

A “Living River” for Napa

“ . . .planting the notion that a living river may be less dangerous than a dead one is a profound accomplishment.” NRDC Newsletter

“There is no reason flood control values have to compromise environmental values.” Rick Reinhardt, USACE

Challenges

- ✓ History
- ✓ Truth
- ✓ Addiction

History

- 1948 request for “watershed based flood control project for the Napa River”
- Three rejections by Napa voters of a channeled and hardened downtown river
- Historic “icons” in the floodway
- \$80 million authorization from Congress about to expire
- “Napa River Watershed Owner’s Manual”

Truth

- **TINA** – “there is no alternative”



COMMAND AND CONTROL

BITCH AND SUE

Addiction to Problem Solving

- Moving from the *problem* of “flood control”
to
- The *goal* of minimum flood damage and maximum long term environmental, economic and aesthetic gain -

“a living river”

Disciplined Inquiry

Science Community (Conclusion oriented)

- ✓ **Develops findings, makes conclusions**
- ✓ **Creates technical research reports, articles**
- ✓ **Explaining, investigating, learning**
- ✓ **Highly developed order and structure**
- ✓ **Produces new knowledge, and uses decision oriented results as new knowledge source**
- ✓ **Seeks truth**

Political Community (Decision oriented)

- ✓ **Creates outcomes, makes decisions**
- ✓ **Develops products, processes, programs, and systems**
- ✓ **Trying, applying, learning**
- ✓ **Risk taking, trial and error, use of intuition**
- ✓ **Uses knowledge from science and is a knowledge source for science**
- ✓ **Seeks justice**

Locally Led Watershed Management

- ✓ *Combines both constructively*
- ✓ *Uses products of Conclusion Based Inquiry to inform decisions*
- ✓ *Uses the outcomes of decisions to define areas of focus for Conclusion Based Inquiry*
- ✓ *Provides a context for new Conclusion Based Inquiries*
- ✓ *Provides a context for improved decision results*
- ✓ *Establishes feedback loops to calibrate assumptions and improve processes and programs*

Watershed Management Sequence

- **Understand Watershed Status** – *the physical, chemical, biological and economic/cultural conditions*
- **Articulate Local Goals (Interests)** – *local in this sense means the interests and goals of anyone who feels they have a stake in the watershed's condition*
- **Collaborate Among Partners** – *to generate creative ideas and science-supported methods to achieve the goals*
- **Measure Progress Toward Goals** – *using criteria and measurements related to the articulated interests, goals and desired conditions*
- **Reflect and Adjust** – *reassess methods and assumptions based on feedback loops (monitoring) established to track progress*

Middle Reach of Napa River Flood Project

The Napa River Flood Protection Project

Marsh Plain and Floodplain Terraces



Marsh plain terraces are inundated during the twice daily high tide cycles, creating a diverse wetland habitat. Elevated slightly from marsh plain terraces, floodplain terraces are inundated at least once every two years, providing needed room for large flood events.

New and Restored Wetlands

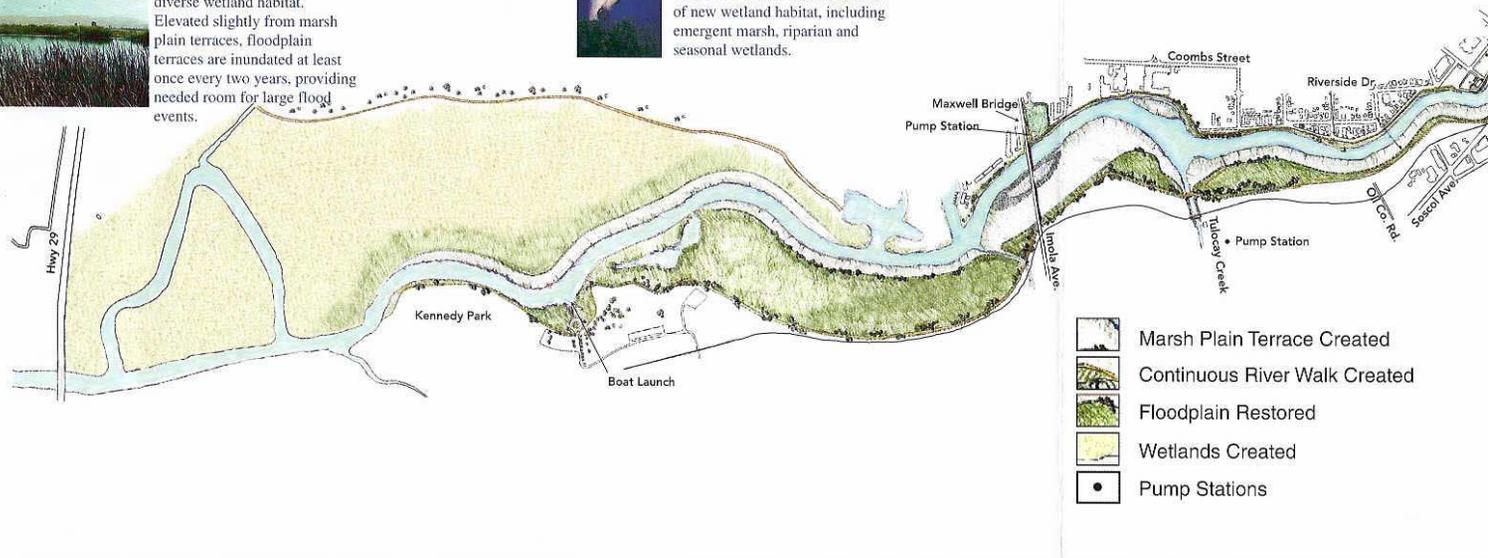


Through concerted planning efforts and the removal and lowering of levees, the Project will create or enhance about 600 acres of new wetland habitat, including emergent marsh, riparian and seasonal wetlands.

