

Nevada Hazard Mitigation Planning Committee



Regional Flood Control District

Clark County, NV

Nevada Department of Conservation and
Natural Resources



Division of Water
Resources



Division of Emergency Management



Nevada Hazard Mitigation Planning Committee

- helping Nevada counties, communities, citizens, and visitors avoid losses of life and property from natural hazards.

Wildland Fires

Floods

Earthquakes

Droughts

We contribute to reducing risks from each of these hazards through the State of Nevada, Enhanced Multi-Hazard Mitigation Plan (updated in 2010).



Wildland Fires



Waterfall fire, Carson City (2004)

Fire-Behavior Concerns for firefighters and the public



- Fires in Nevada burn extremely fast and consume large acreages in a short time. These conditions are a result of flashy fine fuels, like cheatgrass, growing between the larger fuels (brush and timber). These conditions are extremely dangerous to the firefighters and public.

Floods



Meadow Valley Wash, 2005

Photo courtesy of Gale Fraser, Clark County
Regional Flood Control District

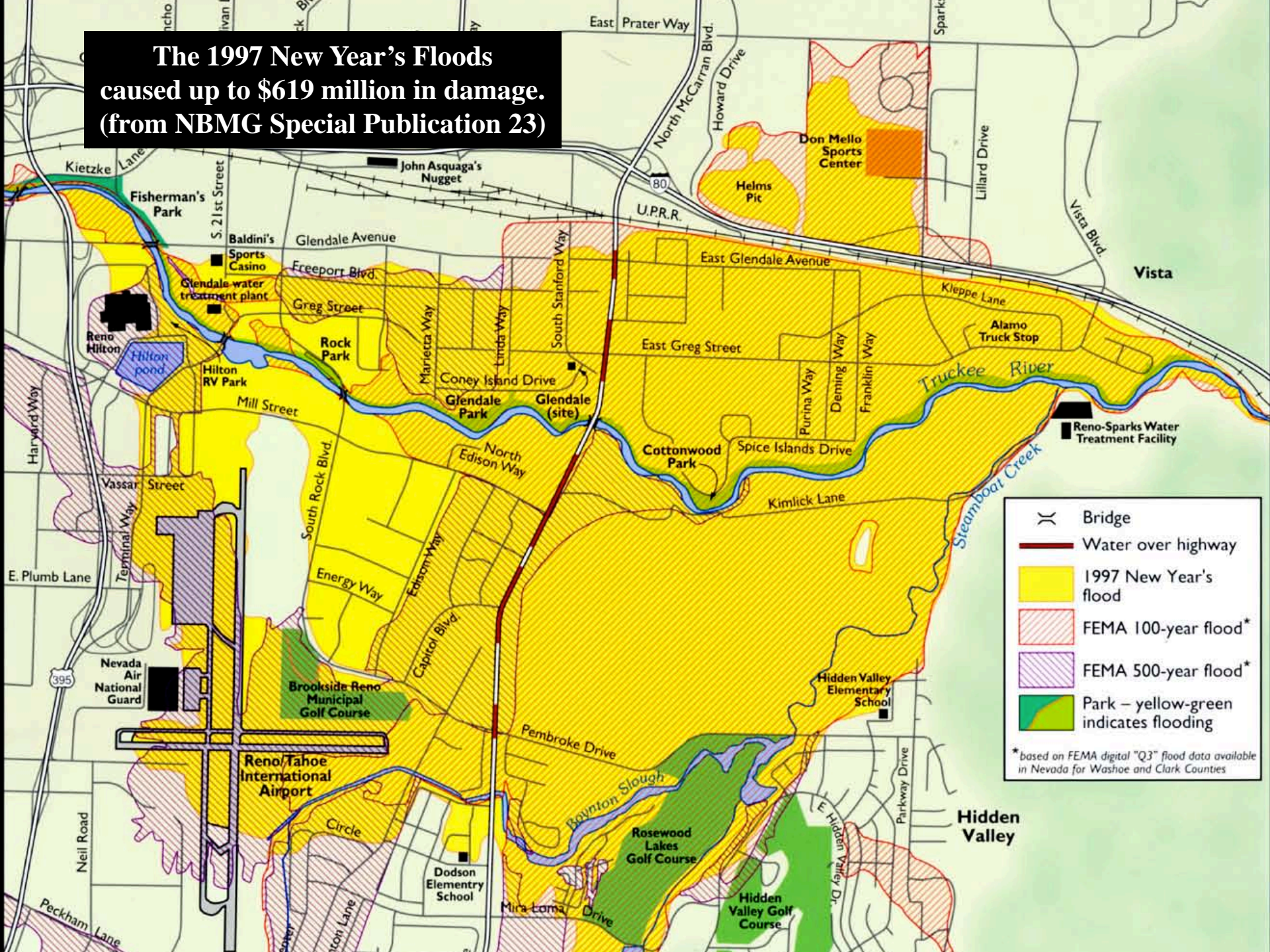


Reno, 2005



Reno, 1997

**The 1997 New Year's Floods
caused up to \$619 million in damage.
(from NBMG Special Publication 23)**



