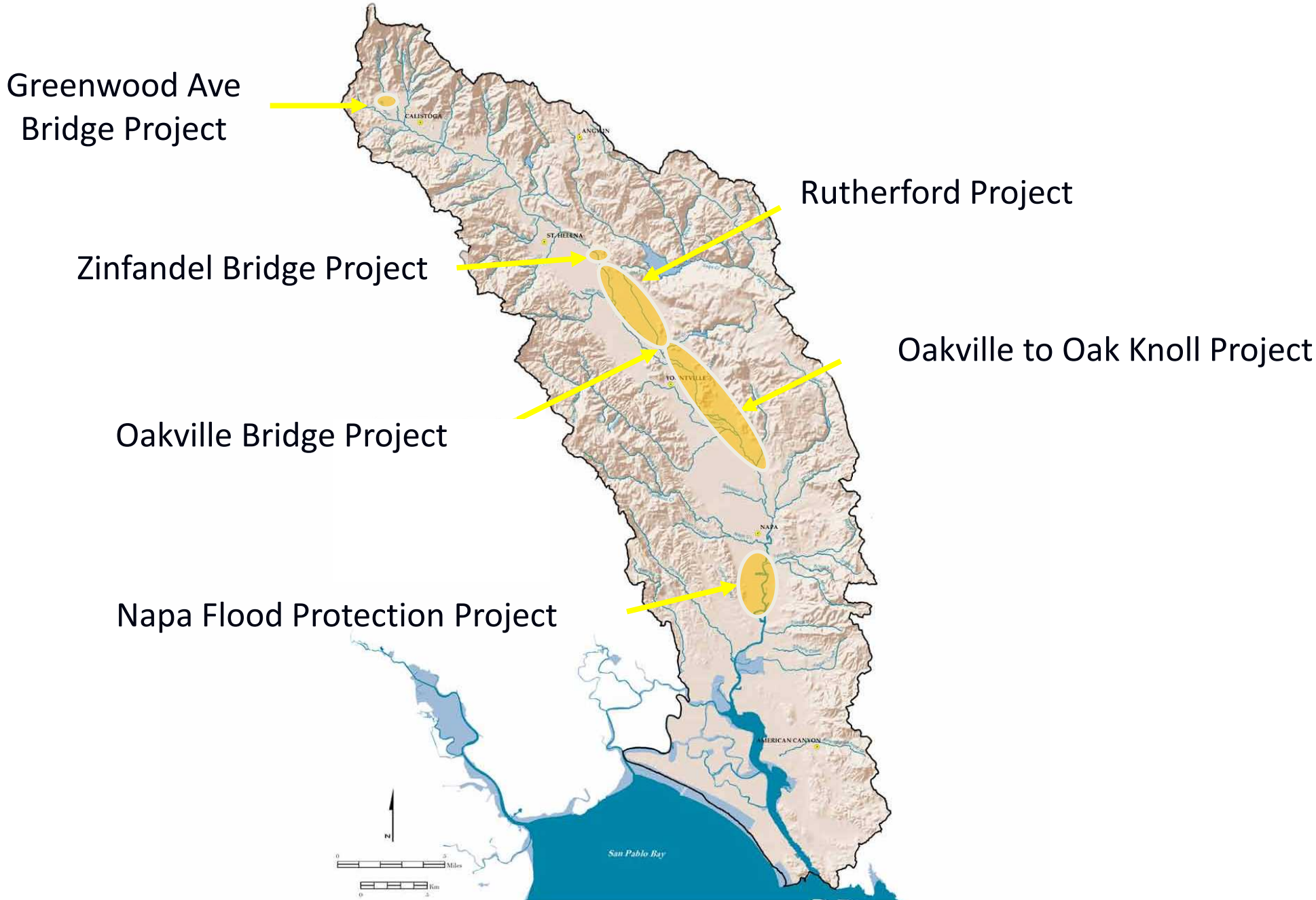
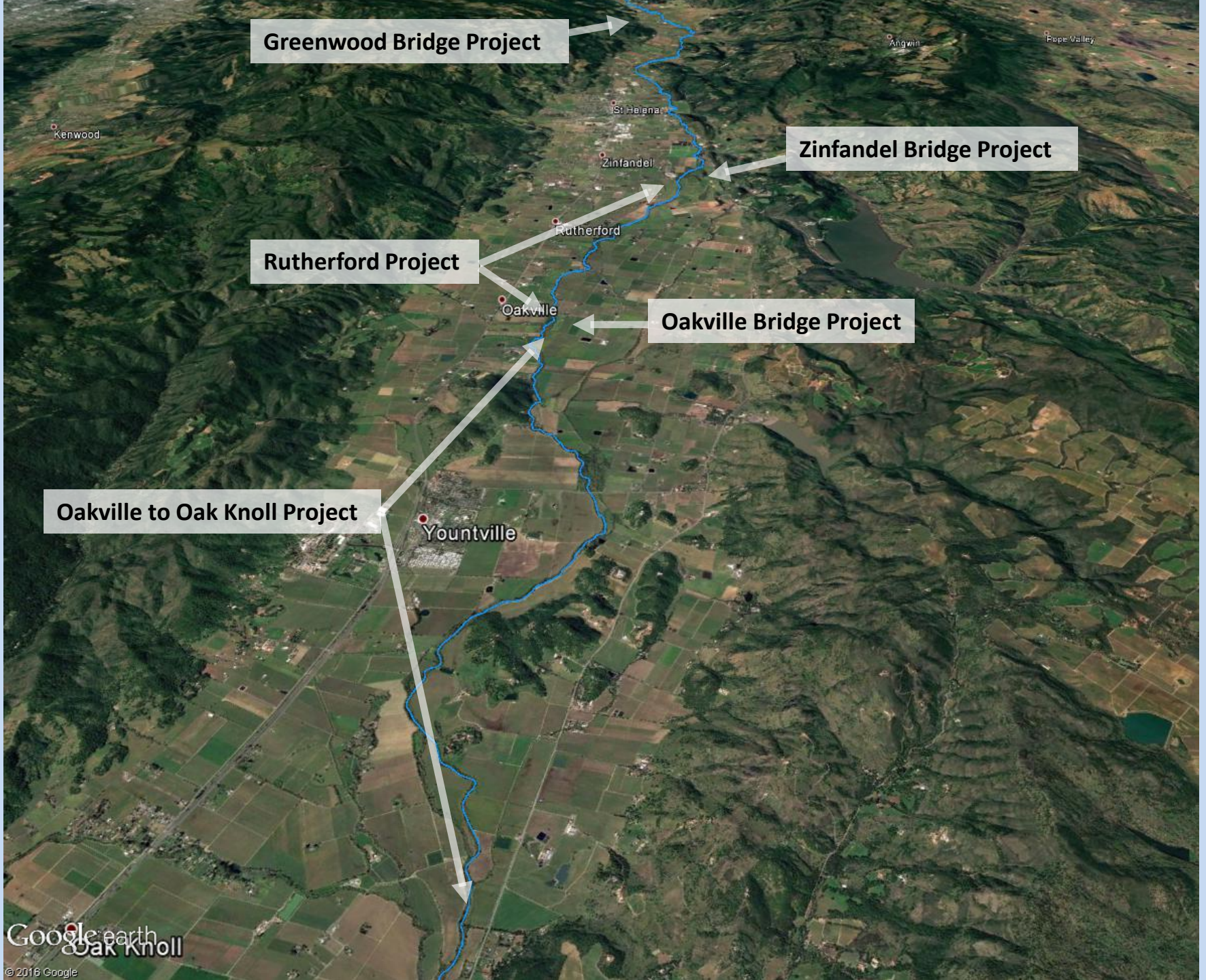
Napa County Watershed Symposium 2019

