

Management of the Napa River and Tributaries

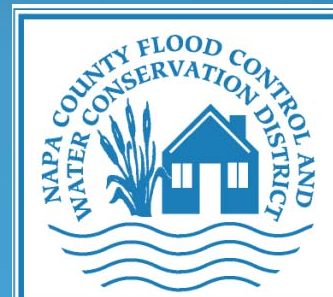
Changing Perspectives and Attitudes

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Watershed and Flood Control Operations Manager

Napa County Watershed Symposium
May 23, 2013

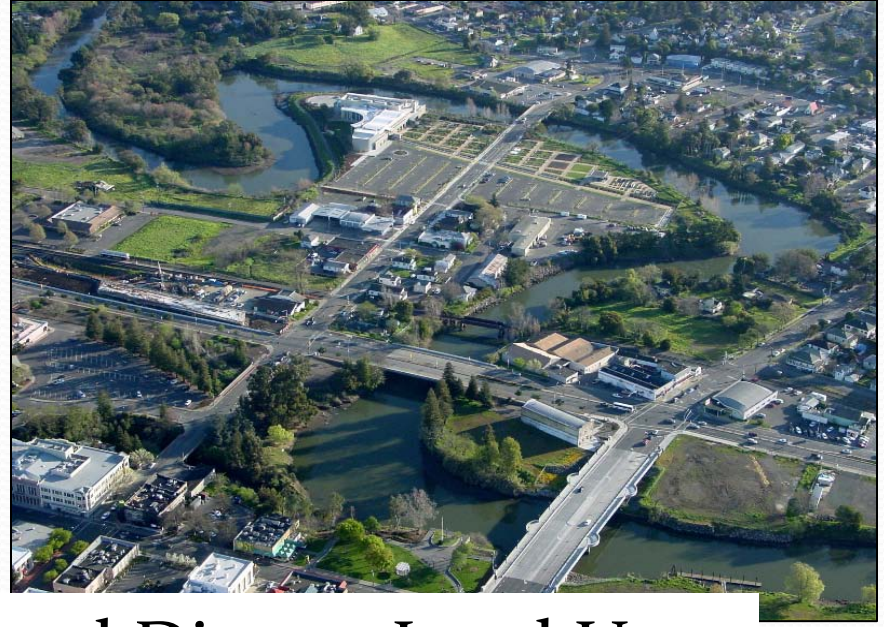


A Tradition of Stewardship
A Commitment to Service

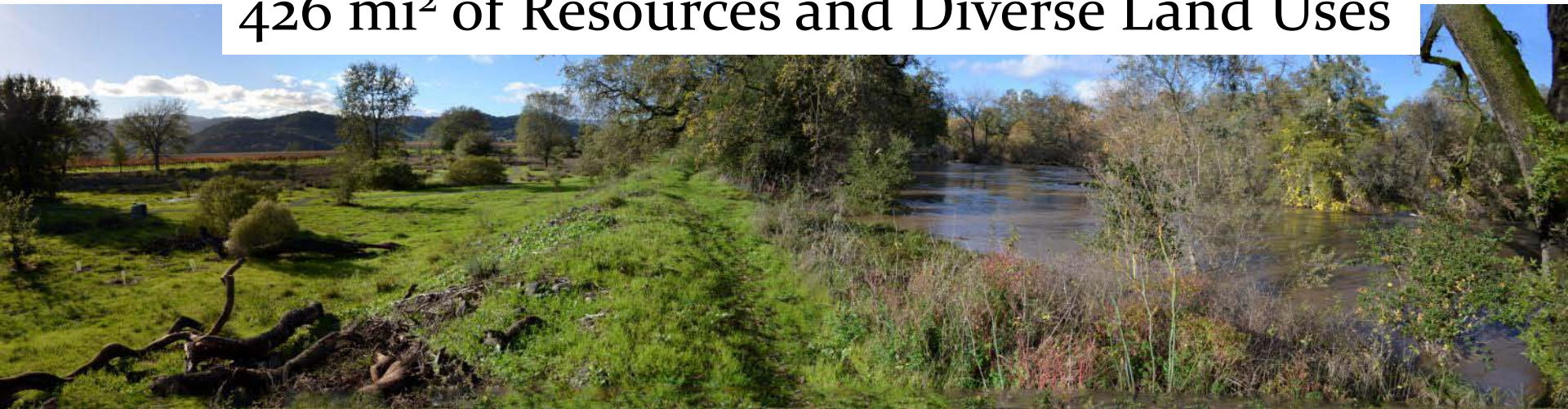


American Canyon • Calistoga • Napa
St. Helena • Yountville • Napa County

Napa River Watershed



426 mi² of Resources and Diverse Land Uses



Flood Control

New Perspectives



Setting Back Land Uses

VS



Confining Flows



Reconnecting Floodplains

Napa County Measure A
Living River Principles

Protecting Property from Erosion

New Perspectives



Biotechnical Designs

VS



Streambank Armoring

Changing Attitudes

Survey says.....



“The Problem with the River is....”



11/28/2011

