

Describing the Living River Approach to Floodplain Management on the Carson River

By John Cobourn

Water Resource Specialist, Emeritus

University of Nevada Cooperative Extension

Flooding in Reno and Carson Valley, 1997

Washoe County has urbanized most of the floodplain in the Truckee Meadows



Downtown Reno



Genoa Lakes Golf Course, same day

Damage Estimates, 1997, Truckee vs. Carson

According to the Regional Floodplain Management Plan, page 16, the **cost of flood damages in Washoe County in 1997 was over 23 times higher than on the Carson River.**

Washoe County Damage Estimate = \$686 million
Carson River Damage Estimate = \$29 million

Goal of the 1998 Carson River Conference

To foster improved

- 1. Communication**
- 2. Coordination**
- 3. Cooperation and**
- 4. Collaboration**

among all groups
and stakeholders
interested in the river.



Flooded Farmland, Genoa, NV 1997
Marilyn Newton, Reno Gazette Journal

At the 1998 Conference, participants voted to found a Carson River Coalition, dedicated to **Integrated Watershed Management**

Address these issues in an integrated fashion:

- water quality
- water quantity and supply,
- floodplain management
- fish and wildlife habitat



Carson Valley, Laura Crane, TNC

Excerpts from the Carson River Coalition's Guiding Principles

1. Respect basic property rights
2. Respect natural processes of the river
6. Maintain Floodplains to accommodate flood events
7. Protect wetlands, riparian areas to enhance surface water, groundwater, and wildlife habitat
9. Encourage management of growth that considers...maintenance of agriculture in floodplains.

At the conference, Dr. Jeff Mount,
Geomorphologist from UC Davis, described the cycle
of serial engineering

- Structures near a channel are flooded.
- The community builds levees.
- More structures will be built.
- The levees will fail in a bigger flood.
- The government will “channelize” the river and build larger levees, etc.
- The community is still not safe
- This cycle leads to a concrete river channel.

Levee failure



Living River Approach

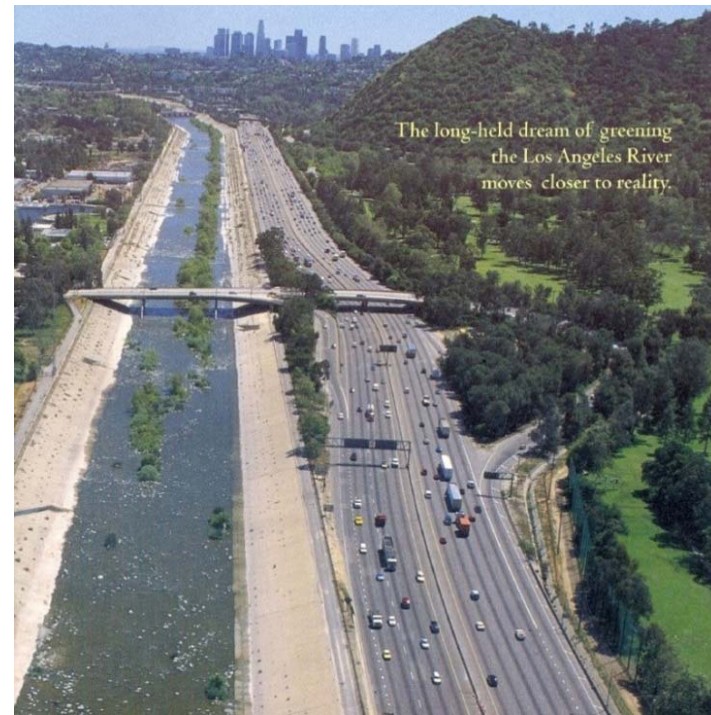
vs.

Serial Engineering

Keep the floodplain undeveloped, so it can provide its natural functions.” – Suggested Action #1, Carson River Regional Floodplain Management Plan of 2008



Eventually will put the river in a concrete channel, like in LA.



Which future do we want for the Carson River?

Reno's version of the Los Angeles River



Even a house or two in the wrong place can start the cycle

Keeping houses out of harm's way: Non-structural approach to Floodplain Management

House on the Carson River in Lyon County, Nevada destroyed by **channel migration**, 1997



House in St. George, Utah destroyed by flooding and **channel migration**, 2005



(AP photo by Joe Carvaretti)

Regional (Watershed-wide) Floodplain Management Plan, CRC, 2008
Adopted a Non-structural approach called a “living river” to protect
the floodplain’s functions and values

- Connects river with its floodplain—Let it flood
- Stores flood water and reduces flooding downstream
- Minimizes use of engineered flood levees and floodwalls
- Protects fish and wildlife habitat
- Enhances water quality and supply for water users
- Keeps houses out of unsafe areas near channels