Update on Napa River Restoration Projects
Continuing Restoration Post Measure A

Restoration Projects along the Napa River




Greenwood Bridge Project
Zinfandel Bridge Project
Rutherford Project
Oakville Bridge Project
Oakville to Oak Knoll Project
Kenwood
St. Helena
Zinfandel
Rutherford
Oakville
Yountville
Oak Knoll
Google earth
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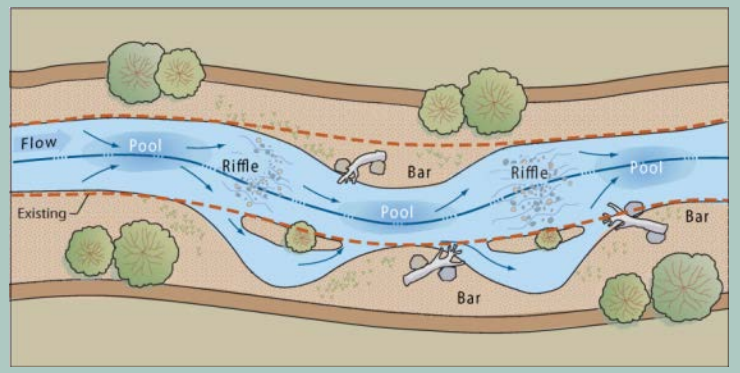
Napa River Restoration-Rutherford to Oak Knoll

