

# Napa River Restoration Oakville to Oak Knoll Project

## Napa River Watershed Restoration Cluster

Napa County, Napa County Flood Control & Water Conservation District, California Land Stewardship Institute, ESA PWA, Horizon Water & Environment

### Abstract

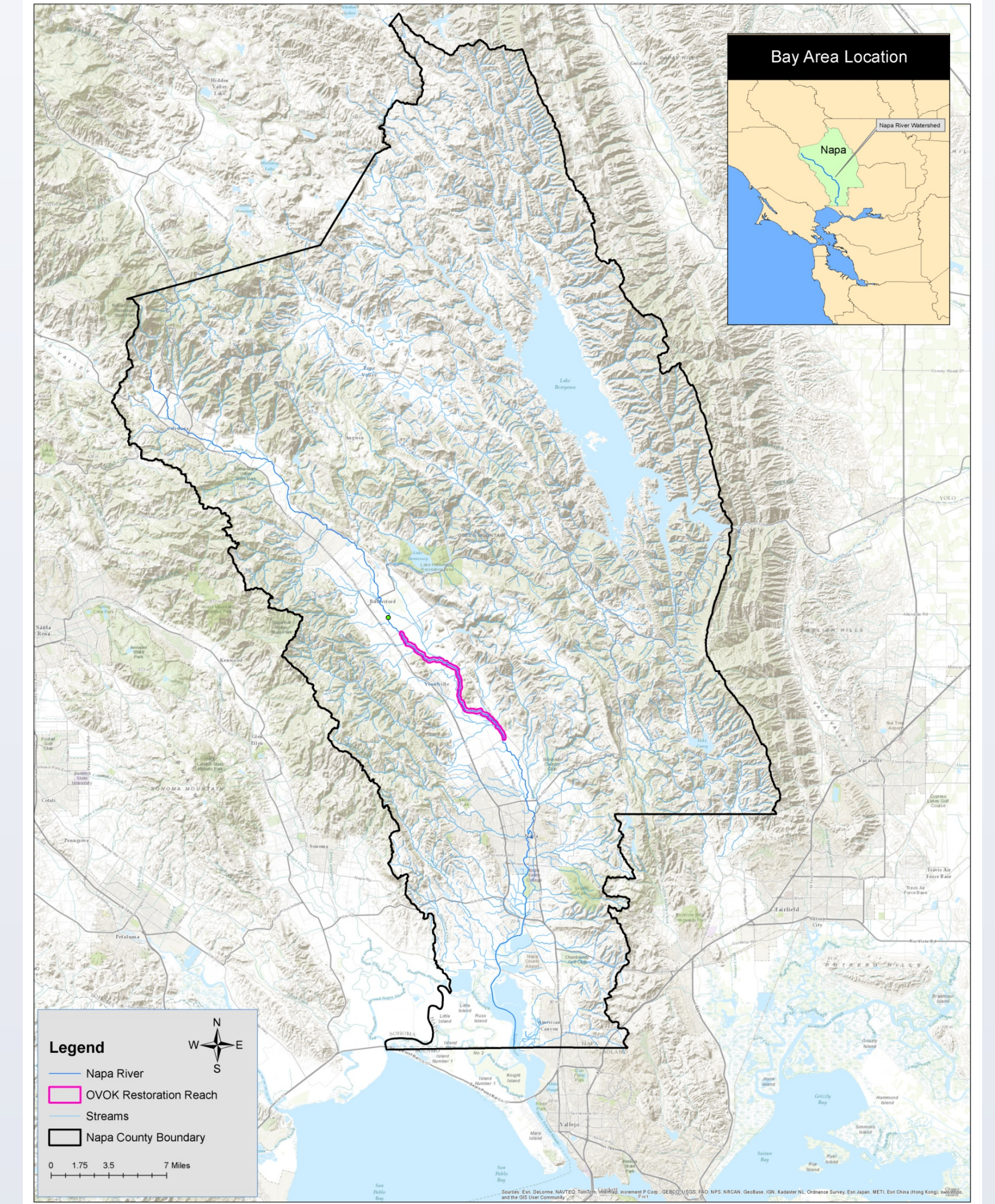
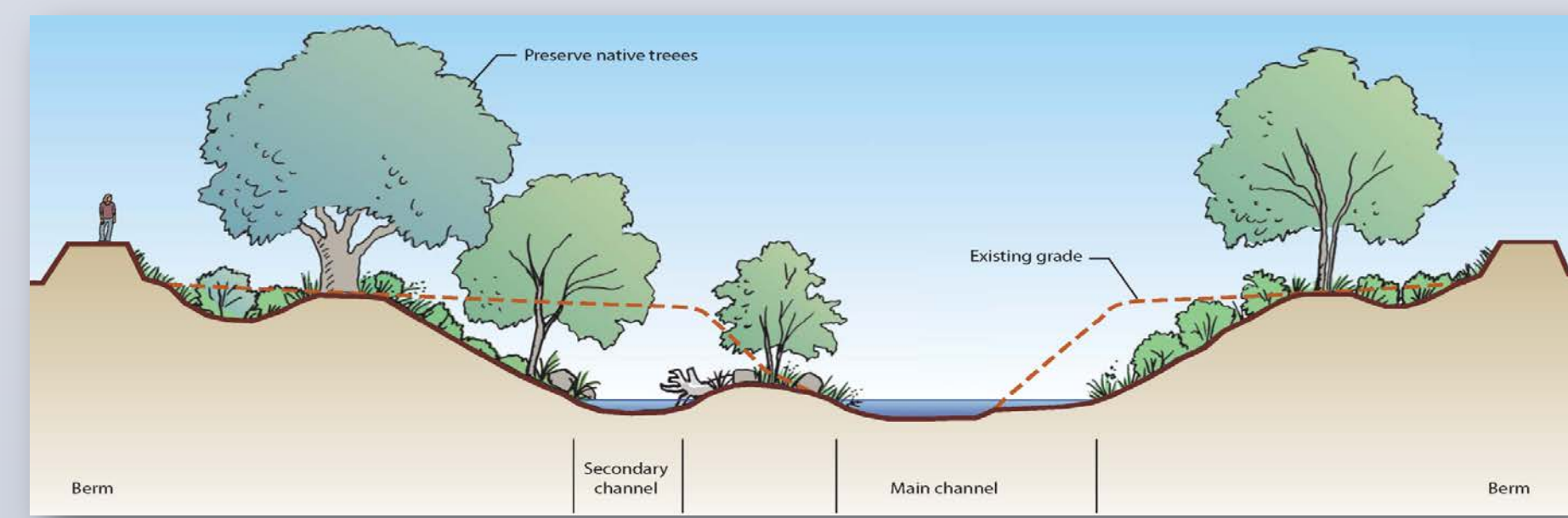
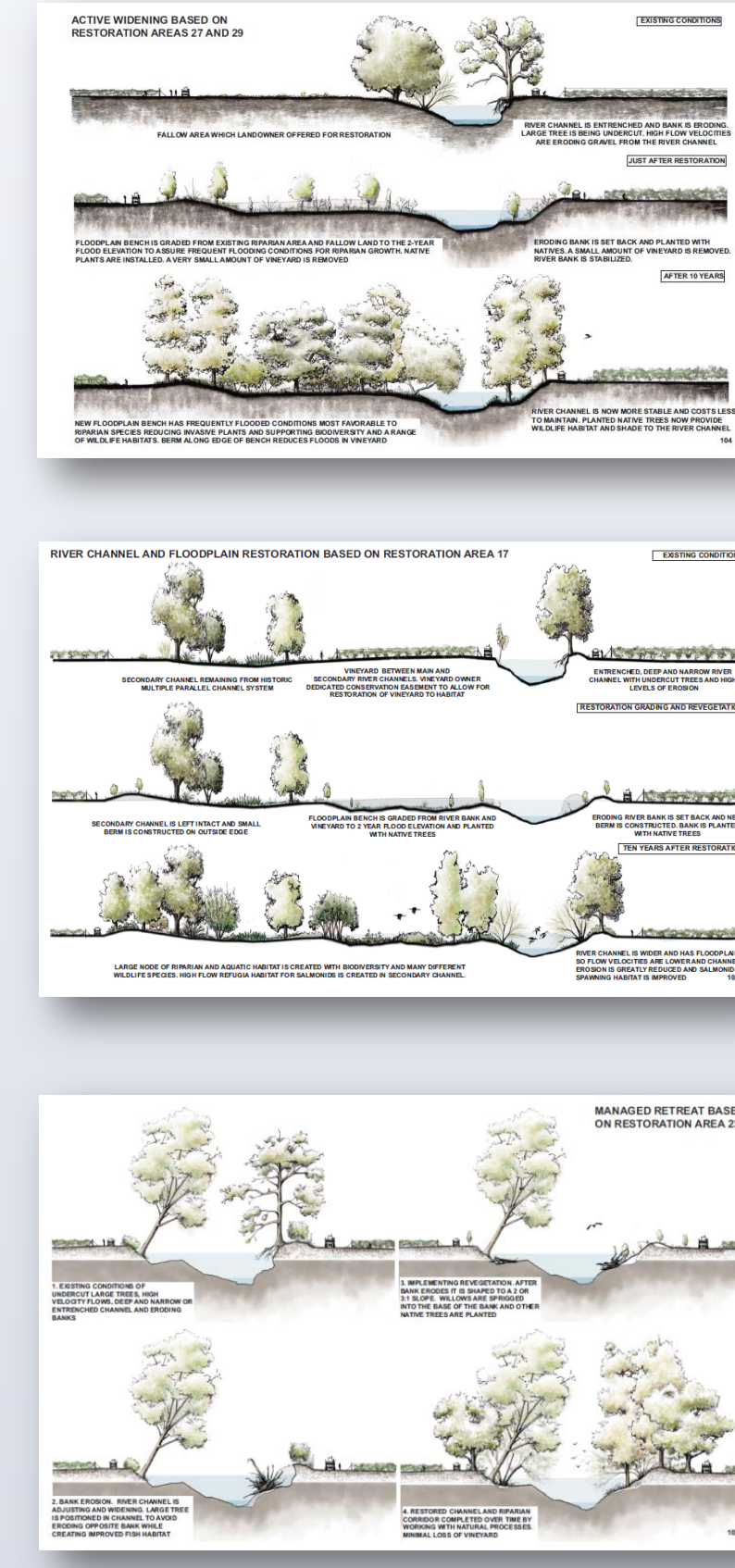
The Napa River Restoration: Oakville to Oak Knoll Project (Project) is being developed to restore 9 miles of the Napa River that suffers from channel incision with bank failure, erosion of channel bedforms (riffles, bars, pools) important to salmonids, and a limited riparian corridor due to the lack of a functional floodplain. Initiated in 2007 by the California Land Stewardship Institute, this private-public partnership with Napa County is working to achieve voluntary participation among all 34 riverside landowners. The project is at the 30% design stage, with construction anticipated to begin in 2015. Over the past year extensive biological, geotechnical, cultural, and geomorphic studies have been completed; a Basis of Design has been developed; 28 restoration projects have been designed; a landowner advisory committee (LAC) has been formed; and 5 acres of *Arundo donax* has been treated. Specific structural restoration elements of the project include channel widening, floodplain and secondary channel restoration, and addition of large wood and boulder features that will support resilient geomorphic processes and associated habitats. Secondary components of the project include biotechnical stabilization, vegetation management, and site revegetation. Additionally, a long term channel monitoring and maintenance program is being developed by the Napa County Flood Control and Water Conservation District in collaboration with river front landowners.