“Nobody Cleans it”

?



Is this clean enough?



This is even cleaner!



Milliken Creek



Managing Debris Jams



Preserving Large Wood

Dry Creek



Before



After

Fish Barrier Removal

Murphy Creek



Before



After

“and yes, we do clean creeks too...”



Napa County Flood Control and Water Conservation District Stream Maintenance Manual

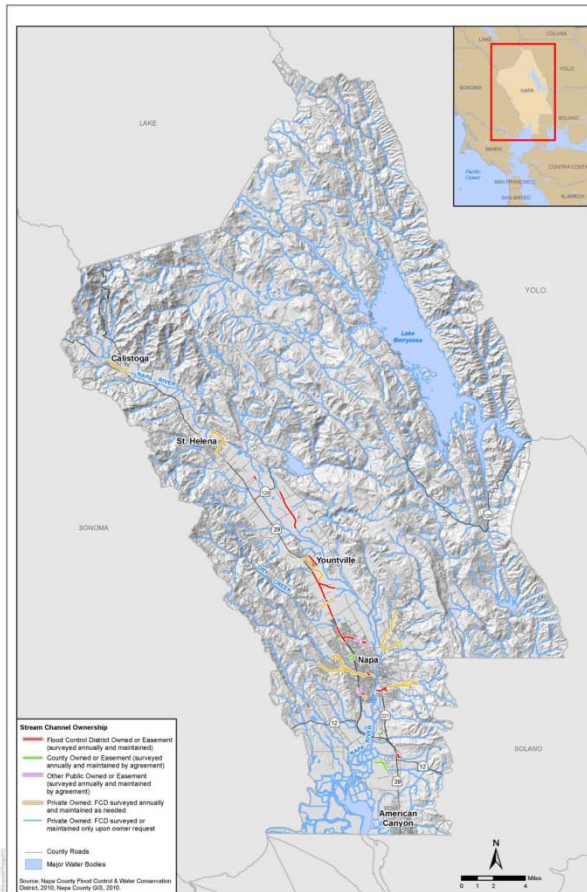
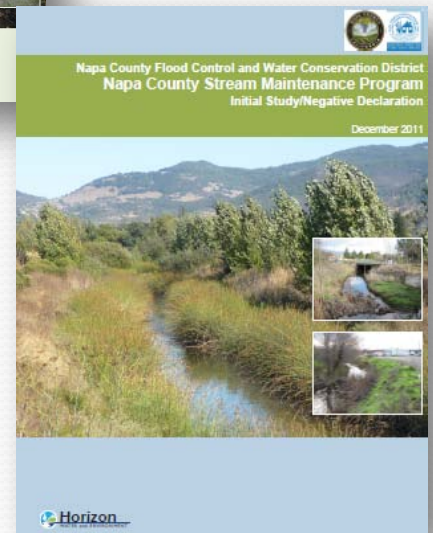
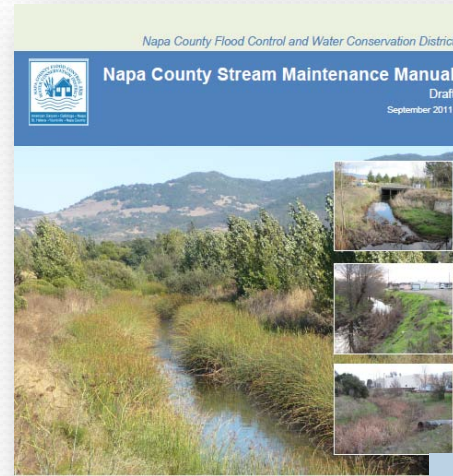


Figure 2-1
Napa County Stream Maintenance Program Area and Maintenance Reaches



Vegetation Management

Tree Pruning & Management



Invasive Plant Management



Erosion Protection & Bank Stabilization

WILLOW WALL

DESCRIPTION

The willow pole cuttings are used as a biotechnical structural element to increase bank strength. Once established, willow pole cuttings will provide dense vegetated cover with high habitat value.