Bank Stabilization and Protection



Bank stabilization techniques include native vegetative cover in both marsh and floodplains; maintenance of existing trees; planting of new trees; and the addition of rock bank toe protection.



Upper Reach Napa River Flood Project

Bank Stabilization and Protection

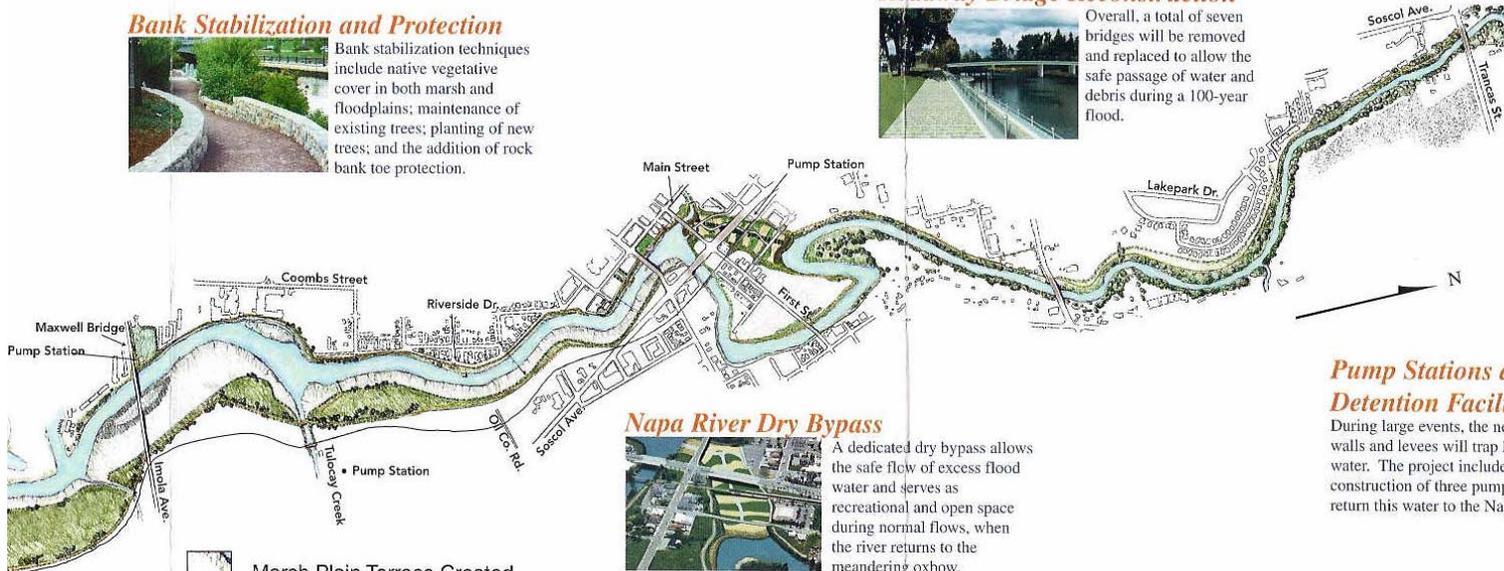


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Roadway Bridge Reconstruction



Overall, a total of seven bridges will be removed and replaced to allow the safe passage of water and debris during a 100-year flood.



Napa River Dry Bypass



A dedicated dry bypass allows the safe flow of excess flood water and serves as recreational and open space during normal flows, when the river returns to the meandering oxbow.

Pump Stations and Detention Facilities

During large events, the new flood-walls and levees will trap local storm water. The project includes the construction of three pump stations to return this water to the Napa River.

-  Marsh Plain Terrace Created
-  Continuous River Walk Created
-  Floodplain Restored
-  Wetlands Created
-  Pump Stations

Flood-Walls



Located at the tops of the river banks, flood-walls offer substantial protection from large flood events.

Flood Terrace Construction – Middle Reach



Pre-Causeway & Terrace Construction Middle Reach



New Bridge Over the Causeway



Establishing Goals:

Blending Engineering and Ecology

- 100-year flood protection;
- An environmentally-restored, "living" Napa River;
- Enhanced opportunities for economic development;
- A local financing plan that the community could support;
- A plan that addresses the entire watershed countywide.

A “living” Napa River:

- *Conveys* variable flows and restores habitat in the *floodplain*;
- Balances sediment input with sediment transport;
- Provides natural fish and wildlife habitat;
- Maintains high water quality and supply;
- Offers improved recreation opportunities;
- Maintains aesthetic qualities, and;
- Generally enhances the human environment.

Project Specifics

- Improvements to 7 miles of the Napa River and 1 mile of Napa Creek
- Removal of over 50 mobile homes, 16 residences and 28 commercial buildings
- Creation of 400+ acres of emergent marsh and 150 acres of seasonal wetlands
- Removal of nine bridges (five of which will be replaced) – three by Napa City, one by CalTrans, and one by Napa County.
- USACE is responsible for all river and creek improvements

Downtown Floodplain Expansion



Removal of Historic “Icons”



Creating Floodplain Wetlands



Downtown Commercial District Third Street Bridge



Associated benefits of the Project include:

- Avoiding unemployment and lost business revenue that traditionally accompany floods;
- Flood insurance savings for the entire region;
- Enhanced property values near the Project reach;
- Continued tourist income during flood events, and:
- Improved health and safety through increased access to urban areas of Napa.

Community Support

- Hundreds attending public meetings
- “Measure A” sales tax passes with 68%
- Community involvement in oversight
- Direct interaction and cooperation among
 - the public;
 - scientists;
 - local, state and federal agencies, and;
 - technical consultants