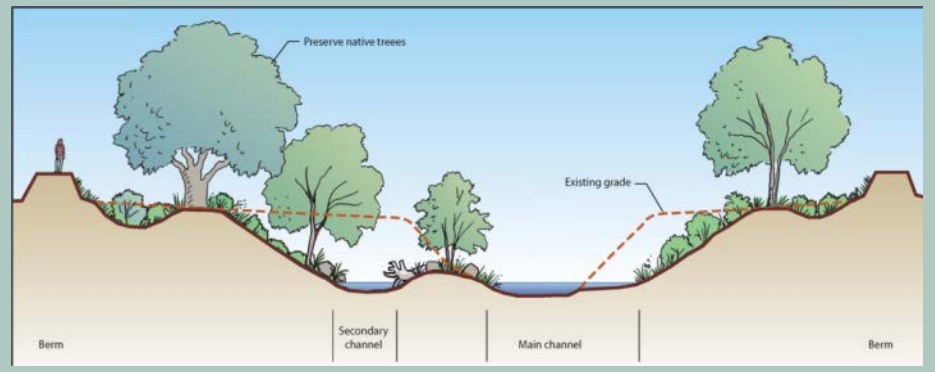
Overview

The Napa River has been impacted by a range of watershed changes including land drainage, urbanization, riparian encroachment, levee construction, and the elimination of secondary channels. The result has been channel incision, bank erosion and the degradation of both riparian and aquatic habitat. Despite this, the Napa River still has intact populations of steelhead trout and fall run Chinook salmon as well as an array of other wildlife that depends on the riparian forest.

Napa River Restoration-Design Process

Conceptual Design for Restoration of Geomorphic and Ecological Processes

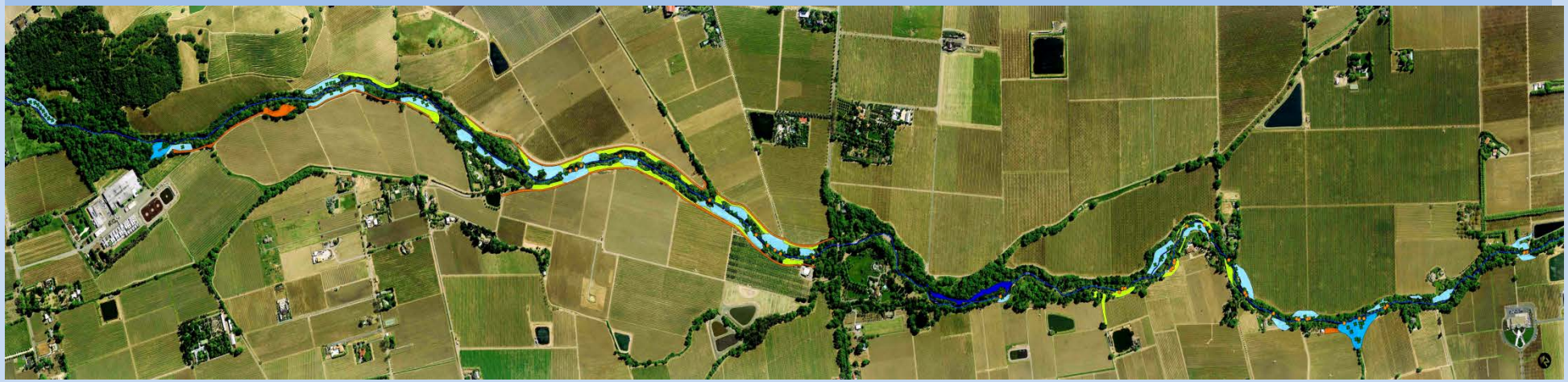




Instead of cutting continuous floodplain benches we have created a series of expansion areas separated by narrower sub-reaches. The expansions and contractions break up the existing long glides and force riffle-pool formation. Pools create summer thermal refugia while riffles create spawning habitat. Expansion areas also provide high velocity refugia for juvenile fish and a location for fine sediment to settle out.