APPLICABILITY

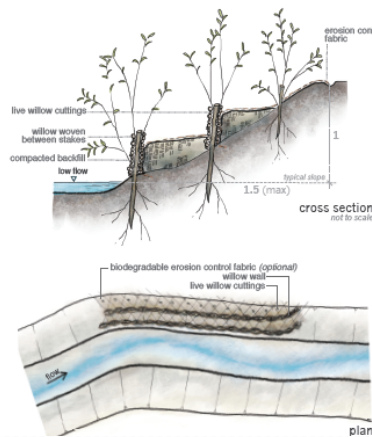
Suitable for moderate velocity and shear stress flow conditions. Suitable for steep slopes. Can be constructed with hand tools and labor, especially useful where access is limited.

CONSIDERATIONS

Generally not suitable for protecting infrastructure. Mature willows will increase roughness and may require maintenance and thinning. Site should be appropriate for increased roughness.

VARIATIONS

Can be combined with brush mattress or soil lifts.



ENCAPSULATED SOIL LIFTS

DESCRIPTION

This treatment uses soil and sediment wrapped in erosion control fabric to reconstruct stream banks. Live willow cuttings are planted in interstitial spaces. Provides high habitat and aesthetic value once vegetation is established.

APPLICABILITY

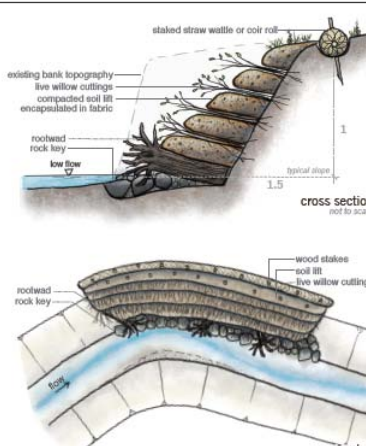
Suitable for steep slopes with moderate to high velocity and shear stress flow conditions. Appropriate for confined areas or constricted right-of-ways.

CONSIDERATIONS

Costly to construct and requires good access. Reuse native bank soil when feasible. Incorporate root wads or large woody debris when feasible to increase habitat complexity.

VARIATIONS

Provide rock toe protection in high energy settings.



CRIB WALL

DESCRIPTION

This treatment involves construction of an engineered log crib structure filled with native soil and/or stream substrate. Suitable for restoring or establishing native riparian vegetation on extremely steep slopes. Provides high habitat value on confined, steep banks.

APPLICABILITY

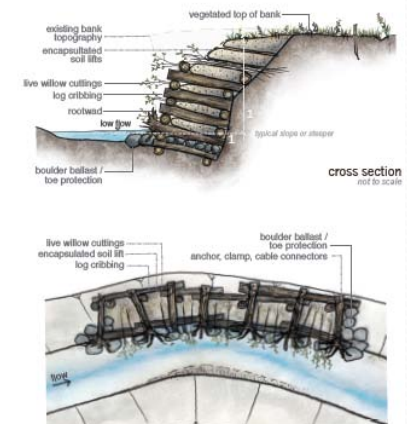
Suitable for high velocity and high shear stress flow conditions for stream reaches with steep, overhanging banks. May be appropriate where right-of-way is highly constrained or where valuable infrastructure is threatened by erosion.

CONSIDERATIONS

Costly to construct and requires heavy equipment access. Requires boulder ballasts and anchoring. Risk of downstream impacts if crib wall is dislodged in high flows. Reuse native bank soil when feasible.

VARIATIONS

Transition to encapsulated soil lifts above ordinary high water.



Changing Attitudes.....



“Fish and Wildlife won’t let me.....”

“....protect my property”



with old cars

water heaters

tires

rubble

Or.....



Multi-colored fence posts



Sheetpile

Creating Partnerships with Landowners and Resource Agencies



Changing Attitudes....



