnetonka Rd	Apple Valley	Flood	PDM	Long Term	Low
Install Dry Wells Algonquin Rd / Lone Eagle Rd	Apple Valley	Flood	PDM	Long Term	Low
Install Dry wells Mohawk Rd / Laguna Rd.	Apple Valley	Flood	PDM	Long Term	Low
Install Dry Wells Little Beaver / Mesquite Rd	Apple Valley	Flood	PDM	Long Term	Low
Install Dry wells Dale Evans/Otoe/Thunderbird/ Rancherias neighborhood area	Apple Valley	Flood	PDM	Long Term	Low

Table 18 Mitigation Implementation Strategies

SECTION 7 – PLAN MAINTENANCE

7.1 Monitoring, Evaluating and Updating the Plan

The Town of Apple Valley's Hazard Mitigation Plan was last updated on February 10, 2011. This timeframe allows the Town to meet eligibility requirements for the 2011 Pre-Disaster Mitigation Grant opportunity.

The effectiveness of the Town's Hazard Mitigation Plan depends on the implementation of the Plan and incorporation of the proposed mitigation measures into existing Town plans, policies, and programs. The Plan includes a range of mitigation measures that, if implemented, would reduce loss from high risk hazard events in the Town of Apple Valley. Together, the mitigation measures in the Plan provide the framework for activities that the Town can choose to implement over the next 5 years. The Planning Team has prioritized the Plan's goals and has identified measures to be implemented. Integration with on-going Town programs and processes is essential to the success of the implementation. For example, appending this Plan to the General Plan ensures consistency between policies and programs designed to reduce future exposure to the hazards and risks identified in this mitigation plan. Additional mechanisms to support plan implementation include the annual budget process, the Capital Improvement Plan, Redevelopment Projects, and the zoning and building code update process.

The Town of Apple Valley's Emergency Services Officer will be responsible for overseeing the Plan's implementation and maintenance and will be supported by the Police Captain and the Fire Chief for emergency response, and by the existing Planning Team. The Emergency Services Officer will assume lead responsibility for facilitating plan implementation and the maintenance meetings of the Planning Team. The Planning Team will be tasked with oversight, review, evaluation, and update of the Plan.

The Town of Apple Valley's Planning Team will review the Plan at least annually and update project status and other Plan elements as applicable. Departments with projects (i.e., Administrative Services, Community Development, Community Services, Fire Services, General Services, Police Services, and Public Works) track the status of the projects through the entire life cycle from concept to completion. Each year proposed projects are reviewed by their respective Department Heads and the Town Manager during budget development and selected projects are submitted for funding to the appropriate funding source.

To facilitate the hazard mitigation planning process, the Hazard Mitigation Plan will be reviewed annually by the Planning Team and revisions will be provided to FEMA in a five-year cycle, as required. The cycle may be accelerated to less than 5 years based on one of the following triggers:

- A Presidential Disaster Declaration that impacts the Town of Apple Valley
- A hazard event that causes loss of life

- A comprehensive update of the Town of Apple Valley's General Plan

It will not be the intent of this update process to start from scratch and develop a new complete hazard mitigation plan for the Town of Apple Valley. The update will be based on needs identified by the Planning Team and will lead to a draft update that will be made available for Town, citizen, and stakeholder review before being submitted to the Town Council for adoption.

The following depicts the Town's proposed list of major milestones (from the time of initiation to completion of the proposed activity) to be utilized in the development of the next Plan update:

Activity Period in Months	Major Milestones
Month 1	Assignment of Existing Professional Staff to Prepare Plan
Month 2	Prepare and Send Letter of Invitation to Potential Stakeholders
Month 3	Establish Public Involvement Process, e.g. Website Announcement, Newspaper Articles, General Public Announcements
Month 3	Coordinate with Other Jurisdictions, Agencies and Organizations
Month 4	Establish Planning Team
Month 4	Provide Pertinent Documents to Planning Team
Month 4	Selection of Proposed Meeting Dates
Months 1-12	Conduct Monthly Meetings
Months 1-12	Assess and Identify additional Hazards to Town of Apple Valley
Months 1-12	Review and Propose Possible Mitigation Measures
Months 1-12	Establish Continuing Goals and Objectives
Months 1-24	Ongoing Recordation of Activities
Month 14 - 16	Prepare Draft Plan
Month 16-17	Publish Draft Plan to Town of Apple Valley's Website for 30-day Review and Comment
Month 18	Insert Comments into Draft Plan
Month 19	Submit Draft Plan to Cal EMA for Review
Months 20-22	Make Potential Modifications to Meet Cal EMA Recommendations
Month 22	Return Draft Plan with Modifications, if any, to Cal EMA for Review
Months 22-25	Cal EMA Forwards Plan to FEMA for Review and Approval
Month 26	FEMA Returns Plan to Town of Apple Valley for Adoption by City Council
Months 27-29	Submit Recommended Approved Plan to Community Development Department for Review and General Plan Amendment Process
Month 30	Submittal of Final Claim Form, Accomplishments and Results Report, and Budget Summary

Table 18 Proposed Major Milestones (Plan Update)

7.2 Implementation through Existing Programs

The 2011 Hazard Mitigation Plan update process was followed by inclusion of mitigation measures in the Town of Apple Valley's General Plan. The Town of Apple Valley addresses statewide planning goals and legislative requirements through its General Plan, Capital Improvement Projects, and City Building and Safety Codes. The Hazard Mitigation Plan will implement a series of recommendations, many of which are closely related to the goals and objectives of existing planning programs. The Town of Apple Valley will have the opportunity to implement recommended mitigation action items through existing programs and procedures.

The Hazard Mitigation Plan goals and actions will be incorporated into various general operations of government. For example, the Local Hazard Mitigation Plan was recently adopted into the Safety Element of the General Plan and much of the information from the Hazard Mitigation Plan will be included in the Town of Apple Valley's Emergency Operations Plan (EOP). As any future Town plans are developed, the Hazard Mitigation Plan will be a great asset in any plan development efforts. As noted earlier, much of the information contained in this Hazard Mitigation Plan is from the Town's General Plan and is already part of the planning process.

7.3 Continued Public Involvement

A critical part of maintaining an effective and relevant Hazards Mitigation Plan is ongoing public review and comment. Consequently, the Town is dedicated to the direct involvement of its citizens in providing feedback and comments on the plan on a continued basis. The public will continue to be apprised of Local Hazard Mitigation Plan actions through the Town's website and through the local media.

The Town of Apple Valley will continue to promote and secure hazard mitigation, preparedness, response, and recovery actions via:

- Regular quarterly meetings of the Apple Valley Disaster Council
- Continued participation in the Emergency Resource Group
- Regular revision of the Emergency Operations Plan and the Hazard Mitigation Plan as outlined respectively
- Annual drills and training with Emergency Operations Center staff
- Support of the full-time Emergency Preparedness Program
- Promotion at community events whenever possible

All proposed changes to the plan will be subject to citizen review prior to Town Council action. The Town will follow its standard public input process, consistent with the process used in the initial plan development, which is described in Section 3 of this Plan.