	Bridge
	Water over highway
	1997 New Year's flood
	FEMA 100-year flood*
	FEMA 500-year flood*
	Park – yellow-green indicates flooding

*based on FEMA digital "Q3" flood data available in Nevada for Washoe and Clark Counties

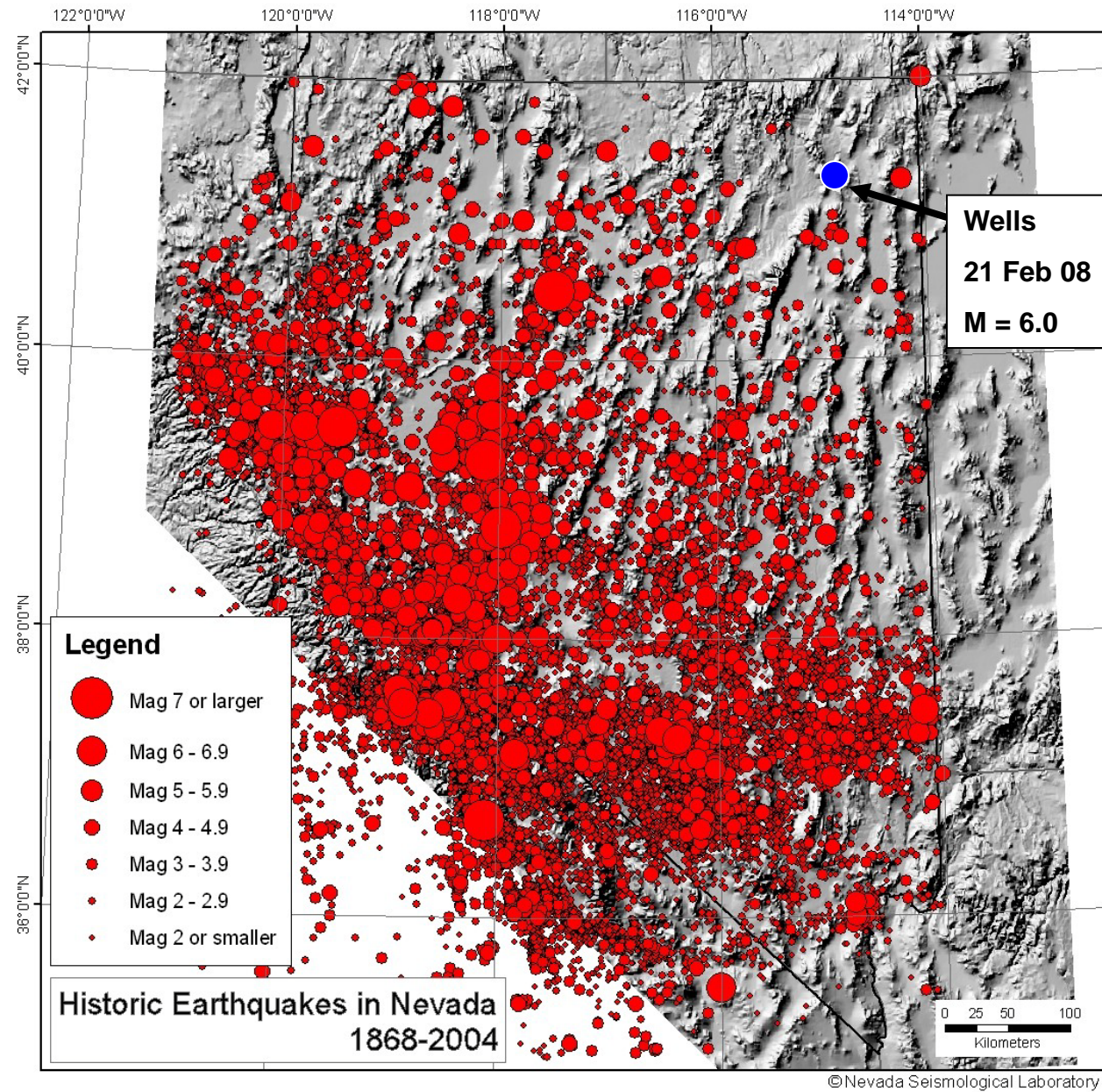
An aerial photograph showing a residential neighborhood in the foreground, with houses and streets. A large, muddy river flows through the middle ground, and a vast, flat, flooded area extends into the background. The water is a brownish-tan color, indicating sediment. The sky is bright, and the overall scene depicts a significant flood event.