“My Levee is bigger than yours”

Setting Back Land uses and Levees



May 2012



November 2012



Sequoia Grove
pre construction



During construction

Napa River Restoration



Floodplain bench during
December 23, 2012 high flow event

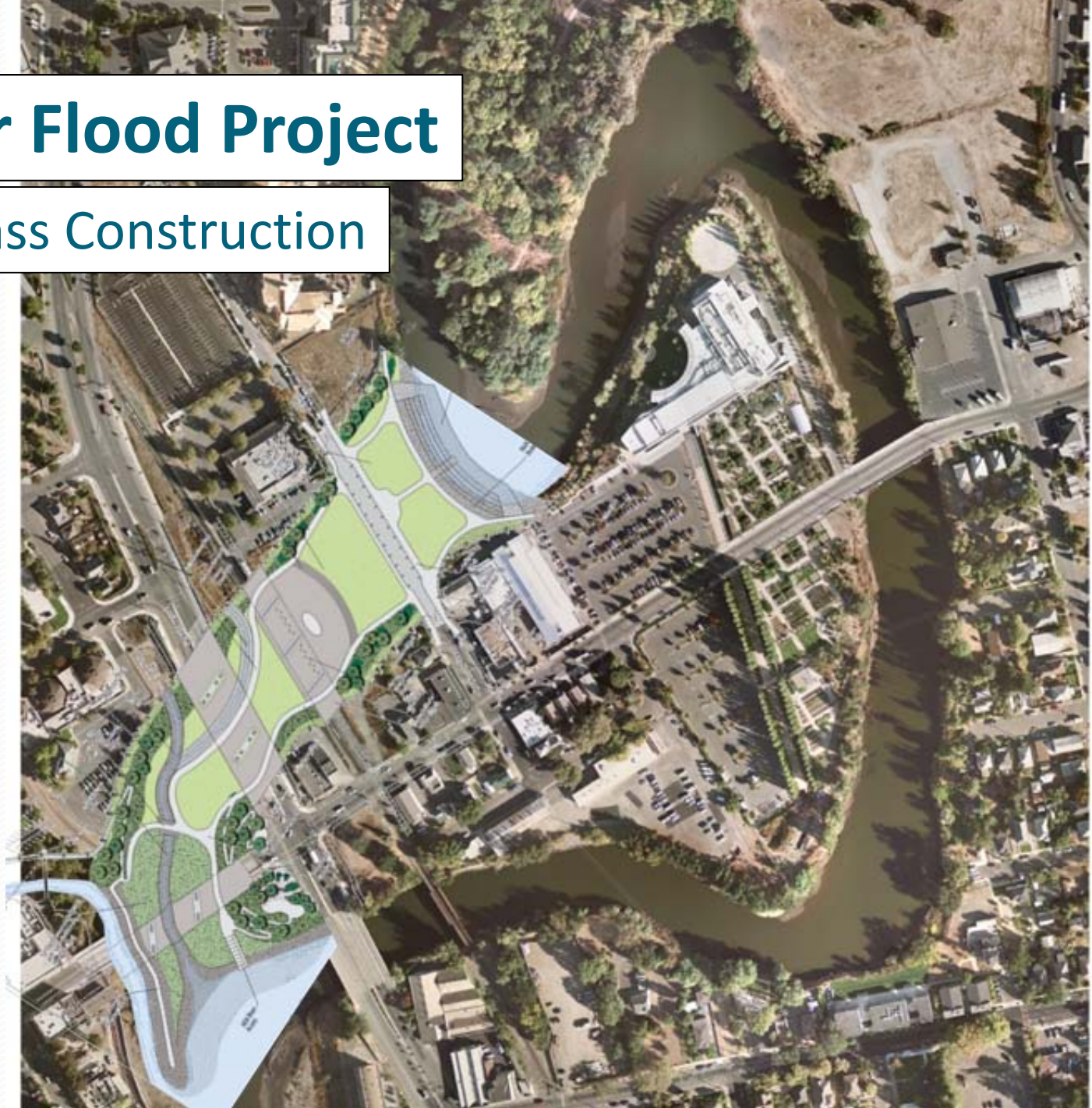
Napa River Flood Project

Oxbow Bypass Construction

Flood Protection

Recreation

New and
Enhanced
Habitat



Questions