Napa River Restoration Rutherford Project 2009-2015

Napa County Public Works



Expanded Riparian Corridor | Setback Berms | Floodplain Benches | Tributary Alcove | Instream Structures

- 3,054 Feet of Secondary Channels Created
- 31 Acres of Riparian Forest Enhanced
- 17 Acres of Slow Water Aquatic Habitat Created
- 2.5 Miles of Channel Widened
- 147 Instream Habitat Structures Installed
- 3.25 Acres of *Arundo donax* Eradicated
- 29 Landowners Participating and Funding Ongoing Monitoring and Maintenance Through an Assessment District

Reach 4 west bank stabilization during November 2012 high flow event

Reach 4 west bank stabilization March 2013

Project Monitoring

Project Maintenance

Cakebread Alcove

Rutherford Reach

Reach 8 South, Cakebread Alcove Detail

LWD

Boulder Cluster

Confluence Napa River and Bella Oaks Creek

Napa River Restoration

Laird Property Rutherford Reach

Napa River Restoration

Honig Property Rutherford Reach

October 2011

March 2012

April 2018

Reach 9, Opus One Bench 3, Upstream to Downstream, West Bank

July 2014

December 2016

June 2015

April 2018

Reach 9, Opus One Bench 3, Downstream to Upstream, West Bank

July 2014

December 2016

June 2015

April 2018

Bank Stabilization: Sequoia Grove, West Bank

2011

December 2012

October 2012

April 2018

Beaver Dams, Bank Repair, LWD Structures

Beaver Dam, Reach 3, 06/2018

LWD Structure, Reach 3 East Bank, 06/2018

Bank repair, Frogs Leap, Reach 4, 06/2018 - Before

10/2018 - After

Napa River Restoration-Oakville to Oak Knoll Project

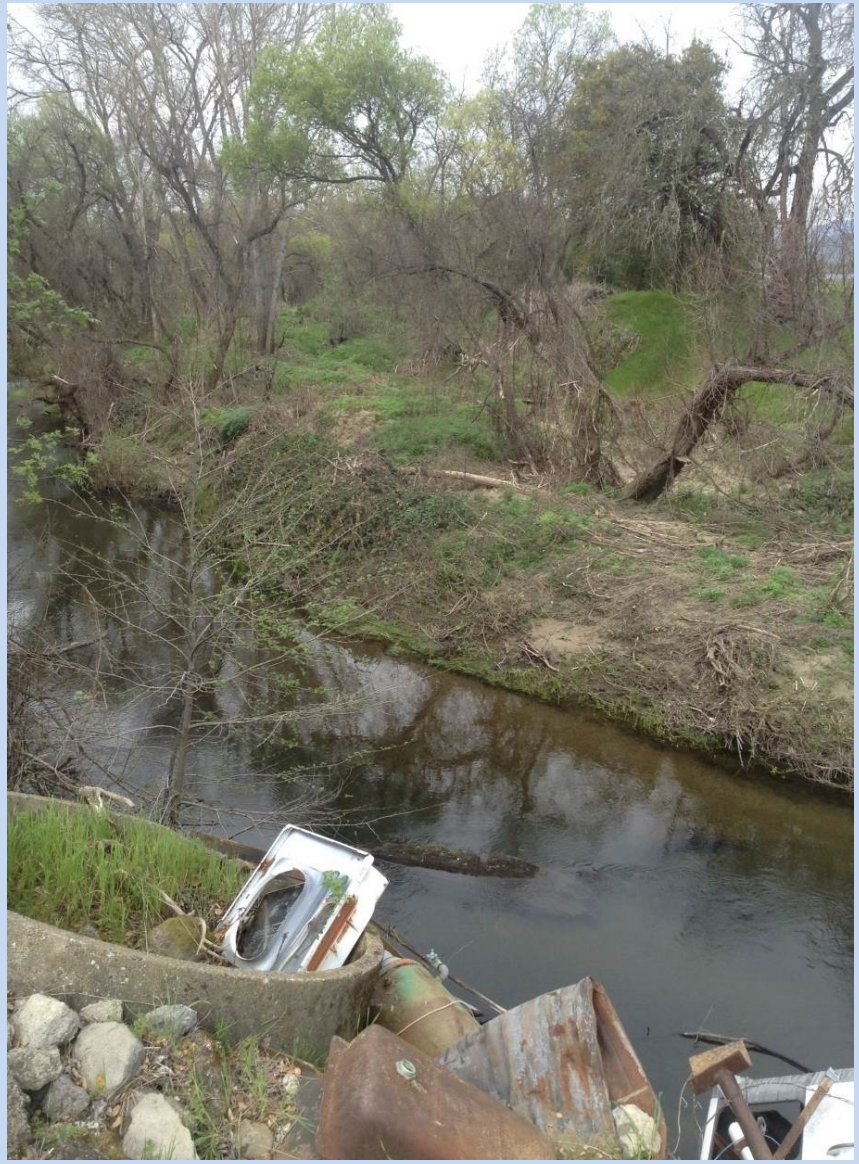
2016-2023

Expanded Riparian Corridor | Setback Berms | Floodplain Benches | Tributary Alcove | Instream Structures