It can and will happen again.

Virgin River at Mesquite, January 2005

Photo courtesy of Gale Fraser, Clark County Regional Flood Control District

Earthquakes



have occurred throughout Nevada.

Age of Latest Fault Rupture

< 150 years (historical)

< 15,000 years

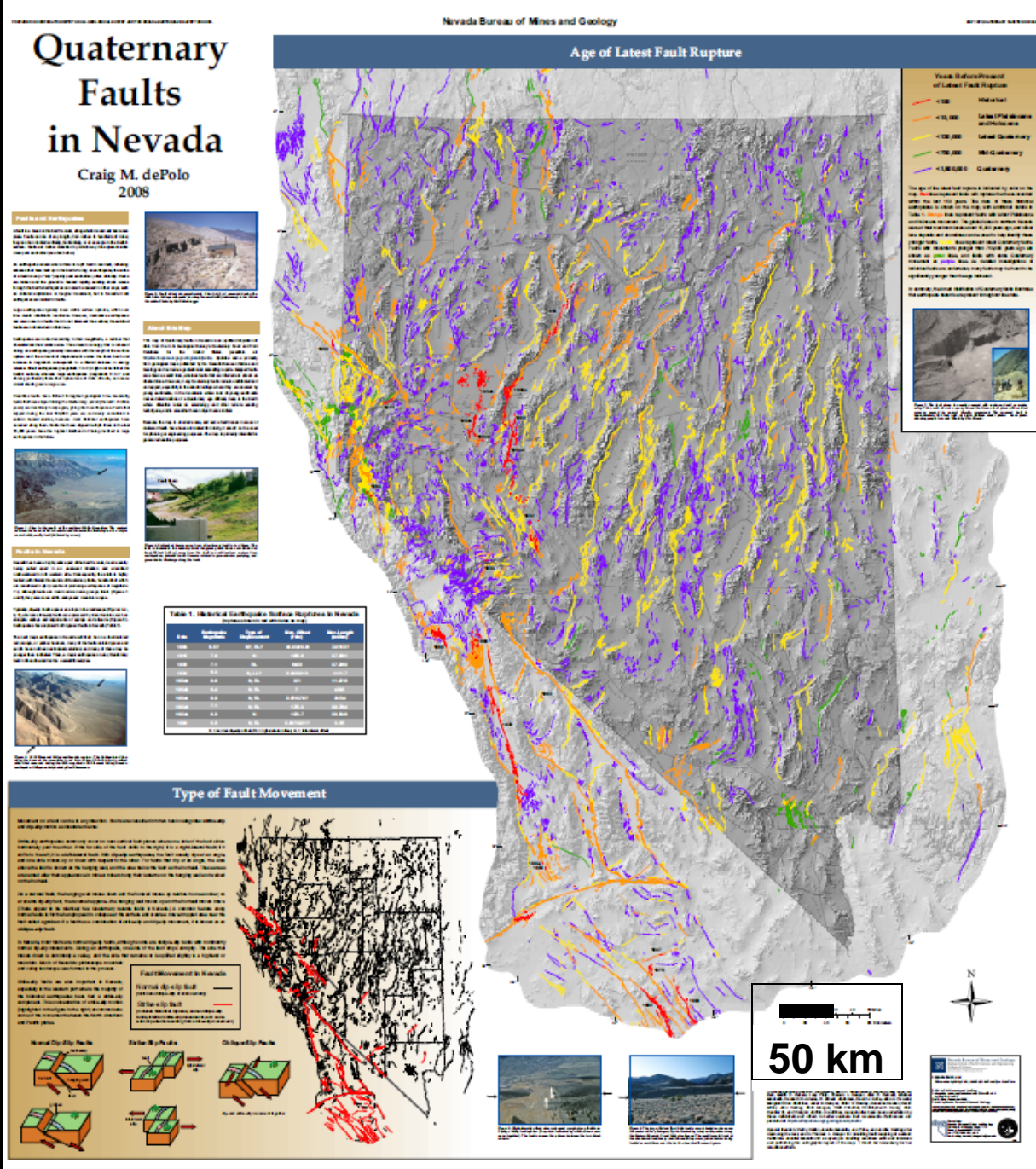
< 130,000 years

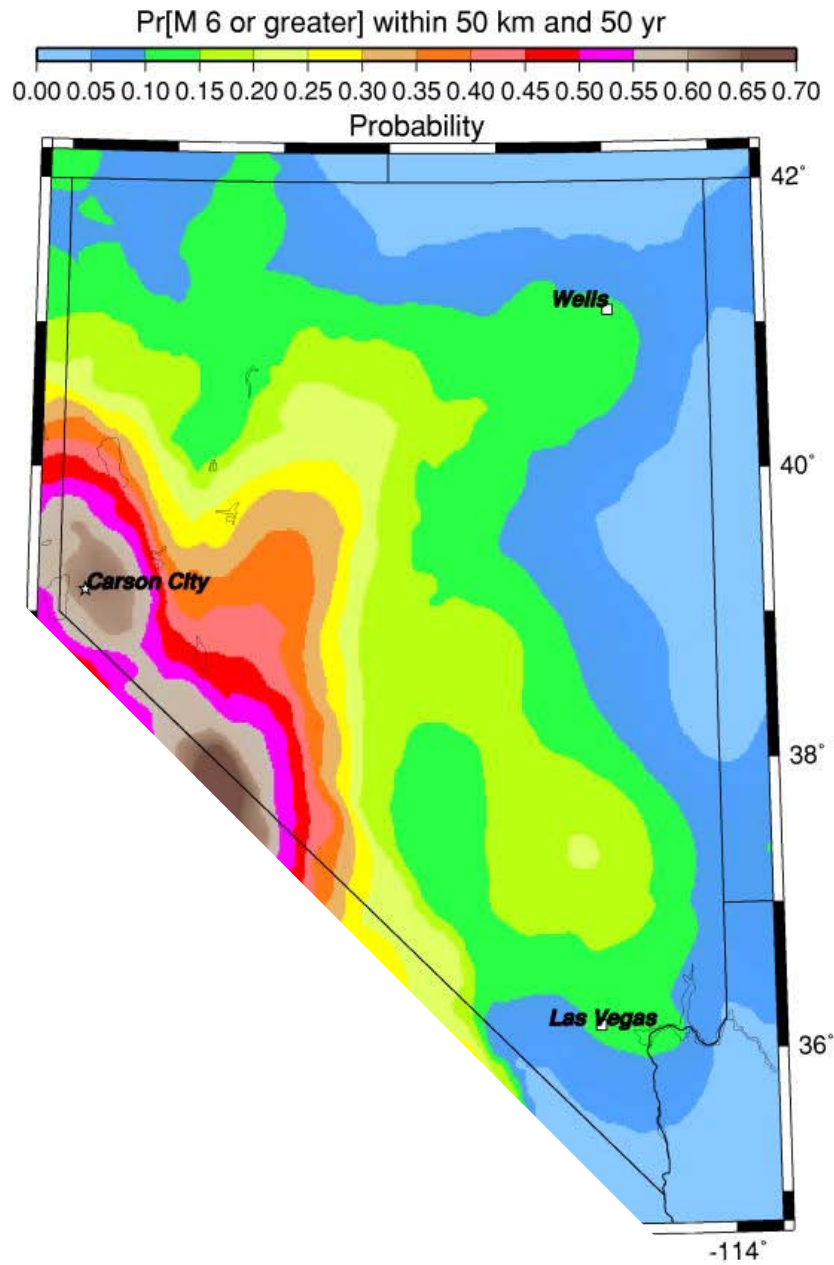
< 750,000 years

< 1,800,000 years
(Quaternary)

There are active faults nearly everywhere in Nevada. A magnitude 6.0 earthquake can occur anywhere in Nevada.

www.nbmgs.unr.edu





Source: USGS

The probability of a magnitude 6.0 earthquake occurring within 50 km of Las Vegas within the next 50 years is about the same as that for Wells, and it happened there in 2008.

The probability for the Reno-Carson City urban corridor is about 6 times higher than for Wells.

HAZUS estimates for total economic loss from a magnitude 6.0 earthquake and probability of an earthquake of this magnitude or greater occurring within 50 years and within 50 km of the community.

Community	Total Economic Loss	Probability in 50 years within 50 km
Las Vegas	\$7.2 billion	12%
Reno	\$1.9 billion	67%
Stateline	\$590 million	60 to 70%
Dayton	\$340 million	70-75%
Elko	\$160 million	10 to 15%
Wells	\$30 million	9%

Total economic loss is from HAZUS. Probabilities are from the USGS at <http://eqint.cr.usgs.gov/eqprob/2002/index.php> .