### Project Goals & Objectives

- The goals and objectives of the Project include:
- supporting the sediment reduction and habitat enhancement goals of the Napa River Sediment Total Maximum Daily Load (TMDL); and
  - minimizing the need for ongoing channel stabilization and repair work by establishing a more self-sustaining and resilient channel with fewer required maintenance actions;
  - enhancing geomorphic processes and channel forms that support and maintain more diverse and complex instream habitat conditions;
  - increasing river and floodplain connectivity and interactions where possible;
  - increasing and enhancing riverine, riparian, and floodplain habitat functions, with a focus to improve habitat for fish and wildlife;
  - removing invasive non-native vegetation and replanting with native vegetation that will not promote Pierce's disease in vineyards;
  - coordinating with landowners to address their interests with regard to agricultural land use and operations along the river.

### Restoration Elements

- Floodplain Restoration
- Biotechnical Bank Stabilization
  - Willow Baffles
  - Live Willow Brushmats
- Channel Widening
  - Floodplain Benches
  - Alcoves & Secondary Channels
  - Berm & bank Setback
- Instream Habitat Complexity
  - Large Wood Structure
  - Large Wood Structure Complex
  - Grade Control Structure
  - Roughness Boulders
  - Gravel Augmentation
- Vegetation Management
  - Invasive Species
  - Pierce's Disease Host Plants
- Managed Retreat
- Comprehensive Native Plant Revegetation



### Status

#### Project Documents Completed

- ✓ Conceptual Design Report
- ✓ Basis of Design Report
- ✓ 30% Design Plans
- ✓ Draft CEQA Document

#### Technical Studies Completed

- ✓ Fisheries Analysis
- ✓ California Fresh Water Shrimp Habitat Mapping
- ✓ Napa River Ecological Reserve Biological Report
- ✓ Geotechnical Investigation & Geological Mapping
- ✓ Soil Testing & Analysis
- ✓ Detailed Topographic Mapping
- ✓ Detailed 1D Hydraulic Model (HECRAS)
- ✓ Ecohydrology-Flow & Stage Duration Analysis
- ✓ Detailed Thalweg Profile Survey
- ✓ Cultural Resources Review & Analysis

### Acknowledgements

#### Funding Agencies

State Water Resources Control Board, EPA San Francisco Bay Water Quality Improvement Fund, California Department of Fish and Wildlife, Napa County Measure A

#### Technical Team

ESA PWA, Horizon Water and Environment, Restoration Resources, Cramer Fish Sciences and Doble Thomas & Associates, A3 Geo, Pacific Legacy, Basin Research, Stillwater Sciences, Napa County Resource Conservation District, Napa County, Napa County Flood Control and Water Conservation District, California Land Stewardship Institute



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### Project Summary

The Project includes 4.8 miles of active channel restoration activities along 9 miles of the mainstem Napa River between the Oakville Cross Road Bridge and the Oak Knoll Avenue Bridge. The purpose of the Project is to restore and enhance long-term river and floodplain functioning, improve the quality and sustainability of aquatic and terrestrial riparian habitats, and reduce property damage and sediment delivery associated with ongoing bank erosion processes.

The Project includes restoration actions and features to enhance the river channel, widen the riparian corridor, reduce bank erosion, improve the quality and longevity of aquatic and terrestrial habitat, and enhance overall channel and floodplain function along the Napa River. The Project would encompass 115 acres in total. The Project features rededication of approximately 42 acres of vineyards on privately-owned lands adjacent to the Napa River to support approximately 88 acres of active grading and restoration of 90 acres of transitional riparian and channel habitats.