Walla Walla River in Washington state
responds to **engineered structures**

River Continuum

**Undisturbed
pristine natural
river**

Living River

**Channelized river in
straight concrete ditch**



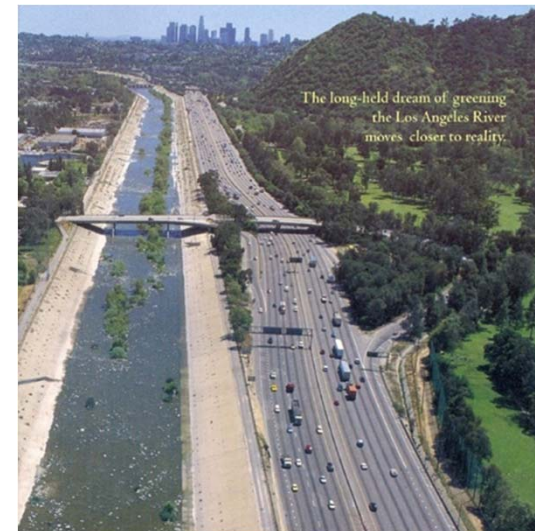
**Rarely if ever
attainable in
populated areas
with urban and
agricultural land
uses**

Carson River in Carson Valley



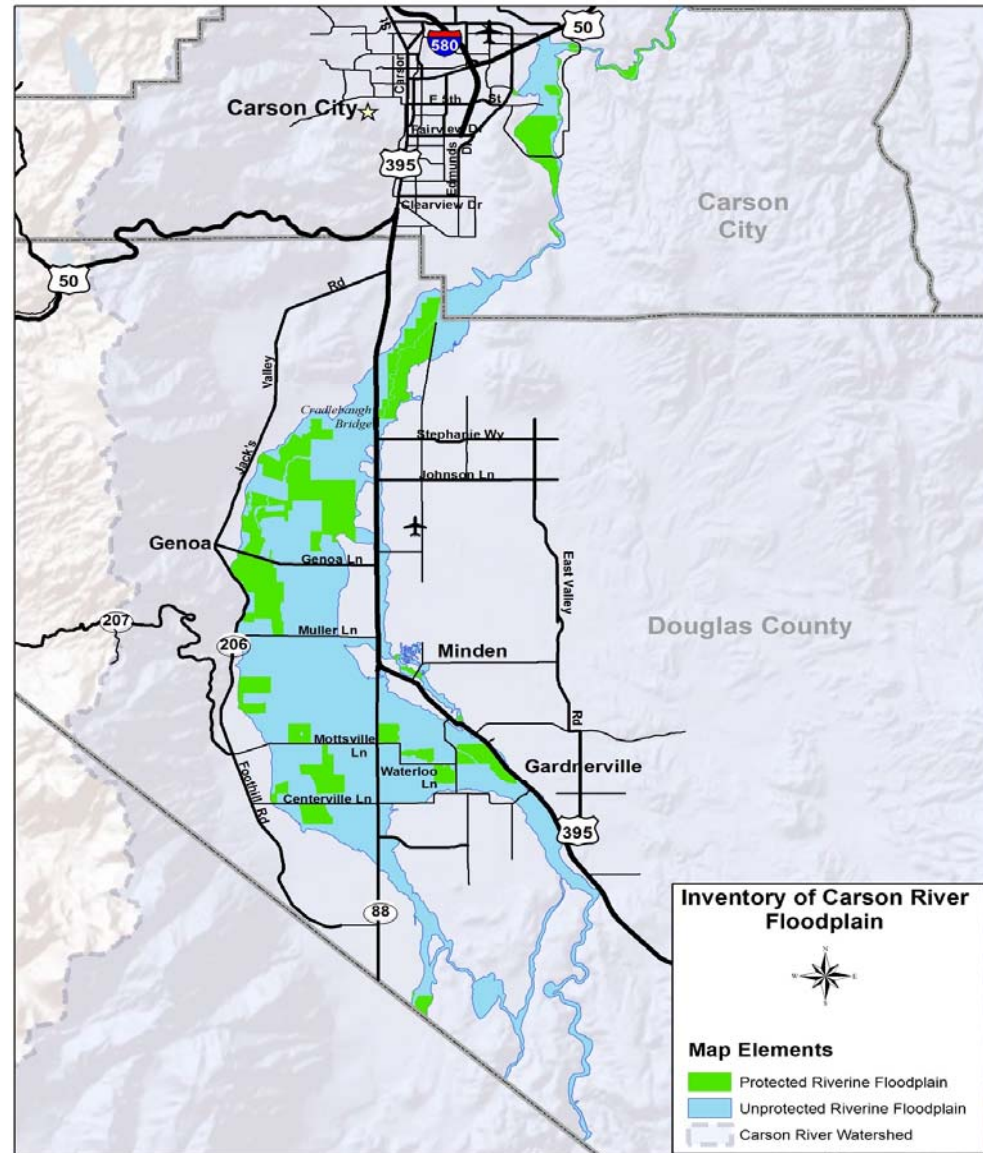
**Attainable in many places
where critical infrastructure is
not at risk**

Los Angeles River



Agriculture, parks and open space are good land uses in the river's floodplains

- **Conservation Easements**
- **Purchases of land near channels**
- **Many ranchers are willing if funding becomes available**



The Nature Conservancy of Nevada worked with long time resident Don Bently.