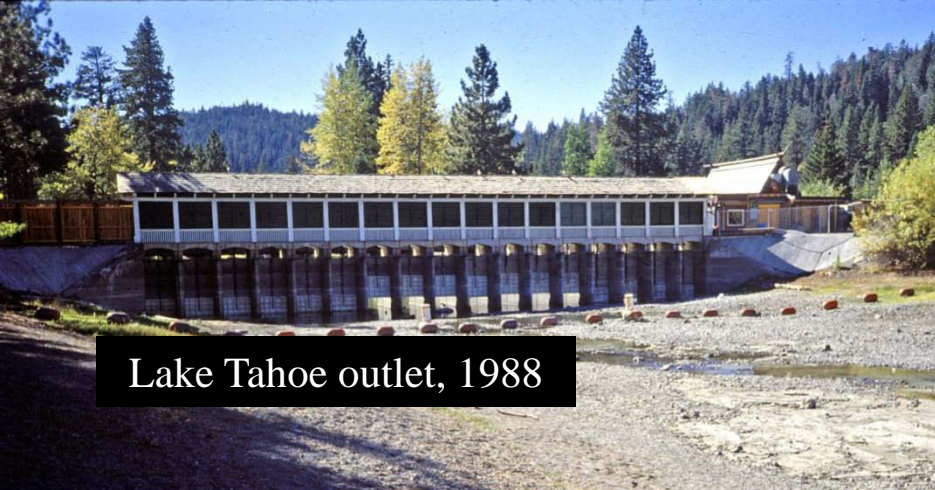
Droughts



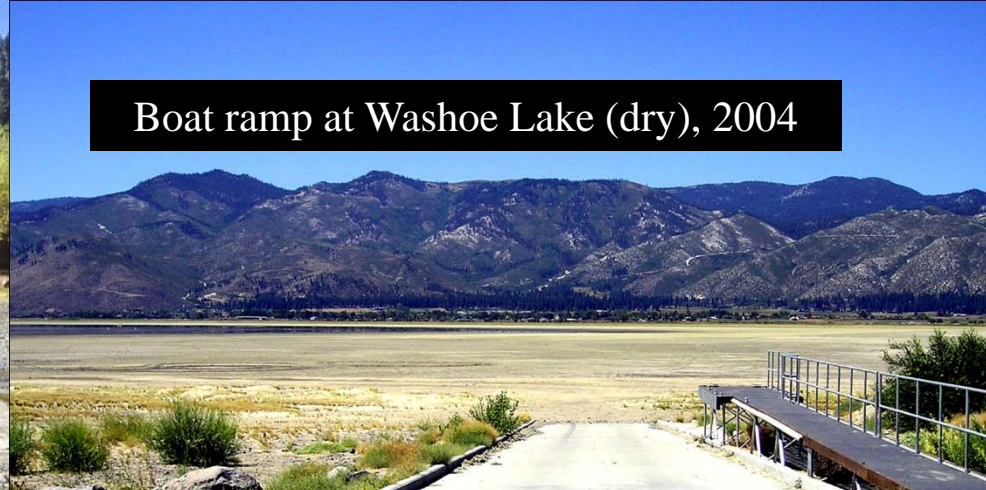
Lahontan Reservoir, 1991



Lake Mead, 2004



Lake Tahoe outlet, 1988



Boat ramp at Washoe Lake (dry), 2004

We know that in the past, some droughts lasted for a century. Recurrence of a hundred-year drought would be devastating to rural Nevada and to the urban centers.

Fire mitigation: fuels treatment

Before



After



Living With Fire

Would your house survive?

- ...helping Nevadans live more safely with the threat of wildfire.
- Research shows that how the house is built, the characteristics of the adjacent vegetation, and routine maintenance often determine which homes burn and which survive. The purpose of **Living With Fire** is to provide homeowners with wildfire threat reduction recommendations developed by Nevada's firefighting experts. This program also provides suggestions about what to do during and after a fire.

Photo Courtesy of Candice Towell Reno Gazette Journal

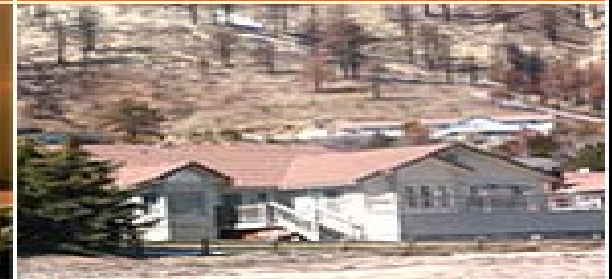
BEFORE THE FIRE ...



DURING THE FIRE ...



AFTER THE FIRE ...



Flood mitigation:

- Elevate buildings above the likely flood waters;
- Build structures to retain or divert the flood waters; or
- Remove the buildings from the flood hazard.



Virgin River at Mesquite, January 2005

Photo courtesy of Gale Fraser, Clark County Regional Flood Control District

Earthquake mitigation: retrofit URM



San Marin Hotel, Wells, Nevada
before the 21 February 2008
magnitude 6.0 earthquake

**Lesson learned from
Wells, Christchurch,
etc.:** retrofit or take
unreinforced masonry buildings
(URMs) out of service.