- 1,000 Feet of Secondary Channels Created
- 56 Acres of Riparian Forest Enhanced
- 2.4 miles of Channel widening along the 9 miles OVOK Reach
- 200 Instream Habitat Structures Installed
- 5 Acres of *Arundo donax* Eradicated
- 15 Landowners Participating and Funding Ongoing Monitoring and Maintenance through a Community Facilities District

Napa River Restoration

Oakville to Oak Knoll Reach Group A



Group A, Site 21

July 2016

September 2016

January 2017

May 2018

Napa River Restoration

Oakville to Oak Knoll Reach Group C

Group C, Site 13

September 2017

November 2017

April 2018

Group C, Site 14

November 2016

April 2017

April 2018

Group C, Site 14

April 2017

OVOK Group C Site 13 - April 2019

CONTINUING RESTORATION POST MEASURE A

Active Restoration Costs

Project Scale

Managed Retreat

Grant Timing and Match

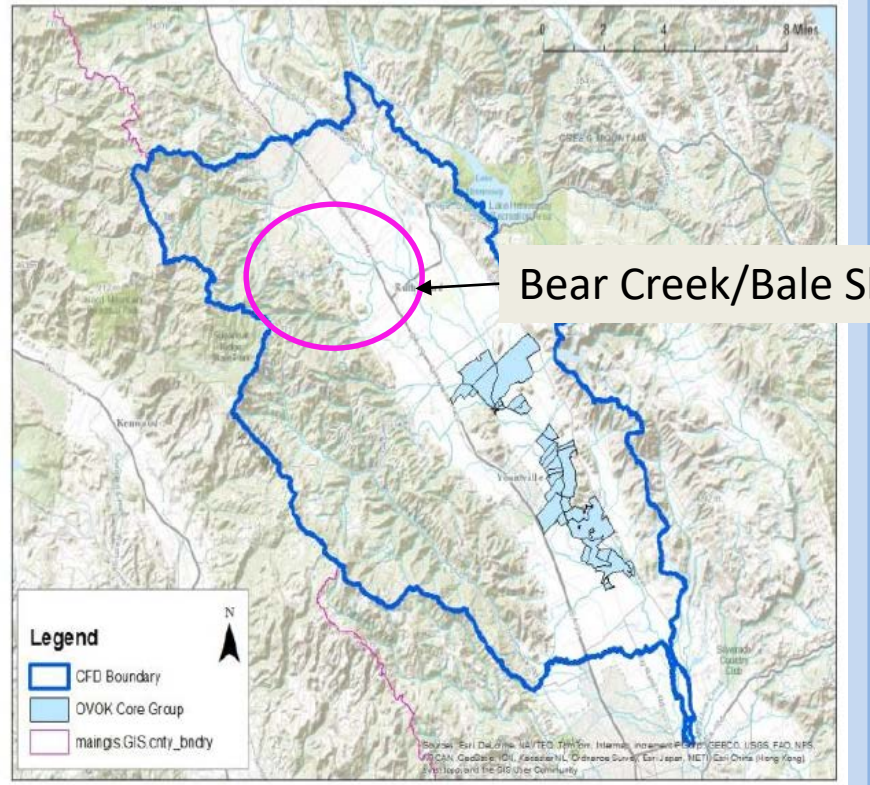
Long-term Maintenance Funding:
Oakville Community Facilities District

Overview:

Funding mechanism to support restoration project planning, implementation, monitoring and maintenance along the Napa River and it's tributaries.

Funding:

Base Special Tax		
Parcel Classification	Linear Foot Rate	Restoration Linear Foot Rate
Maintenance Parcel	$0.88	---
Monitoring Parcel	$0.24	---
Restoration Project Parcel	---	$1.17
Optional Service Special Tax		
Riparian Enhancement	---	$75.00
Streambank Enhancement	---	$200.00
Restoration Planning, Design, & Permitting	---	$250.00
Restoration Implementation	---	$1,000



Bear Creek/Bale Slough Project