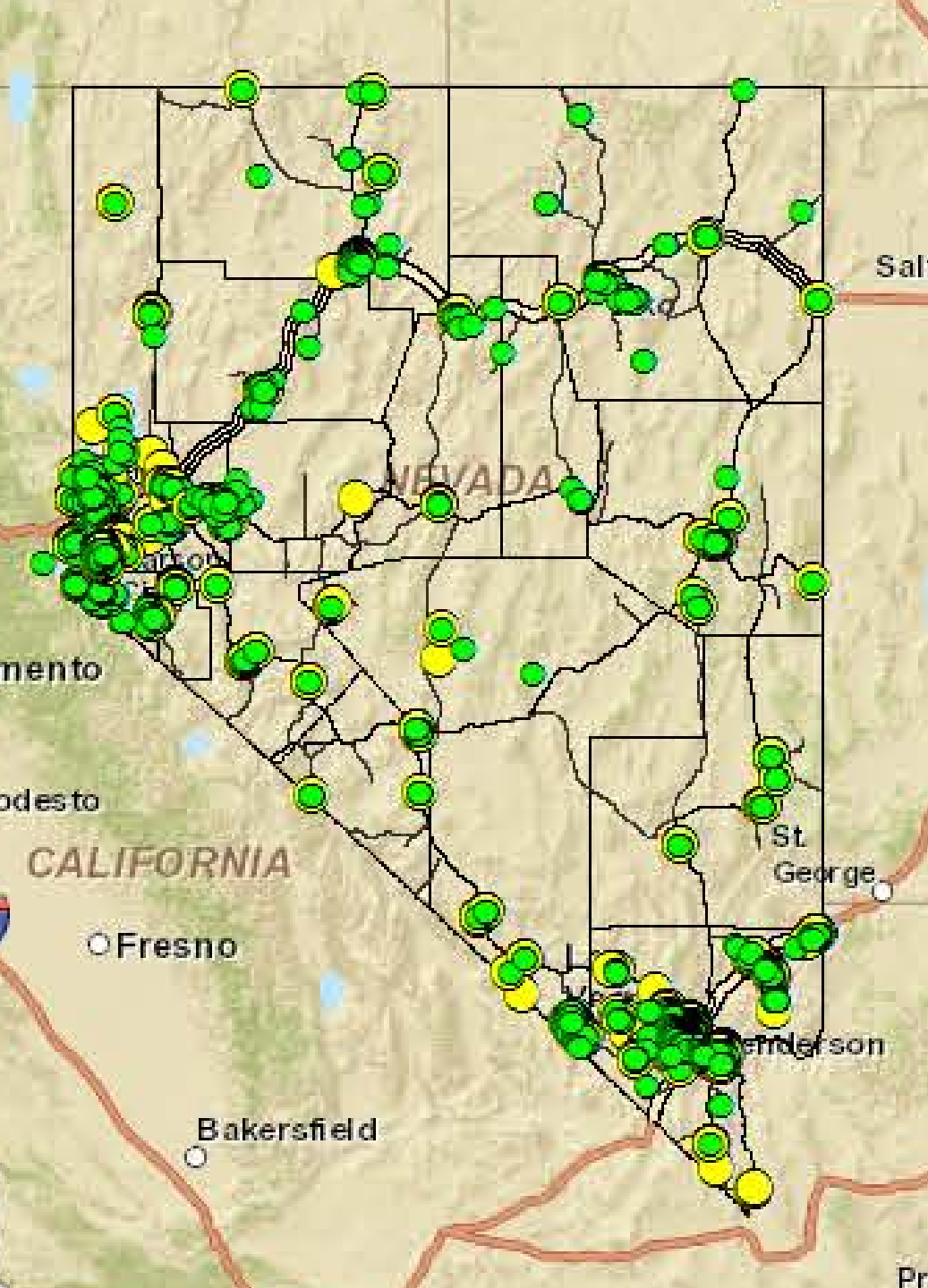


Front and back of the hotel after
the earthquake



Some possible URMs in Nevada

- Commercial
- Residential



Hazard Mitigation Assistance (HMA)

HMA under FEMA's Mitigation Directorate unifies the pre-disaster grant programs to better support the overall goal of reducing the loss of life and property due to natural hazards.

Post-Disaster Hazard Mitigation Grant Program (HMGP)

Pre-Disaster Mitigation (PDM) Program

Flood Mitigation Assistance (FMA) Program

Repetitive Flood Claims (RFC) Program

Severe Repetitive Loss (SRL) Program (for floods)

<http://www.nbmjg.unr.edu/nhmjpc/nhmjpc.htm>

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**helping Nevada counties, communities, visitors, and
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Thank you!